

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEARMAP US, INC.,
Petitioner

v.

EAGLE VIEW TECHNOLOGIES, INC.,
Patent Owner

Case IPR2024-00716
Patent 10,671,648

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT No. 10,671,648**

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LIST OF EXHIBITS

Exhibit	Description
EX1001	U.S. Patent No. 10,671,648
EX1002	U.S. Patent No. 10,671,648 File History
EX1003	Declaration of Cyrus Shahabi, Ph.D.
EX1004	U.S. Patent No. 9,501,507 (Harris)
EX1005	U.S. Patent Pub. No. 2009/0132316 (Florance)
EX1006	U.S. Patent No. 8,401,877 (Salvagio)
EX1007	U.S. Patent No. 8,260,775 (Ahn)
EX1008	Samet, H., “Foundations of Multidimensional and Metric Data Structures” (2006)
EX1009	U.S. Pub. No. 2016/0210326 (Tolman)
EX1010	U.S. Patent No. 9,927,941 (Steimle)
EX1011	U.S. Patent Pub. No. 2009/0063424 (Iwamura)
EX1012	Plaintiffs’ Opposition to Defendants’ Motion to Dismiss Based on Unpatentability Under 35 U.S.C. § 101, Dkt. 297, <i>Eagle View Technologies Inc., and Pictometry International Corp v. Nearmap US, Inc., Nearmap Australia Pty Ltd, and Nearmap Ltd</i> , C.A. No. 2:21-cv-00283-TS-DAO (D. Utah May 16, 2023)
EX1013	<i>U.S. District Courts—National Judicial Caseload Profile</i> , available at https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_distprofile1231.2023.pdf (Dec. 31, 2023)
EX1014	Fourth Amended Patent Case Scheduling Order, Dkt. 372, <i>Eagle View Technologies Inc., and Pictometry International Corp v. Nearmap US, Inc., Nearmap Australia Pty Ltd, and Nearmap Ltd</i> , C.A. No. 2:21-cv-00283-TS-DAO (D. Utah Dec. 27, 2023)
EX1015	Gotlieb, L., “Computing Joins of Relations,” SIGMOD ’75: Proceedings of the 1975 ACM SIGMOD international conference on Management of data (May 1975)
EX1016	Declaration of Sayem Osman

Nearmap US, Inc. (“Petitioner”) petitions, under §§311-319 and §42.1,¹ for IPR of Claims 1-2, 4-6, 9-13, and 15 (“Claims”) of U.S. Patent 10,671,648 (“’648”), owned by Eagle View Technologies, Inc. There is a reasonable likelihood at least one Claim is unpatentable, and Petitioner requests review of, and judgment against, claims 1-2, 4-6, 9, 13, and 15 under §102, and all claims under §103.

The Claims generally concern concepts well-known long before ’648’s earliest-claimed February 22, 2016 priority date: ***aggregating data*** associated with a ***geographic location identifier*** and a ***time identifier, receiving a query*** regarding a geographic location and including time information, ***retrieving data items matching*** the query, and ***outputting*** those retrieved data items. In essence, ’648’s inventors sought to claim collecting and storing information in a database by geographic location and time—despite this already being common in the art. Indeed, each of ’648’s claimed concepts, including the “geographic location identifiers” and query regarding “geographic locations” the Examiner was led to believe were lacking in the art, were actually well known. The Claims’ remaining

¹ Sections are from 35 U.S.C./37 C.F.R. as context indicates, and emphasis/color annotations added and internal quotations/citations omitted unless noted.

limitations merely catalog trivial implementation choices well understood by

POSITA²—and the resulting combinations were certainly obvious.

I. '648 PATENT

A. Overview

'648 simply concerns gathering and arranging information by location and time: “aggregating information associated with all geographic points on the earth, where the information is captured from distributed data sources and integrated into a centralized database that may be queried.” EX1001, 1:8-11, cls.1, 9, 12, Fig.1; EX1003, ¶35:

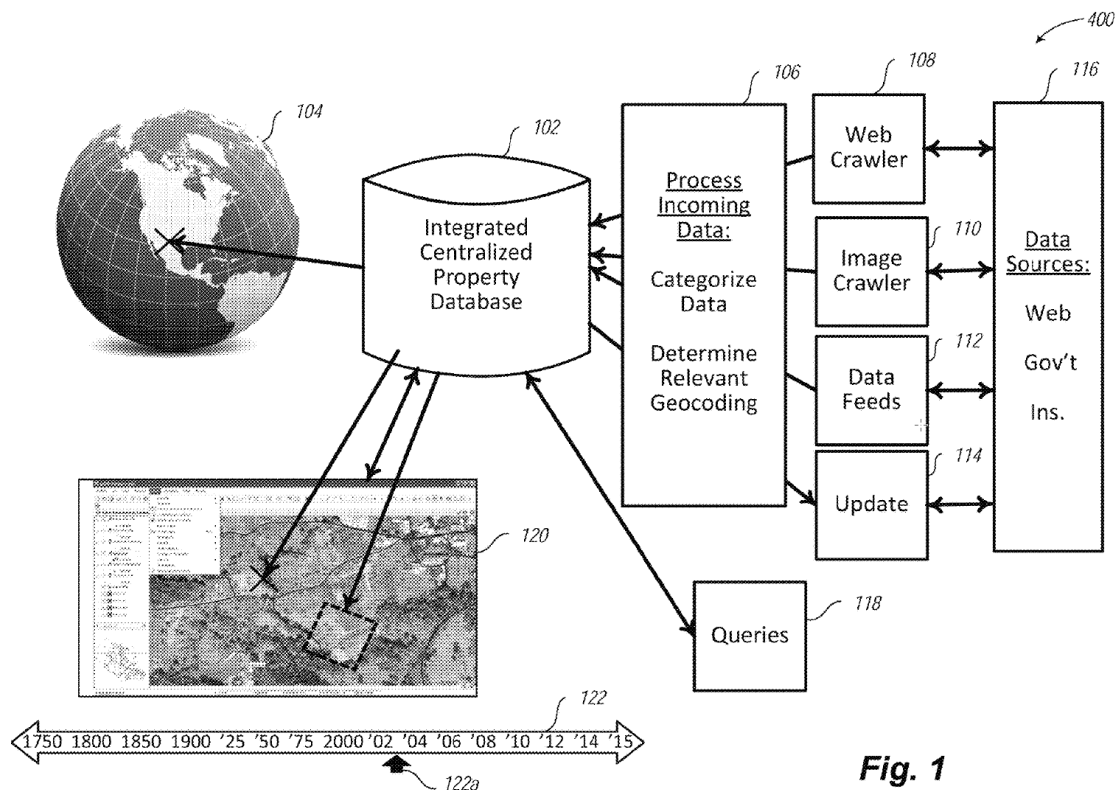


Fig. 1

² Persons of ordinary skill in the art as of February 22, 2016. See §VI.B.

'648's claims generally require storing information in a data aggregation system, where the stored data is associated with a *geographic location identifier* of a particular geographic point on earth—*e.g.*, latitude and longitude, “property street address, a parcel identifier, a ZIP code, a city, county, or state designation” or a “region identifier such as a climate zone, a marketing area, or a bounded area of a particular event such as a hailstorm or fire,” EX1001, 1:51-53, 9:42-50—and a *time identifier*—*e.g.*, “Date/Time” or “Range of Dates/Times,” EX1001, Fig.2—including one or more time or time periods indicative of a time history regarding the associated geographic point on earth, receiving a query regarding a geographic location and time information, retrieving from the system data matching the query, and outputting the retrieved data items. EX1001, 3:52-65, cls.1, 9, 12; EX1003, ¶36.

B. Prosecution

'648's application was filed February 22, 2016. EX1002, 1. PO overcame an initial anticipation rejection based on Tolman (EX1009) by amending the claims to add stored “time identifiers” and queried “time information” limitations. EX1002, 138-140; EX1003, ¶38. PO next overcame a rejection based on Tolman in view of Steimle (EX1010) by amending the claims to require the stored data items be associated with a “geographic” location identifier and “includ[e] one or

more time or time periods, indicative of a time history of an associated data item regarding the associated geographic point on earth.” EX1002, 194; EX1003, ¶38.

The Examiner’s final rejection was based on Tolman in view of Iwamura (EX1011). EX1003, ¶39. PO overcame that rejection by arguing, *inter alia*, that Tolman does not disclose “geographic location identifiers” or a query regarding a “geographic location” and that Iwamura does not fill that gap because it lacks “a time history of an associated data item *regarding the associated geographic point on earth*,” as—instead of disclosing geographic location identifiers and queries regarding a “geographic location”—Iwamura discloses a history of building configurations (such as a building name or tenant). EX1002, 230-233 (italics original); EX1003, ¶39. The Examiner then allowed the claims. EX1002, 244-251; EX1003, ¶39.

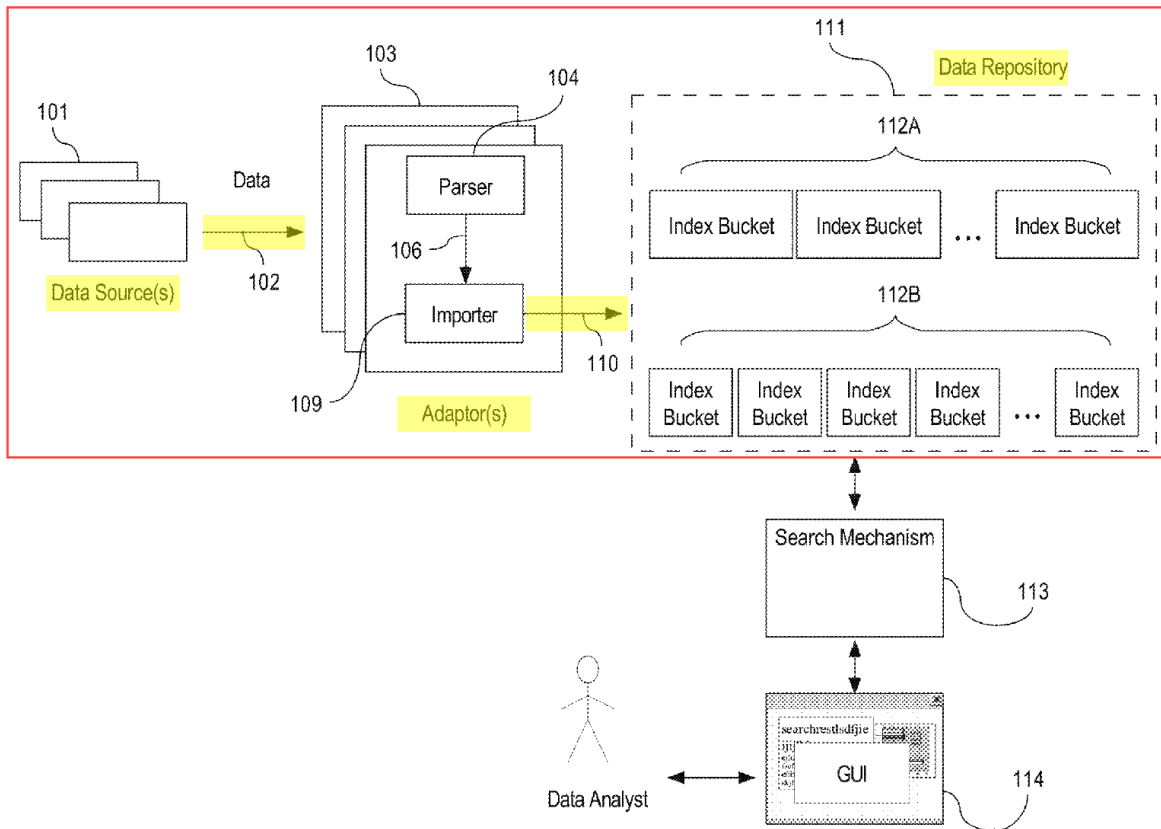
II. BACKGROUND ART

As discussed, the Examiner allowed ’648 believing the art lacked “geographic location identifiers” or a query regarding “geographic locations.” EX1002, 244-251. But, along with the claims’ other limitations, these were well known long before ’648. *E.g.*, EX1003, ¶¶18-33:

1. **Aggregating data** associated with a **geographic location identifier** and **time identifier** in a **data aggregation system or integrated centralized property database**:

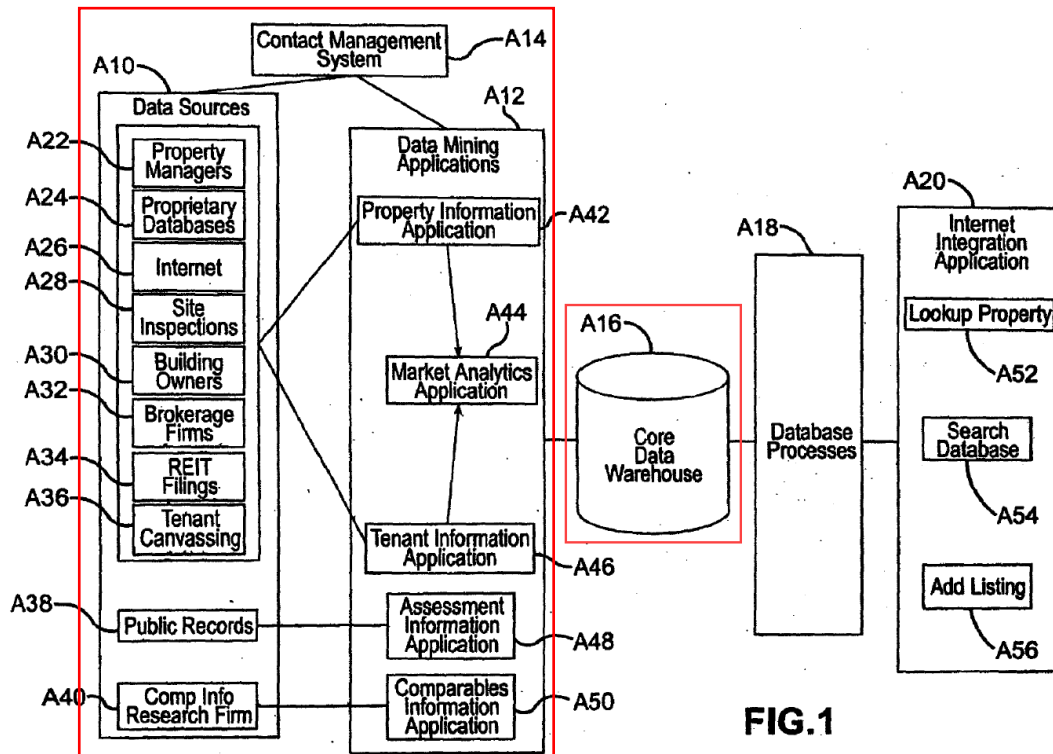
- U.S. Patent 9,501,507 (primary reference “**Harris**” (EX1004), filed December 27, 2012) disclosed aggregating data associated with a geographic location identifier and time identifier, describing “analyzing data *object collections* that include *geo-temporal data*,” which (1) “may be obtained from... *multiple disparate data sources*” like “network traffic logs, bank transaction records, phone call records, crime data, or *any other data that includes both a geospatial and temporal component*”— *e.g.*, “values representing a longitude and latitude” and “one or more values indicating a point in time or range of time”; and (2) “is *received and indexed in a data repository*.” EX1004, Abstract, 1:21-37, 2:50-67, 3:1-11, Figs.1 (“Data Repository” storing “input data 102” obtained from “Data Source(s),” including “geo-temporal data”; “Adaptor(s)” “configured to ingest geo-temporal data” and “Importer” to produce “key-value pairs 110”), 3; EX1003, ¶¶20-21:

FIG. 1



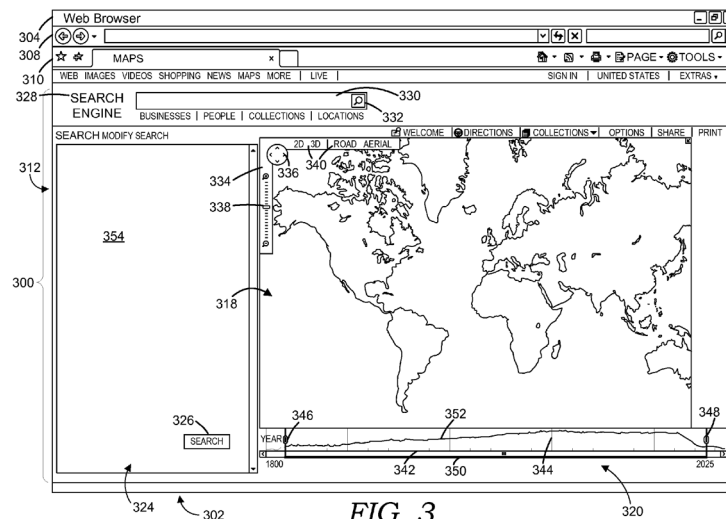
- U.S. Pub. 2009/0132316 (secondary reference “**Florance**” (EX1005), published May 21, 2009) disclosed a system aggregating geo-spatial and temporal data, including “a *comprehensive database of information...* relevant to commercial real estate transactions” “*obtained and assimilated [from] over 50 proprietary databases.*” EX1005, ¶¶55, 101, 102. Florance discloses, *e.g.*, storing information about a particular “property” including geographic location identifier data like “latitudes and longitudes associated with the property,” “the block/lot of the property, and the parcel number,” as well as providing the property’s

“history.” EX1005, ¶¶93, 304, 397, 602, 611, Fig.1 (showing “Data Sources” and “Core Data Warehouse” aggregating geospatial and temporal information); EX1003, ¶22:



- U.S. Patent No. 8,401,877 (secondary reference “**Salvagio**” (EX1006), issued March 19, 2013) disclosed aggregating data associated with a geographic location identifier and a “property database” searchable by geographic location identifiers like “street address, city, state, ZIP code.” EX1006, Abstract, 10:48-55; EX1003, ¶23.
- U.S. Patent No. 8,260,775, titled “**Geotemporal Search**” (“**Ahn**” (EX1007), issued September 4, 2012) disclosed aggregating data associated with a geographic location identifier and time identifier,

including “*upload[ing content]*” from “a content provider” to “*search database*,” and “search results... *includ[ing] associated metadata indicating a relationship with a location and time....*” EX1007, 2:29-31, 4:58-5:4, Fig.3; EX1003, ¶24:



2. Receiving a query regarding a geographic location and/or including time information, retrieving data items matching the query, and outputting the retrieved data items:

- Harris disclosed querying geographic location and time information, retrieving matching data items, and outputting them: its “system allows a data analyst to *specify... geo-temporal queries that include both [a] geospatial component and a temporal component... and retrieve[s] data*

items based on temporal index bucket groups” and “provides as output a set of search results.” EX1004, Abstract, 4:44-59, 9:38-46, 10:24-48 (“results returned... *satisfy the geospatial component of the query*”), 10:59-11:9, Fig.1 (double arrows indicating data retrieval), Fig.4; EX1003, ¶28:

FIG. 1

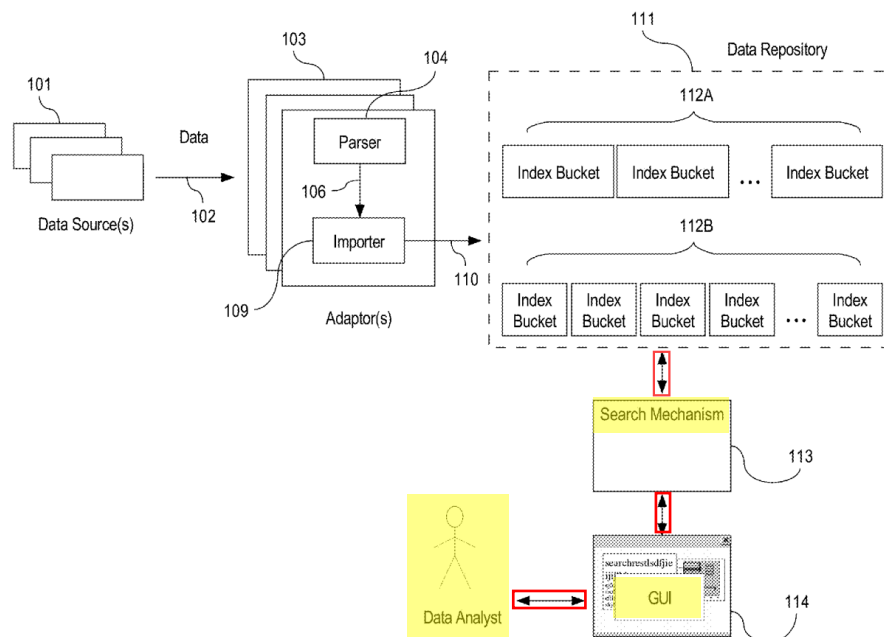
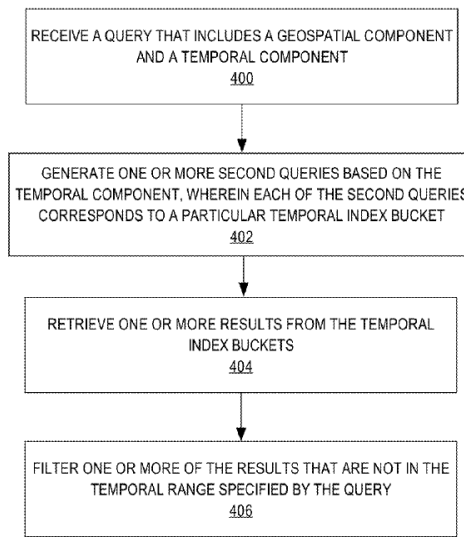


FIG. 4



- Florance disclosed searching by geographic location and time and retrieving/outputting matching items: a “database searchable by... parameters such as *location*” and “*geographically pertinent information*” (EX1005, ¶¶61, 80, 85 (“based on market criteria (e.g., *geographic region*) and information type”), 264 (“user selects... search area by *drawing... on a map*”)), including *time* (*id.*, ¶533 (search results showing “graph plotting three-year vacancy rates for the properties meeting the search criteria”), Fig.104 (selectable dropdown menu showing “3 Years” time period)) and *outputting the results*; EX1003, ¶29:

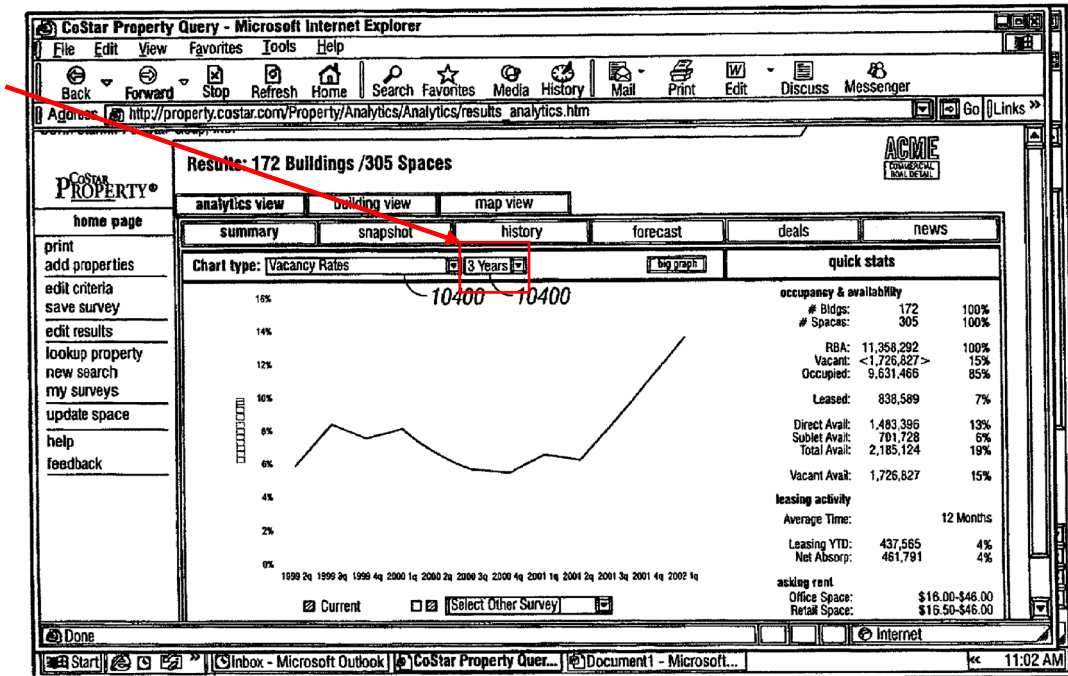


FIG. 104

- Salvagio disclosed searching by geographic location and retrieving/outputting matching results: “one or more *databases...* *searched based on the user input*”—e.g., “*user input identifying one or more properties,*” including, e.g., “a street address, city, state, zip code” (EX1006, 10:48-54, Fig.14), and “*display[ing]*” “*information corresponding to each of the one or more properties found in the search...*, enabling the user to access and *view the results...*” EX1006, 10:48-57, 11:19-21 (“searching a database... locating and *retrieving records about the property*”), Figs.12a, 14 (interface for searching, viewing property records); EX1003, ¶¶30-31:

FIG. 14

**COMPANY1 Insurance
Client Web Portal**

Repossession
Foreclosure
Data
Logout

> Foreclosure

Search

Address: XXX AAA BLVD.

City: CITY

State: STATE

Zip: XXXXX

Loan #: XXXX-XXXX-XXXX-X

Work Order #: XXXX-XXXX-XXXX-X

Claim #: XXXX-XXXX-XXXX-X

First Name: FIRST NAME

Last Name: LAST NAME

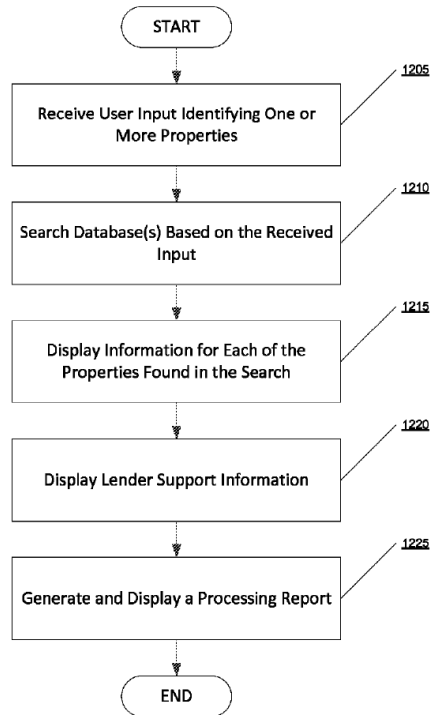
Submit Search Query

Results > 8 Records Found

Record	Loan No.	Work Order #	Report Date	Sub File #	Loss Type	Status	Number of Claims	Dispute?	Claim Amount Paid?
1	XXXXXXXX	XXXX	1/1/08	XXX	No Dmg	No Damage Indicated	0	N	
2	XXXXXXXX	XXXX	2/5/08	XXX	No Dmg	Duplicate	0	N	
3	XXXXXXXX	XXXX	5/7/08	XXXX	Fire	Claim Filed	1	N	
4	XXXXXXXX	XXXX	5/7/08	XXXX	Vandalism	Closed with Payment	2	Y	\$7,256.00

Print Results
Export Results

FIG. 12a



- Ahn disclosed searching by geographic location and time and retrieving/outputting results: a “*geotemporal search*” “employ[ing] a

selection of a geographic location along with a temporal window, e.g., a period of time” (EX1007, Abstract, 1:23-26, 4:18-32, 5:63-6:3, Figs.2-5, 8), and *“candidate search results that are relevant or associated with the selected location and time are identified and presented to a user.”*

EX1007, 2:10-16; *see also* EX1007, Abstract; EX1003, ¶32:

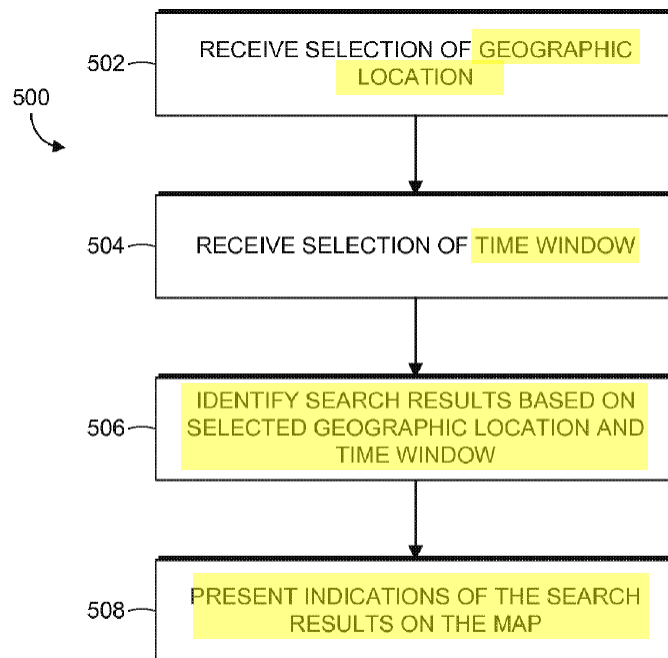


FIG. 5.

III. MANDATORY NOTICES (§42.8)

Petitioner and Real-Parties-in-Interest (§42.8(b)(1)): Nearmap US, Inc., is sole petitioner and Nearmap Australia Pty Ltd, and Nearmap Pty Ltd are real parties-in-interest.

Related Matters (§42.8(b)(2)): PO asserted '648 against Petitioner in *Eagle View Technologies Inc., and Pictometry International Corp v. Nearmap US, Inc., Nearmap Australia Pty Ltd, and Nearmap Ltd*, C.A. No. 2:21-cv-00283-TS-DAO (D. Utah).

Lead and Back-Up Counsel and Service Information (§§42.8(b)(3)-(4)):

Lead: J. Steven Baughman (Reg. No. 47,414), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 801 17th Street, NW, Suite 1050, Washington, DC, 20006 P: (202) 505-5830 /F: (202) 595-0359, steve.baughman@groombridgewu.com. Backup: Megan Raymond (Reg. No. 72,997), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 801 17th Street, NW, Suite 1050, Washington, DC, 20006 P: (202) 505-5830 /F: (202) 595-0359, megan.raymond@groombridgewu.com, Michael F. Milea (Reg. No. 71,863), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 565 5th Avenue, Suite 2900, New York, NY 10017, P: 332-269-0029, mike.milea@groombridgewu.com, Kyle N. Bersani (Reg. No. 81,013), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 565 5th Avenue, Suite 2900, New York, NY 10017, P: (332) 269-0024, kyle.bersani@groombridgewu.com. Service by email is accepted if sent to the above-identified email addresses and nearmap-IPR@groombridgewu.com. Mailing address for all PTAB correspondence: J. Steven Baughman, Megan Raymond, GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 801 17th

Street, NW, Suite 1050, Washington, DC, 20006 and Michael Milea, Kyle Bersani,
GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 565 5th Avenue, Suite
2900, New York, NY 10017.

IV. STANDING (§42.104(a))

Petitioner certifies '648 is eligible for, and Petitioner is not barred or
estopped from requesting, IPR. Neither Petitioner nor any RPI or privy was served
more than one year before this Petition or initiated a civil action challenging '648's
validity.

V. GROUNDS (§§42.22 and 42.104(b))

The Claims are unpatentable under AIA §§102 and 103:

Ground	Claim(s)	References/Basis
1	1-2, 4-6, 9, 12-13, 15	Anticipated by Harris
2	1-2, 4-6, 9, 12-13, 15	Obvious over Harris
3	9-10, 12- 13, 15	Obvious over Harris in view of Florance
4	11	Obvious over Harris in view of Florance and Salvagio

§VI.C.5 provides charts specifying how the art renders the Claims
unpatentable. In further support, the expert declaration of Dr. Cyrus Shahabi

(EX1003) is attached. *See also* EX1003, App’x C (expanded-quotation claim charts).

VI. DETAILED REASONS FOR RELIEF

There is a reasonable likelihood Petitioner will prevail with respect to at least one Claim (§314(a)), because claims 1-2, 4-6, 9, 12-13, and 15 are anticipated, and all Claims are obvious. EX1003, ¶¶54, 191, 197, 210, 235, 239, 248, 255, 264, 299, 329, 359, 362.

A. Claim Construction

In addition to the following, Petitioner herein construes all other terms per *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*); §42.100(b), presuming “ordinary and customary meaning [to POSITA] at the time of the invention.” *David Netzer Consulting Eng’r LLC v. Shell Oil Co.*, 824 F.3d 989, 993 (Fed. Cir. 2016):

“data aggregation system” (claims 1, 2, 5, and 6): **system that aggregates data from multiple distributed external data sources into a centralized database.** This is consistent with ’648’s description of the alleged invention as aggregating data from “various data sources” external to the claimed system, such as “government databases” and “other types of public or private data” that “may be located by web crawlers, image crawlers, data feeds or the like.” EX1001, 1:48-62, Fig.1.

Further, PO's arguments in litigation were consistent with this construction, asserting "data aggregation system" is narrow and specific: it "aggregates [title information, geographic characteristics, insurance policies in force, and building and utility information] records with appropriate geographic location and time identifiers to provide a time history of a particular geographic point on earth." EX1012, 5-7, 10, 12.

B. Level of Ordinary Skill

POSITA would at minimum have a bachelor's degree or higher in computer science, computer engineering, or an equivalent educational background, or at least five years of industry experience in software development. EX1003, ¶¶12-15. POSITA are presumed to have knowledge of all relevant art, and would thus have been familiar with each reference cited herein and its full range of teachings.

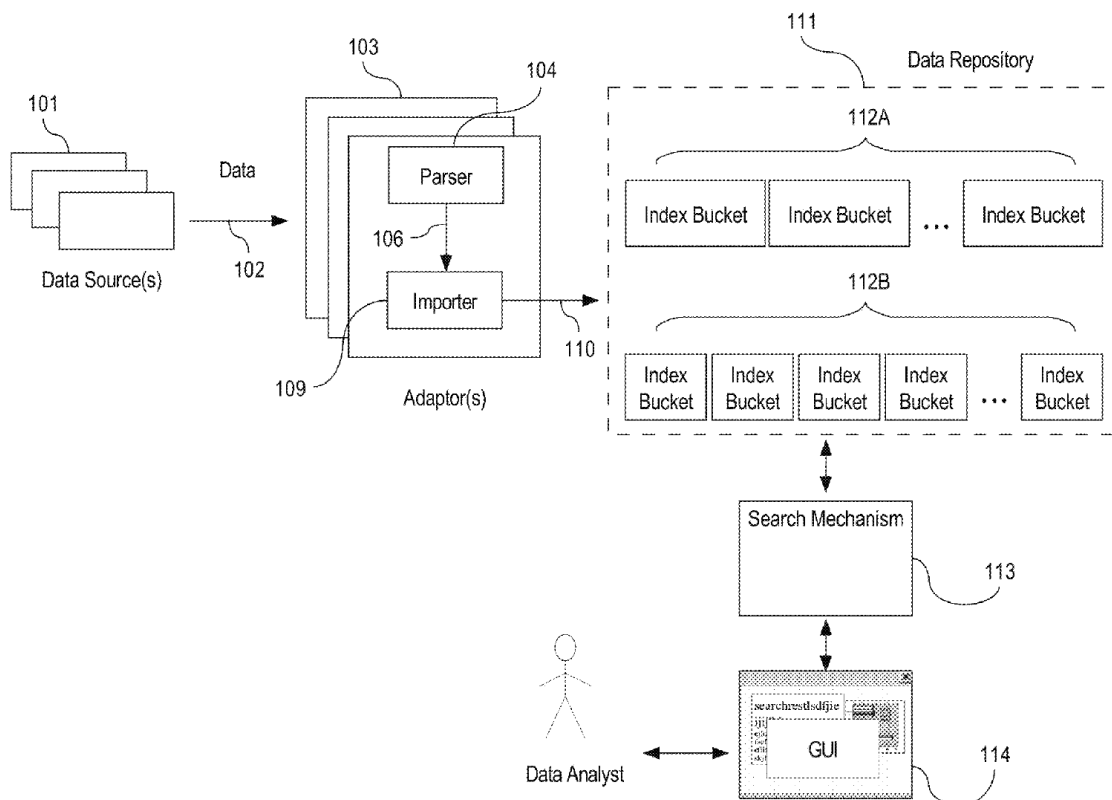
C. Anticipation and Obviousness Grounds

1. Harris (EX1004)—art under at least AIA §102(a)(2)

Harris ("Geo-Temporal Indexing and Searching") discloses systems and methods for "facilitating low latency searches of *large and dynamic data sets that include geo-temporal data*," including geo-temporal data indicating a particular point on earth and indicating a point in time or range of time. EX1004, 2:1-3, 2:54-58, 5:65-6:2 ("one or more numerical values specifying a longitude and latitude"); EX1003, ¶55. Harris further discloses its geo-temporal data includes property information, disclosing, *e.g.*, "stored data objects pertaining to a particular

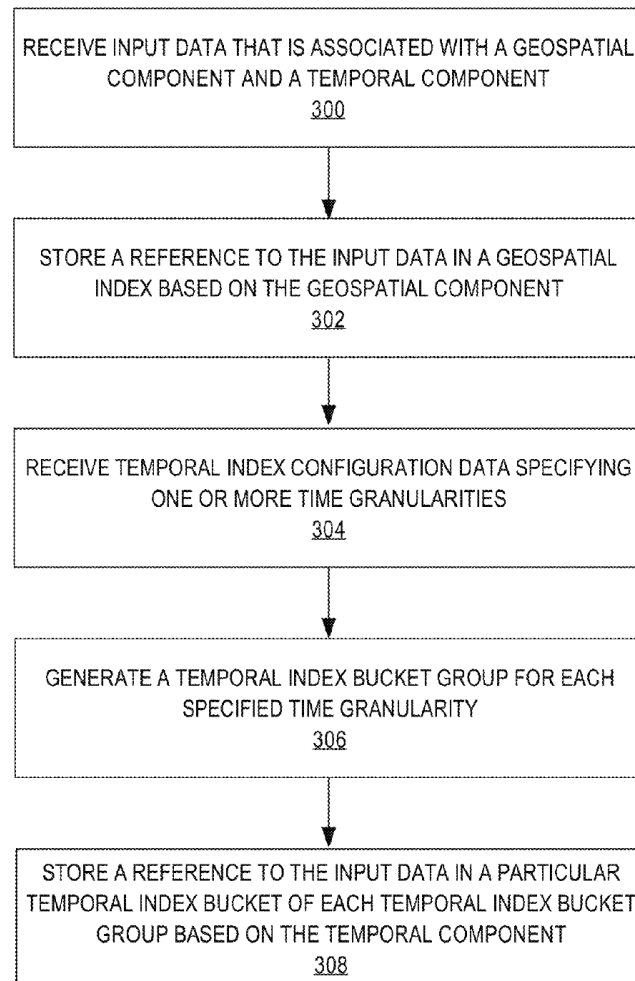
geographic area around *the user's home*,” EX1004, 9:56-61, and information about “access to a *building*,” EX1004, 4:21-25. EX1003, ¶56. Harris thus discloses aggregating data having a geo-spatial component (including a geographic location identifier) and temporal component for querying, including, *e.g.*, “computer systems and methods for *indexing and searching geo-temporal data* stored in a data repository,” EX1004, 2:50-53, and expressly discloses aggregating such data from multiple sources—“geo-temporal data may be obtained from potentially *multiple disparate data sources*,” EX1004, 3:1-11, Figs.1, 3, EX1003, ¶57:

FIG. 1



Harris makes clear its data includes both a geographic location identifier (including, *e.g.*, longitude and latitude) and a temporal component: “‘geotemporal data’ refers to any input data that includes one or more *values representing a geospatial component and one or more values representing a temporal component*,” including, *e.g.*, “numerical values specifying a *longitude and latitude or any other representation of a geographical location*,” and “*one or more points in time*,” including, *e.g.*, “years, months, days, hours, etc.” EX1004, 5:62-6:3, 7:60-62, Fig.3, EX1003, ¶58:

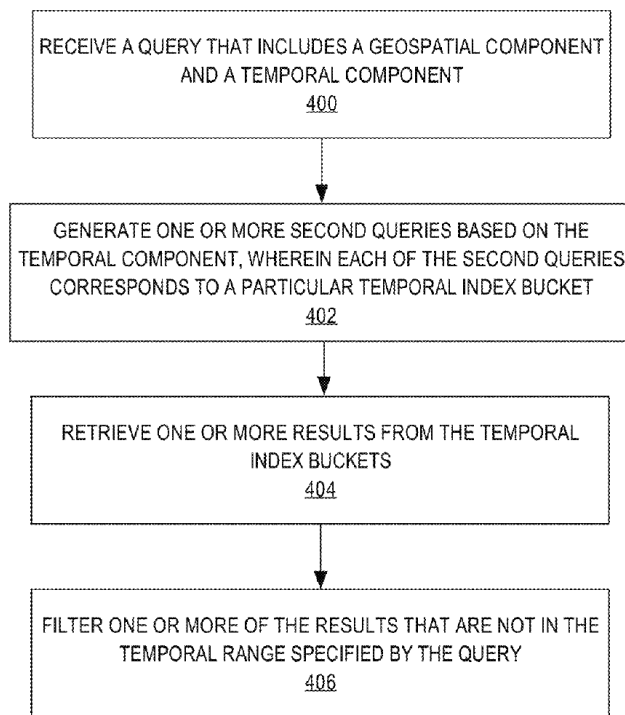
FIG. 3



Harris further discloses querying its aggregated data associated with one or more geographic location identifiers and time periods, explaining its system “allows a data analyst to specify geo-temporal queries that include both [a] geospatial component and a temporal component” and retrieves “data objects from... [temporal] index buckets that satisfy any geospatial component of the query.” EX1004, Abstract, 11:12-14; EX1003, ¶59. Harris expressly discloses its “*geo-temporal queries... specify one or more geospatial search parameters [e.g.,*

“latitude and longitude values that define a geographical area,” EX1004, 6:67-7:1]
corresponding to geographical areas of interest *and one or more temporal search parameters* corresponding to points in time or time ranges of interest,” EX1004, 4:44-59, Fig.4, EX1003, ¶60:

FIG. 4



Harris also describes that “search mechanism 113 receives as input a set of geo-temporal search parameters and *provides as output a set of search results.*” EX1004, 9:38-46; EX1003, ¶61.

Primary Reference Harris (all Grounds, all Claims) is relied on for its teachings relating to systems and methods for aggregating, querying, retrieving,

and outputting data items associated with geographic and time identifiers.

EX1003, ¶62.

2. Florance (EX1005)—art under at least AIA §102(a)(1)

Florance (“System and Method for Associating Aerial Images, Map Features, and Information”) discloses aggregating data associated with a geographic location identifier and time identifier in “a comprehensive database of information that is relevant to commercial real estate transactions” that has “obtained and assimilated over 50 proprietary databases,” EX1005, ¶55, including “property” information such as “latitudes and longitudes associated with the property,” “the block/lot of the property, and the parcel number” and “assessor parcel number, legal description, address.” EX1005, ¶¶304, 602; EX1003, ¶63.

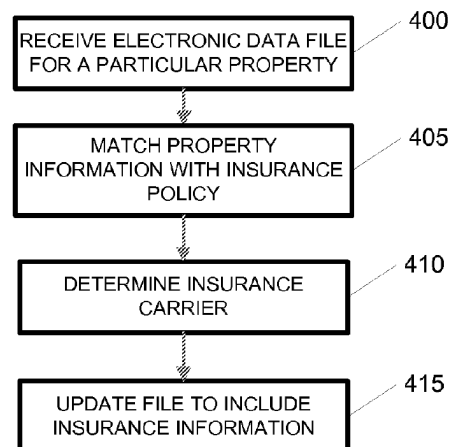
Secondary reference Florance (Grounds 3-4, Claims 10-11) is relied on for its teachings concerning property information, parcel information, and parcels stored in a database and associated with a geographic location identifier. EX1003, ¶64.

3. Salvagio (EX1006)—art under at least AIA §102(a)(1)

Salvagio (“Insurance Claim Processing”) discloses aggregating data (including, *e.g.*, insurance information and insurance policies) in a “property database” searchable by “street address, city, state, ZIP code.” EX1006, Abstract, 10:48-55; EX1003, ¶65. Salvagio further discloses storing “property-specific

information” such as “current location of the property,” and “insurance carrier, insurance policy number, the effective date of insurance, the maximum amount of coverage under the policy, the person who procured the insurance, [and] the expiration date of the policy.” EX1006, 6:5-19, 11:11-32, Fig.4 (showing “insurance policy” and “insurance information” related to “a particular property”), EX1003, ¶65:

FIG. 4



Secondary reference Salvagio (Ground 4, Claim 11) is relied on for its teachings concerning insurance policy information and insurance policies stored in a database and associated with a geographic location identifier. EX1003, ¶66.

4. The Art Is Analogous to '648

As discussed (§I.A), '648 relates to aggregating data having geographic location identifiers and time identifiers in a database, receiving a query regarding that data, and outputting data matching the query. *E.g.*, EX1001, cls.1, 9, 12;

EX1003, ¶68. '648 further states it “is in the field of aggregating information associated with all geographic points on the earth, where the information is captured from distributed data sources and integrated into a centralized database that may be queried.” EX1001, 1:8-12; EX1003, ¶69. Harris, Florance, and Salvagio are directed to the same field of art as '648. EX1003, ¶¶67, 70. Like '648, Harris, Florance, and Salvagio are directed to aggregating data having geographic and/or time identifiers in a centralized database and provide for the querying of such data. *E.g.*, EX1004, 1:6-8, 2:50-52 (“computer systems and methods for indexing and searching geo-temporal data stored in a data repository); EX1005, ¶¶61 (“database searchable by such parameters as location, property type,” etc.), 611 (stored “information can also include... the latitudes and longitudes associated with the property”); EX1006, Abstract (“property database”), 10:48-55 (method and system “by which a user may access information about one or more properties,” including by searching geographic location identifiers such as “street address, city, state, ZIP code”); EX1003, ¶70. Additionally, Harris discloses it is directed to “facilitating low latency searches of large dynamic data sets that include geo-temporal data,” EX1004, 2:1-3, and Florance is directed to “a comprehensive database of information that is relevant to commercial real estate transactions,” that has “obtained and assimilated over 50 proprietary databases,” EX1005, ¶55; EX1003, ¶71. Thus, Harris, Florance, and Salvagio are analogous

art to '648 (and each other)—and none was before the Examiner during prosecution. EX1003, ¶72.

Additionally, Harris, Florance, and Salvagio are analogous to '648 because each is reasonably pertinent to the problem faced by '648's named inventors. '648 described this problem as stemming from the concern that “data is tracked based on identifiers” that “may have changed over time,” and “many events are stored in different places and different databases.” EX1001, 1:29-44; EX1003, ¶73. Harris addresses the same problem, disclosing, as to data stored in many different places/databases, that “[d]ata analysts... request data from computer-based databases containing large collections of data objects” that “may be generated and collected by various... organizations and often represent huge amounts of data,” and “geo-temporal data may be obtained from potentially multiple disparate data sources.” EX1004, 1:13-67, 3:1-6; EX1003, ¶74. Florance similarly addresses the need for aggregated, up-to-date information, disclosing that “[t]he real estate industry is so large and fragmented” and “[f]rom market to market, different data was kept by the administrative assistant for a couple of local brokers.... Ten years ago, this was out of date; by today's standards, it is completely useless,” EX1005, ¶9, and “industry participants must have extensive, accurate, and current information,” EX1005, ¶¶13, 18 (“creating a unified commercial real estate data model through collection, distribution and use of information” “preferably

includ[ing] the ability to search all commercial real estate data”). EX1003, ¶75.

Salvagio, too, addresses the problem of aggregation and currency, disclosing “each party involved in the [insurance] claims process maintains their own database or files.... Accordingly, when a party... requires information not found in their database, the party must spend resources contacting another party... to obtain the information, which leads to the wasting of more time and resources,” EX1006, 1:56-62, and storing information regarding “the *current* location of the property,” EX1006, 6:8-12; EX1003, ¶76. Harris, Florance, and Salvagio are thus also reasonably pertinent to the problem faced by ’648’s named inventors. EX1003, ¶¶77-78.

5. Claim Charts

The Petition collects disclosures from the asserted references and provides a detailed, limitation-by-limitation chart expressly mapping each word of the Claims to the disclosures of each relied-upon reference, with statements in the text following each mapping describing the particular combinations and motivations to combine.

System claims 12-13, and 15 are discussed first, followed by system claims 9-11, and method claims 1-2 and 4-6. Petitioner presents four grounds, each with Harris as the base reference, and adds Florance only for one limitation of cl.12.a

and for dependent claims 10-11, and Salvagio only for claim 11. *E.g.*, EX1003, ¶¶79-359.

(a) Claim 12 (Grounds 1-3)

Claim 12	Prior Art
[12.pre]: A system, comprising:	Harris anticipates or renders obvious claim 12. (Grounds 1-2). EX1003, ¶80. Alternatively, Harris in view of Florance renders obvious claim 12. (Ground 3). EX1003, ¶80. To the extent the preamble is limiting, Harris discloses or renders it obvious for Grounds 1-3:³ Harris discloses a system (<i>e.g.</i>, “data analysis system for analyzing data object collections that include geo-temporal data”; “computer systems... for indexing and searching geo-temporal data stored in a data repository”). <i>E.g.</i>, EX1003, ¶¶86-95; EX1004,⁴ Abstract (“data analysis system for

³ As discussed in n.5, *infra*, as to claims 9 and 12, Ground 3 relies on Florance to address potential arguments regarding the scope of “integrated centralized property database.” *See* EX1001, cls.9.a, 12.a; EX1003, ¶80 n.2.

⁴ While Harris sometimes refers to “an embodiment” or “embodiments” in cataloging its features, POSITA would have understood Harris discloses a single system or method with multiple optional features and at once envisaged Harris’s

Claim 12	Prior Art
	analyzing data object collections that include geo-temporal data”; “system allows... geo-temporal queries that include both

disclosures as a single embodiment. *See also* EX1004, 13:37–41 (“specific details... may vary from implementation to implementation”). Indeed, Harris’s disclosures are grouped in core feature categories present in every implementation: “Data Sources,” “Data Repository,” “Geo-temporal Data Importation,” “Indexing Geospatial Data,” “Indexing Geo-temporal Data,” “Geo-temporal Search Operations,” and hardware and software for carrying out these functions. E.g., EX1004, 2:38-46; EX1003, ¶¶81-83. To the extent PO argues Harris discloses multiple separate embodiments, combining them as disclosed in Petitioner’s limitation-by-limitation mappings herein would have been obvious, advantageous, and straightforward, including because Harris expressly states “[t]he present disclosure is directed to computer systems and methods for indexing and searching geo-temporal data stored in a data repository,” EX1004, 2:50–52, and that its various disclosures (including these recitations of core feature categories, EX1004, 2:38-46) are directed to “facilitating low latency searches of large and dynamic data sets that include geo-temporal data.” EX1004, 2:1–3; EX1003, ¶84. This and other combinations proposed in this Petition’s Grounds are implemented in well-understood, wholly predictable technology (*e.g.*, hardware and software), further underscoring POSITA’s REOS for each combination. *See* n.6; EX1003, ¶¶85, 133.

Claim 12	Prior Art
	geospatial component and a temporal component”), 2:1-3, 2:50-67 (“computer systems... for indexing and searching geo-temporal data stored in a data repository”), 4:7-17, 4:44-5:24, 10:24-48, cl.8, Fig. 1: FIG. 1 The diagram illustrates a data processing pipeline. On the left, 'Data Source(s)' (101) are represented by three overlapping rectangles. An arrow labeled 'Data' (102) points from these sources to a central block labeled 'Adaptor(s)' (103). This block contains a 'Parser' (104) and an 'Importer' (106). An arrow points from the 'Importer' (106) to a dashed box on the right labeled 'Data Repository' (111). Inside the repository, there are two groups of 'Index Bucket's: group 112A at the top and group 112B at the bottom. Below the repository is a 'Search Mechanism' (113), which is connected to a 'GUI' (114) by a double-headed arrow. A stick figure labeled 'Data Analyst' is connected to the GUI (114) by another double-headed arrow.
[12.a]: an integrated centralized property database^[5]	Harris discloses or renders obvious this limitation. (Grounds 1-3):

⁵ '648 confirms “an integrated centralized property database” includes, *e.g.*, “a full time history associated with *any given point on earth*... [which] *may be identified by latitude and longitude coordinates*” (EX1001, 48-53), and “may store a variety of information of all types *which is related to one or more geographic points on the earth.*” EX1001, 2:6-8, 2:57-60 (“stored data may include at least one of...

building code data... [and] crime data”); EX1003, ¶100. ’648 contrasts the “drawbacks” of collecting data based on, *e.g.*, “parcels, lots, townships, cities, ZIP Codes,” etc., explaining “[t]hese identifiers may have changed over time such that they represent different points on the earth at different time.” EX1001, 1:29-34; EX1003, ¶100. ’648’s claims do not require storage of any particular type of data, instead specifying only “data items associated with one or more geographic location identifiers *indicating a particular geographic point on earth.*” *E.g.*, EX1001, cl.12; EX1003, ¶100. ’648’s “integrated centralized *property* database” thus does not require storage of “property” information or linking its stored information to a particular “property,” instead requiring stored data be linked to, *e.g.*, a “a particular geographic point on earth.” EX1003, ¶100. As discussed herein, Harris expressly discloses an “integrated centralized property database,” because Harris discloses, *inter alia*, storing in its data repository geographic location identifiers indicating a particular point on earth (*e.g.*, “one or more numerical values specifying a longitude and latitude,” EX1004, 5:65-6:2). Harris thus expressly discloses this limitation. EX1003, ¶101. Additionally, to the extent it is argued that storage of “property” information or information linked to a specific “property” is required, Harris expressly discloses this limitation because it discloses storing, *e.g.*, “stored data objects pertaining to a particular geographic

Claim 12	Prior Art
stored on computer-readable storage media, the integrated centralized property database including a plurality of data items, each of the plurality of data items being associated with one or more geographic location identifiers	Harris discloses an integrated centralized property database (e.g., “geo-temporal data may be obtained from potentially multiple disparate data sources and... is received and indexed in a data repository”; “data repository 111 may operate on one or more computing nodes of a cluster of computing nodes”; “a data processing system comprises a data repository 111”; “database” that “store[s]” “geo-temporal data”; “data stored in data repository... may be stored as key-value pairs”) stored on computer-readable storage media (e.g., “indexes may be stored on disk and cached in memory on demand”; “storage media... that store data”; Fig.5 (“computer system” upon which system “implemented,” including storage media including, e.g., “Main Memory” 506, “Storage Device” 510)), the integrated centralized property database including a plurality of data items (e.g., multiple items of geo-temporal data “associated with a geospatial component and a temporal component” (such as “crime reports received within a particular city,” “cell phone call records,” or “data objects

area around *the user’s home*,” EX1004, 9:56-61, and data indicating “using a key card to gain access to a *building*,” EX1004, 4:21-25; *see* EX1001, 3:57-61

(“aggregated information may be related to parcels and *buildings associated with that [geographic] point*... [and] *buildings on that point*”), and Harris expressly discloses that such data would have been associated with a particular geographic point on earth. EX1004, 4:27-30 (identifying, e.g., “[g]eo-temporal data... that may reflect activities... that include both a geospatial component and a temporal component.”); EX1003, ¶101. Additionally, as discussed, Florance expressly discloses use of “property information,” and thus Harris in view of Florance also renders obvious this limitation. EX1003, ¶101.

Claim 12	Prior Art
indicating a particular geographic point on earth, and at least a portion of the plurality of data items further being associated with one or more time identifiers including one or more time or time periods, indicative of a time history of an associated data item regarding the associated geographic point on earth;	pertaining to a particular geographical area around the user's home") are received, "stored in a data repository," and "indexed"; system "facilitat[es]... searches of large and dynamic data sets that include geo-temporal data," "receiving" or "retrieving input data... from a source" and "consum[ing that] input data... and stor[ing] the data in the data repository"; Fig.1 (data from "Data Source(s)" 101 stored in "Data Repository" 111)), each of the plurality of data items being associated with one or more geographic location identifiers indicating a particular geographic point on earth (e.g., "cell phone call records... each associated with data values reflecting a particular geographic location"; "numeric values representing a longitude and latitude corresponding to a geographic location"; the "geo-temporal data... includes... a geospatial component"; "data that includes one or more values representing a geospatial component"; "geo-temporal input data is received that is associated with a geospatial component," such as "crime reports received within a particular city... includ[ing] values representing a longitude and latitude corresponding to the geographical location of the incident"), and at least a portion of the plurality of data items further being associated with one or more time identifiers including one or more time or time periods indicative of a time history of an associated data item regarding the associated geographic point on earth (e.g., the "geo-temporal data... includes both a geospatial component and a temporal component"; "data that includes one or more values representing a geospatial component and one or more values representing a temporal component"; "geo-temporal input data is received that is associated with a geospatial component and a temporal component" such as "a time value indicating an approximate time the incident in the crime reported occurred"; "geospatial component may comprise one or more stored data values indicating a geographic location and the temporal component may comprise one or more values indicating a point in time or range of time"; "data objects associated with particular geographic regions and that are associated with temporal components with particular year time spans and/or particular hour time spans"; "all activities within a single city

Claim 12	Prior Art
	block within the past five years to all activities within an entire city within the past five hours”). <i>E.g.</i>, EX1003, ¶¶96-125, 134; EX1004, Abstract (“analyzing data object collections that include geo-temporal data.... Geo-temporal input data is indexed”; “geo-temporal queries...”), 1:6-8, 1:13-20, 1:21-37 (“crime reports... include values representing a longitude and latitude corresponding to the geographical location of the incident”), 1:38-50 (“time value indicating an approximate time the incident in the crime report occurred.”), 2:1-3 (“facilitating... searches of... data sets that include geo-temporal data”), 2:24-25, 2:50-67 (“indexing and searching geo-temporal data stored in a data repository. Geo-temporal data generally refers to data that includes both a geospatial component and a temporal component... may comprise one or more stored data values indicating a geographic location and the temporal component... indicating a point in time or range of time.... [I]ndexes may be stored on disk and cached in memory....”), 3:1-11 (“geo-temporal data... from potentially multiple disparate data sources and... is received and indexed in a data repository based on a geospatial component....”), 4:7-17, 4:19-33 (“Geo-temporal data... include[s] both a geospatial component and a temporal component,” <i>e.g.</i>, “cell phone call records... each associated with data values reflecting a particular geographic location”), 4:34-43 (“data stored in a database”), 4:44-59 (“all activities within a single city block within the past five years to all activities within an entire city within the past five hours.”), 4:60-5:8, 5:9-24 (“data processing system comprises a data repository 111”), 5:26-35 (“data repository 111 may operate on one or more computing nodes...”; “data stored in data repository 111 may be stored as key-value pairs”), 5:51-58 (“consume input data 102 and store the data in the data repository 111”), 5:59-6:6 (“‘geo-temporal data’ refers to any input data that includes one or more values representing a geospatial component and one or more values representing a temporal component.”), 6:7-10 (“receiving input data 102 from a data source or retrieving input data 102 from a data source 101”), 7:32-36 (“numeric values representing a longitude and latitude corresponding to a geographic location.”), 7:47-59 (“input data is received that is associated

Claim 12	Prior Art
	with a geospatial component and a temporal component”), 7:60-8:8, 8:9-35, 8:36-57 (“data objects associated with particular geographic regions... associated with temporal components within particular year time spans and/or particular hour time spans), 8:58-9:4, 9:47-64 (“data objects pertaining to a particular geographical area...”), 12:12-27, 12:28-41 (“storage media... non-transitory media...”), Fig.1 (“Data Source(s)” 101 and “Importer” 109; “Data Repository” 111): FIG. 1 Fig.3:

Claim 12	Prior Art
	FIG. 3 <pre>graph TD; 300[RECEIVE INPUT DATA THAT IS ASSOCIATED WITH A GEOSPATIAL COMPONENT AND A TEMPORAL COMPONENT 300] --> 302[STORE A REFERENCE TO THE INPUT DATA IN A GEOSPATIAL INDEX BASED ON THE GEOSPATIAL COMPONENT 302]; 302 --> 304[RECEIVE TEMPORAL INDEX CONFIGURATION DATA SPECIFYING ONE OR MORE TIME GRANULARITIES 304]; 304 --> 306[GENERATE A TEMPORAL INDEX BUCKET GROUP FOR EACH SPECIFIED TIME GRANULARITY 306]; 306 --> 308[STORE A REFERENCE TO THE INPUT DATA IN A PARTICULAR TEMPORAL INDEX BUCKET OF EACH TEMPORAL INDEX BUCKET GROUP BASED ON THE TEMPORAL COMPONENT 308];</pre> Fig. 5 (e.g., storage media such as “Main Memory” 506, “Storage Device” 510): FIG. 5 <pre>graph LR; subgraph 500; BUS[502]; MM[MAIN MEMORY 506]; ROM[ROM 508]; SD[STORAGE DEVICE 510]; P[PROCESSOR 504]; CI[COMMUNICATION INTERFACE 518]; BUS <--> MM; BUS <--> ROM; BUS <--> SD; BUS <--> P; BUS <--> CI; end; DIS[DISPLAY 512] <--> BUS; ID[INPUT DEVICE 514] <--> BUS; CC[CURSOR CONTROL 516] <--> BUS; CI --- NL[NETWORK LINK 520]; NL --- LN[LOCAL NETWORK 522]; LN --- H[HOST 524]; LN --- ISP[ISP 526]; ISP --- S[SERVER 530]; ISP --- I[INTERNET 528];</pre>
	Harris in view of Florance also renders obvious this limitation based on the same Harris disclosures above in combination with the Florance disclosures below, including

Claim 12	Prior Art
	in particular Florance’s disclosures of storing “property information” in a database (on which Petitioner relies for <u>Ground 3</u>). EX1003, ¶126. Florance discloses storing property information (<i>e.g.</i>, “property information,” “property within a geographical area,” “properties for which the database has information”) in a “central real estate database.” <i>E.g.</i>, EX1003, ¶¶127-131, 134; EX1005, ¶85 (“searching for property within a geographical area using... database that stores geographically pertinent information. As an example... locations of properties for which the database has information.”), ¶101 (“[D]ata stored in the databases.... For example, property information...”), ¶103, ¶634 (“central real estate database”), ¶150 (“real estate data includes property information and... databases includes a property information database”), ¶165. POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Harris’s integrated centralized database—formed from data sources including, <i>e.g.</i>, “databases” of information with both geo-spatial and temporal components (<i>e.g.</i>, EX1004, 4:7-33, Fig.1)—using, as one data source, Florance’s teachings of property information (which Florance also stores in a database). EX1003, ¶132. POSITA would have recognized that using Florance’s disclosed property information in Harris’s database

Claim 12	Prior Art
	would have advantageously added another useful type of data to Harris’s existing integrated centralized database, thus increasing its usefulness to users performing geo-temporal searches as Harris expressly discloses—including to associate information regarding a particular point or points on earth with particular properties in the centralized database. EX1003, ¶132. Indeed, as Harris expressly discloses, “[o]rganizations would appreciate a way to efficiently analyze collections of data including geo-temporal data to quickly identify information of interest or information pertinent to a line of inquiry.” EX1004, 4:46-49; EX1003, ¶132. For example, Florance itself teaches “the value of having a <i>fully integrated database</i>, which... relates to commercial real estate,” EX1005, ¶103, and a database user who “<i>search[es] for property within a geographical area using a map linked to a database that stores geographically pertinent information</i>,” EX1005, ¶85; EX1003, ¶132. For POSITA, this would have been an obvious, routine implementation choice and (particularly given Harris’s express disclosures that its system uses multiple different types

Claim 12	Prior Art
	of geo-temporal data, <i>e.g.</i> , EX1004, 5:50-65 and Florance’s express disclosures that its property information is stored in a database with both geo-spatial and temporal components and accessible based on, <i>e.g.</i> , location data, <i>e.g.</i> , EX1005, ¶¶85, 103, 150) clear this would work, predictably yielding the expected functionality with REOS. ⁶ EX1003, ¶132.
[12.b]: at least one computer processor communicativel	Harris discloses or renders obvious this limitation. (Grounds 1-3):

⁶ This and other combinations herein are implemented in well-understood, wholly predictable technology (*e.g.*, hardware and software), further underscoring POSITA’s REOS. EX1003, ¶133. As ’648 acknowledges, hardware capable of implementing ’648’s claims was already known. EX1001, 14:46-15:5 (stating its “data aggregation system 614 may be implemented in software, hardware, firmware, or in any combination thereof” with no further explanation of these generic terms); *see also, e.g.*, EX1006, 4:16-5:64 (described system can be implemented on, *e.g.*, “a generic computing device 101”), Figs.1-2; EX1004, 11:47-48 (described system can be implemented on, *e.g.*, computer using “general purpose microprocessor”); EX1003, ¶133.

Claim 12	Prior Art
y coupled with the integrated centralized property database, the at least one computer processor configured to:	Harris discloses at least one computer processor communicatively coupled with the integrated centralized property database (see cl.12.a), the at least one computer processor (e.g., “techniques herein are performed by computer system 500 in response to processor 504 executing one or more sequences of one or more instructions contained in main memory 506”; “processor... perform[s] the process steps”; “processor”; “hardware processor... coupled with bus... for processing information”; “techniques described herein are implemented by one or more special-purpose computing devices” including “one or more general purpose hardware processors programmed to perform the techniques pursuant to program instructions”; “data repository... may operate on one or more computing nodes”; “components of the system” including “data repository” (e.g. Fig. 1), “may be distributed across one or more computer systems such as the computer system 500 of Fig. 5” which “includes a bus... or other communication mechanism for communicating information, and a hardware processor... coupled with [the] bus... for processing information,” and “main memory... or other dynamic storage device, coupled to [the] bus... for storing information and instructions to be executed by [the] processor”; Fig.5 (including “PROCESSOR” 504 communicating with storage media (e.g., “Main Memory” 506, “Storage Device” 510) via “Bus” 502); “processors... carry out the steps”). E.g., EX1003, ¶¶135-145; EX1004, 5:9-24 (“components of the system may be distributed across one or more computer systems such as the computer system 500 of FIG. 5”), 5:26-35 (“data repository 111 may operate on one or more computing nodes”), 5:36-49, 11:24-48 (“techniques... implemented by one or more special-purpose computing devices... includ[ing]... general purpose hardware processors programmed to perform the techniques pursuant to program instructions”; “Computer system 500 includes a bus 502... for communicating information, and a hardware processor 504 coupled with bus 502 for processing information.... main memory 506, such as a random access memory (RAM) or other dynamic storage device, coupled to bus 502 for storing information and instructions to be executed by processor....”),

Claim 12	Prior Art
	12:12-27 (“techniques herein are performed by computer system 500 in response to processor 504 executing... instructions contained in main memory 506. Such instructions may be read into main memory 506.... Execution... causes processor 504 to perform the process steps...”), 12:50-65, 13:28-36, cl.8 (“processors to carry out the steps”), Fig.5: FIG. 5
[12.c]: receive, from a user computer system, a query of a geographic location^[7] and	Harris discloses or renders obvious this limitation. (Grounds 1-3): Harris discloses the processor (see cl.12.b) receiving, from a user computer system (e.g., “processors” “receiv[e]... search

⁷ Claim 1 requires “a query regarding a geographic location” and independent claim 9 requires “a query including a geographic location identifier” both of which are included in the scope of cl.12.c.’s “query of a geographic location” as mapped

Claim 12	Prior Art
time information indicative of the time history of an associated data item regarding the geographic point on earth;	query” from “interface”; “search mechanism” and “data repository” “receiv[e] a query” from “interface”; “a search query is received”; “user interface... represents one way to receive input from a user to specify a geo-temporal query”; “graphical user interface... that enables a user to specify a set of search parameters”; “interface components that enable a user to specify a geospatial bounding area and a time value or range of time values as geospatial and temporal search parameters”; Fig.1 (including “Data Analyst” using “GUI” 114 to query “Data Repository” 111 via “Search Mechanism” 113); “search mechanism 113, and the interface 114... may be distributed across one or more computer systems such as the computer system 500 of FIG. 5”; Fig.5 (including, <i>e.g.</i> , “BUS” 502 connecting, <i>e.g.</i> , “PROCESSOR” 504, “COMMUNICATION INTERFACE” 518, “INPUT DEVICE” 514, etc.)), a query of a geographic location⁸ and time information indicative of

and thus as shown herein, Harris expressly discloses these limitations. *See also* n.8; EX1003, ¶150.

⁸ ’648 confirms “a query of a geographic location” includes not only a discrete geographic point, but also an area or region on the earth. EX1003, ¶148. For example, claim 1 requires “a query regarding a geographic location” and dependent claims 4 and 5 further require the query include “a region on the earth” (claim 4) “identified by multiple geocoded locations” (claim 5), thus making clear that “a geographic location” includes not only discrete points but multiple points or areas on the earth. EX1003, ¶148. Harris’s disclosure of queries including “a geospatial bounding area,” EX1004, 9:38-46, is thus an express disclosure of this

limitation. EX1003, ¶148. Moreover, even if '648 required a query to include a discrete geographic point, Harris expressly discloses this limitation because (1) POSITA would have understood that Harris's "geospatial bounding area" or "search parameters" including "a search string" (EX1004, 10:10-14) include a single geographic point (*e.g.*, bounding area drawn to include a single point or search string corresponding to only one longitude/latitude value); and (2) Harris's queries include "**one** or more geographical search parameters," EX1004, 6:64-7:1, which POSITA would have understood to include, *e.g.*, a query with **one** geographical search parameter (*e.g.*, single latitude/longitude value) corresponding to a single point on the earth. EX1003, ¶148. To the extent it is argued further disclosure is required, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Harris's disclosed queries of a geographic location (including, *e.g.*, a geographic area) to include a single, discrete geographic point. EX1003, ¶148. This would have advantageously allowed Harris's users to submit a query regarding a single point on earth, thereby providing a more focused query that, *e.g.*, results in fewer search results, reducing processing time and making results easier to parse by, *e.g.*, reducing irrelevant results related to locations other than the specific point of interest. EX1003, ¶148. For POSITA, this would have been an obvious, routine implementation choice and

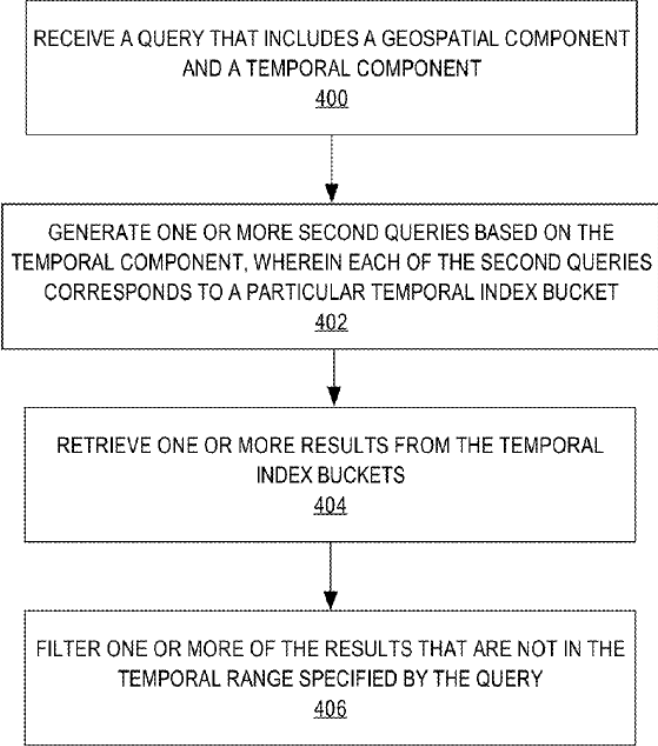
Claim 12	Prior Art
	the time history of an associated data item regarding the geographic point on earth⁹ (<i>e.g.</i>, “data analyst... specif[ies] geo-temporal queries that include both [a] geospatial component and a temporal component”; “a query that includes a geospatial component and a temporal component”; “Graphical user interface 200 includes interface components that allow a user to specify both a geospatial bounding area and a time value or range of time values as geospatial and temporal search parameters, respectively”; “Information... may be requested in geo-temporal queries that specify one or more

(particularly given Harris’s express disclosures its “example graphical user interface merely represents one way to receive input from a user to specify a geo-temporal query,” *e.g.*, EX1004, 9:31-33, clear this would work, predictably yielding the expected functionality with REOS. EX1003, ¶148.

⁹ Cl.12.c’s reference to “the geographic point on earth” refers to stored data items (cl.12.a) rather than the query contents or syntax. EX1003, ¶149. As discussed (*see* cl.12.a), Harris expressly discloses its stored data items are associated with one or more geographic location identifiers indicating a particular geographic point on earth (*e.g.*, “longitude and latitude corresponding to a geographic location,” EX1004, 7:32-36), and thus Harris’s disclosed queries of its stored data items are queries “regarding the geographic point on earth.” EX1003, ¶149. To the extent it is argued that Harris’s query must include a “geographic point on the earth,” Harris discloses or renders obvious this limitation as explained above. *See* n.8; EX1003, ¶149.

Claim 12	Prior Art
	geospatial search parameters corresponding to geographical areas of interest and one or more temporal search parameters corresponding to points in time or time ranges of interest” such as “a request for all activities within a single city block within the past five years [or] all activities within an entire city within the past five hours”; “search for data objects associated with particular geographic regions”; “geo-temporal queries that specify one or more geospatial search parameters corresponding to geographical areas of interest”). <i>E.g.</i>, EX1003, ¶¶146-147, 151-170; EX1004, Abstract (“data analyst to specify geo-temporal queries that include both geospatial component and a temporal component”), 1:21-37, 1:38-50, 2:50-67, 4:7-17, 4:44-59 (“Information... may be requested in geo-temporal queries that specify... geospatial search parameters corresponding to geographical areas of interest and... temporal search parameters corresponding to points in time or time ranges of interest.”; “a request for all activities within a single city block within the past five years to all activities within an entire city within the past five hours.”), 5:9-24 (“search mechanism 113, and the interface 114... may be distributed across one or more computer systems such as the computer system 500 of FIG. 5”), 6:58-7:4, 8:36-57 (“search for data objects associated with particular geographic regions....”), 9:26-37 (“user interface...to receive input from a user to specify a geo-temporal query”), 9:38-46 (“[A] search mechanism 113 receives... a set of geo-temporal search parameters and provides as output a set of search results.... [G]raphical user interface 200 that enables a user to specify a set of search parameters for a geo-temporal query... includes interface components that enable a user to specify both a geospatial bounding area and a time value or range of time values as geospatial and temporal search parameters, respectively.”), 9:47-64 (“Interface... used to specify one or more desired geospatial bounding areas... user may specify a bounding area”), 9:65-10:23 (“user may additionally specify a temporal range... using graphical user interface...”), 10:24-43 (“search query is received (block 400) that includes both a geospatial component and a temporal component”; “receiving a query”), 10:59-11:19, 11:24-48, 11:66-12:11,

Claim 12	Prior Art
	13:14-27, 13:28-36, 12:66-13:13, cl.8 (“one or more processors carry out... receiving a search query”), Fig.1 (double arrow showing receiving from GUI); Fig.2, Fig.4, Fig.5 (“processor 504”): FIG. 1 <pre> graph LR DS[Data Source(s) 101] -- Data 102 --> A[Adaptor(s) 103] subgraph A [Adaptor(s) 103] P[Parser 104] I[Importer 106] P -.-> I end I --> DR[Data Repository 111] subgraph DR [Data Repository 111] subgraph 112A IB1[Index Bucket] IB2[Index Bucket] IB3[...] IB4[Index Bucket] end subgraph 112B IB5[Index Bucket] IB6[Index Bucket] IB7[Index Bucket] IB8[Index Bucket] IB9[...] IB10[Index Bucket] end end DR <--> SM[Search Mechanism 113] SM <--> GUI[GUI 114] DA[Data Analyst] <--> GUI </pre>

Claim 12	Prior Art
	FIG. 2  FIG. 4  <pre>graph TD; 400[RECEIVE A QUERY THAT INCLUDES A GEOSPATIAL COMPONENT AND A TEMPORAL COMPONENT 400] --> 402[GENERATE ONE OR MORE SECOND QUERIES BASED ON THE TEMPORAL COMPONENT, WHEREIN EACH OF THE SECOND QUERIES CORRESPONDS TO A PARTICULAR TEMPORAL INDEX BUCKET 402]; 402 --> 404[RETRIEVE ONE OR MORE RESULTS FROM THE TEMPORAL INDEX BUCKETS 404]; 404 --> 406[FILTER ONE OR MORE OF THE RESULTS THAT ARE NOT IN THE TEMPORAL RANGE SPECIFIED BY THE QUERY 406];</pre>

Claim 12	Prior Art
	FIG. 5
[12.d]: retrieve, from the integrated centralized property database, data items having associated geographic location identifiers matching the received geographic location and having associated time identifiers matching the	Harris discloses or renders obvious this limitation. (Grounds 1-3): Harris discloses the processor (see cl.12.b) retrieving, from the integrated centralized property database (see cl.12a), data items having associated geographic location identifiers (see cl.12.a) matching the received geographic location¹⁰ (see cl.12.c) and having associated time identifiers (see cl.12.a) matching the time information (e.g., “retrieve one or more results from the temporal index buckets” stored in “data repository”; “geo-temporal queries... include both [a] geospatial component and a temporal component. The system transforms geo-temporal queries into one or more second queries that retrieve data items based on the index”; “In response to receiving the... geo-temporal query, the search mechanism” retrieves indexed “data objects associated with a temporal value” from “data repository” satisfying the query and “satisfy[ing] any geospatial component of the query”; “data

¹⁰ For the combined Harris-Florance system (Ground 3), retrieved data includes Florance’s property information (see cl.12.a).

Claim 12	Prior Art
time information, and	returned by a geographically-focused search will be filtered...to refine the results to the specified temporal range”; “[t]he results returned from each of the temporal index buckets are those results that satisfy the geospatial component of the query,” <i>e.g.</i>, “crime report” and “geographical location of the incident,” including “values representing a latitude and longitude”; <i>see</i> cl.12.c). <i>E.g.</i>, EX1003, ¶¶171-181; EX1004, Abstract (“geo-temporal queries that include both geospatial component and a temporal component. The system transforms geo-temporal queries into one or more second queries that retrieve data items based on the temporal index bucket groups.”), 1:21-37 (“data object representing each crime report may include values representing a longitude and latitude corresponding to the geographical location of the incident”), 1:38-50, 4:49-59, 8:36-57, 9:38-46, 9:65-10:23, 10:24-48, 10:44-58 (“The results returned from each of the temporal index buckets... satisfy the geospatial component of the query.”), 10:59-11:19 (“In response to receiving... geo-temporal query, the search mechanism 113 may... query the temporal index buckets that index data objects associated with a temporal value.... After retrieving any data objects... that satisfy any geospatial component of the query ...”), Fig.1 (double arrow indicating retrieval of data from “Data Repository” by “Search Mechanism”), Fig.2, Fig.4:

Claim 12

Prior Art

FIG. 1

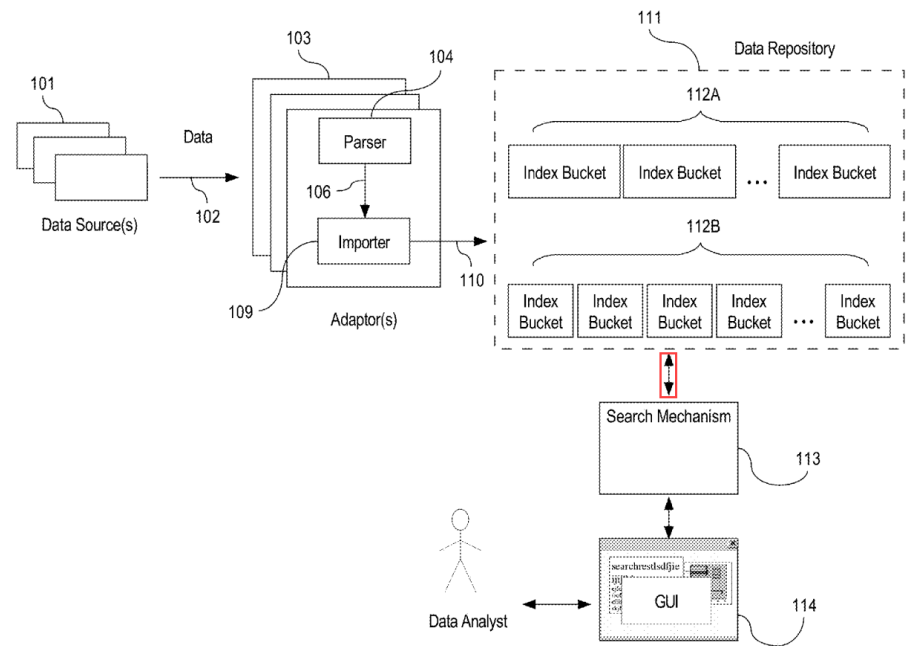
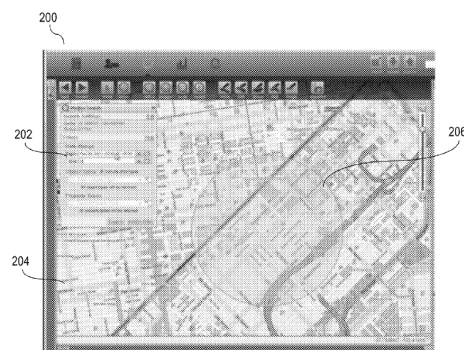
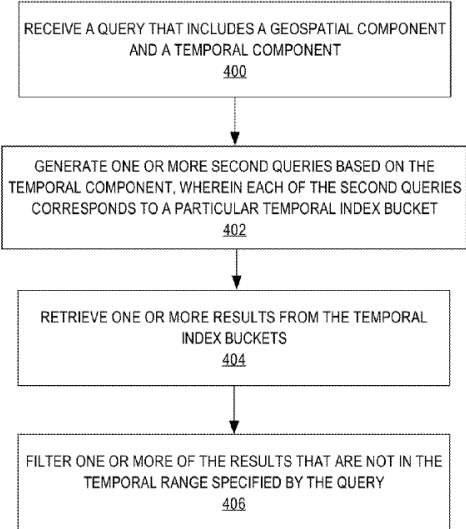
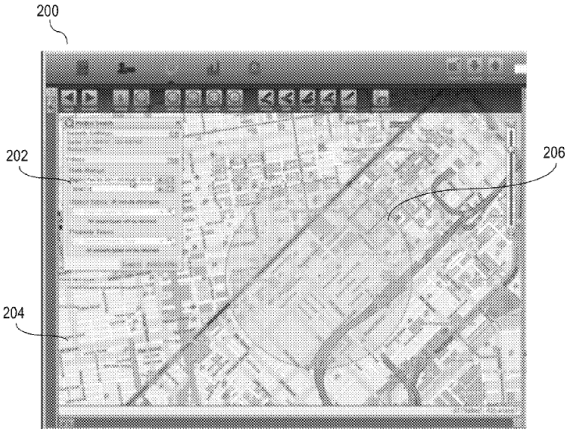
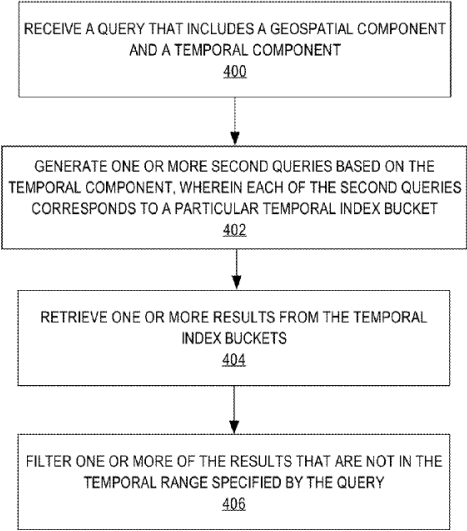


FIG. 2



Claim 12	Prior Art
	FIG. 4  <pre> graph TD 400[RECEIVE A QUERY THAT INCLUDES A GEOSPATIAL COMPONENT AND A TEMPORAL COMPONENT 400] --> 402[GENERATE ONE OR MORE SECOND QUERIES BASED ON THE TEMPORAL COMPONENT, WHEREIN EACH OF THE SECOND QUERIES CORRESPONDS TO A PARTICULAR TEMPORAL INDEX BUCKET 402] 402 --> 404[RETRIEVE ONE OR MORE RESULTS FROM THE TEMPORAL INDEX BUCKETS 404] 404 --> 406[FILTER ONE OR MORE OF THE RESULTS THAT ARE NOT IN THE TEMPORAL RANGE SPECIFIED BY THE QUERY 406] </pre>
[12.e]: provide the retrieved data items to the user computer system via a graphical user interface.	Harris discloses or renders obvious this limitation. (Grounds 1-3): Harris discloses providing the retrieved data items to the user computer system via a graphical user interface (<i>e.g.</i>, “search mechanism 113... provides as output a set of search results” on, <i>e.g.</i>, Fig.2’s “graphical user interface,” including, <i>e.g.</i>, “crime report” and “geographical location of the incident,” including “values representing a latitude and longitude”; outputting the retrieved data items to Fig.1’s “Data Analyst” having two-way interactions to query and receive results through “GUI” 114 which, in turn, has two-way interaction with “Data Repository” 111 via “Search Mechanism” 113; “displaying information to a computer user” (<i>e.g.</i>, “data objects” “satisfy[ing]... the query”) including on Fig.5’s “display 512, such as a cathode ray tube (CRT)”). <i>E.g.</i>, EX1003, ¶¶182-190; EX1004, Abstract (“The system transforms geo-temporal queries into one or more second queries that retrieve data items based on the temporal index bucket groups.”), 1:38-50, 5:9-24, 9:38-46 (“search mechanism 113... output a set of search results. FIG. 2 illustrates an example graphical user interface 200....”), 9:65-

Claim 12	Prior Art
	10:23, 10:44-58 (“In response to... queries, zero or more results are returned from each of the particular temporal index buckets... satisfy the geospatial component of the query.”), 10:59-11:19, 11:66-12:11 (“...such as a cathode ray tube (CRT), for displaying information to a computer user.”), Fig.1 (outputting indicated by double arrows from “Data Repository” to “Search Mechanism,” from “Search Mechanism” to “GUI,” and from “GUI” to “Data Analyst”), Fig.2, Fig.4, Fig.5: FIG. 1 <pre> graph LR DS[Data Source(s) 101] -- Data 102 --> AD[Adaptor(s) 109] subgraph AD [Adaptor(s) 109] P[Parser 104] I[Importer 106] P -- 106 --> I end AD -- 110 --> DR[Data Repository 111] subgraph DR [Data Repository 111] subgraph 112A IB1[Index Bucket] IB2[Index Bucket] IB3[...] IB4[Index Bucket] end subgraph 112B IB5[Index Bucket] IB6[Index Bucket] IB7[Index Bucket] IB8[Index Bucket] IB9[...] IB10[Index Bucket] end end DR <--> SM[Search Mechanism 113] SM <--> GUI[GUI 114] GUI <--> DA[Data Analyst] </pre> The diagram illustrates a data processing system. On the left, a stack of rectangles labeled 'Data Source(s)' (101) provides 'Data' (102) to an 'Adaptor(s)' (109). The adaptor contains a 'Parser' (104) and an 'Importer' (106), with an arrow (106) indicating data flow from the parser to the importer. The adaptor outputs (110) to a 'Data Repository' (111). The repository is divided into two sections: 112A and 112B, each containing multiple 'Index Bucket' blocks. Below the repository is a 'Search Mechanism' (113), and at the bottom is a 'GUI' (114). A stick figure labeled 'Data Analyst' is shown to the left of the GUI. Bidirectional arrows connect the Data Repository (111) to the Search Mechanism (113), the Search Mechanism (113) to the GUI (114), and the GUI (114) to the Data Analyst.

Claim 12	Prior Art
	FIG. 2  FIG. 4  <pre data-bbox="716 909 1180 1436">graph TD; 400[RECEIVE A QUERY THAT INCLUDES A GEOSPATIAL COMPONENT AND A TEMPORAL COMPONENT 400] --> 402[GENERATE ONE OR MORE SECOND QUERIES BASED ON THE TEMPORAL COMPONENT, WHEREIN EACH OF THE SECOND QUERIES CORRESPONDS TO A PARTICULAR TEMPORAL INDEX BUCKET 402]; 402 --> 404[RETRIEVE ONE OR MORE RESULTS FROM THE TEMPORAL INDEX BUCKETS 404]; 404 --> 406[FILTER ONE OR MORE OF THE RESULTS THAT ARE NOT IN THE TEMPORAL RANGE SPECIFIED BY THE QUERY 406];</pre>

Claim 12	Prior Art
	FIG. 5

(b) Claim 13 (Grounds 1-3)

Claim 13	Prior Art
[13]: The system of claim 12, wherein the one or more geographic location identifiers include latitude and longitude coordinates.	Harris discloses or renders obvious this claim. (Grounds 1-2). EX1003, ¶192. Alternatively, Harris in view of Florance renders obvious this claim. (Ground 3). EX1003, ¶192. Harris discloses or renders obvious, or Harris in view of Florance renders obvious the system of claim 12 (see cl.12), and Harris discloses wherein the one or more geographic location identifiers include latitude and longitude coordinates (e.g., “values representing a geospatial component may include one or more numerical values specifying a longitude and latitude”; “values representing” or “specifying a latitude and longitude”; see

Claim 13	Prior Art
	cl.12.a). <i>E.g.</i> , EX1003, ¶¶192-196; EX1004, 1:21-37, 5:59-6:6 (“values representing a geospatial component may include one or more numerical values specifying a longitude and latitude”), 6:58-7:4, 7:32-36 (“values representing a longitude and latitude corresponding to a geographic location”).

(c) Claim 15 (Grounds 1-3)

Claim 15	Prior Art
[15]: The system of claim 12, wherein the time identifier includes one or more time periods.	Harris discloses or renders obvious this claim. (Grounds 1-2). EX1003, ¶198. Alternatively, Harris in view of Florance renders obvious this claim. (Ground 3). EX1003, ¶198. Harris discloses or renders obvious, or Harris in view of Florance renders obvious the system of claim 12 (see cl.12), and Harris discloses wherein the time identifier includes one or more time periods (e.g., “particular range of time associated with the particular temporal index bucket”; “particular geo-temporal data includes data with temporal components associated with time values falling within each of the years 2000-2010”; “temporal component may comprise one or more values indicating a... range of time”). <i>E.g.</i>, EX1003, ¶¶198-209; EX1004, 2:50-67 (“temporal component may comprise one or more values indicating a... range of time...”), 3:12-32 (“... range of time associated with the particular temporal index bucket.”), 3:50-4:3 (“particular geo-temporal data includes data with temporal components associated with time values falling within each of the years 2000-2010”), 4:44-59, 8:36-57, 9:38-46, 9:65-10:14, 10:24-43, 10:59-11:19.

(d) Claim 9 (Grounds 1-4)

Claim 9	Prior Art
[9.pre]: A system, comprising:	Harris anticipates or renders obvious claim 9 (Grounds 1-2, 4) or Harris in view of Florance renders obvious claim 9. (Ground 3). EX1003, ¶265. To the extent the preamble is limiting, Harris discloses or renders obvious the preamble. (Grounds 1-4): Harris discloses a system (see cl.12.pre). E.g., EX1003, ¶¶266-268.
[9.a]: a computer processor;	Harris discloses or renders obvious this limitation. (Grounds 1-4): Harris discloses a computer processor (see cl.12.b). EX1003, ¶¶269-271.
[9.b]: a memory coupled to the processor; and	Harris discloses or renders obvious this limitation. (Grounds 1-4): Harris discloses a memory coupled to the processor (e.g., “Bus 502 carries the data to main memory 506, from which processor 504 retrieves and executes the instructions”; “main memory... or other dynamic storage device, coupled to [the] bus... for storing information and instructions to be executed by [the] processor”; “Main Memory” coupled to “Processor” (see cl.12.b) via “Bus” (Fig.5); see cl.12.a). E.g., EX1003, ¶¶272-276; EX1004, 11:24-48 (“main memory... or other dynamic storage device, coupled to bus 502 for storing information and instructions to be executed by processor”), 12:50-65 (“Bus 502 carries the data to main memory

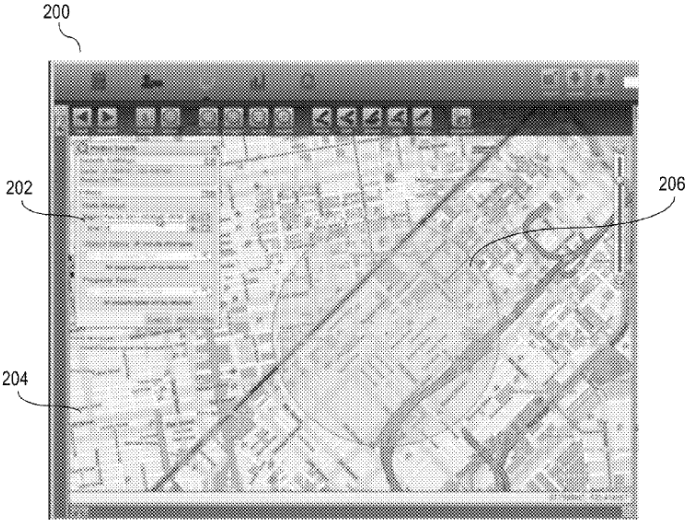
Claim 9	Prior Art
	506, from which processor 504 retrieves and executes the instructions.”), Fig.5: FIG. 5
[9.c]: an integrated centralized property database, the processor being configured to:	Harris discloses or renders obvious this limitation. (Grounds 1-2, 4): Harris discloses an integrated centralized property database (see cl.12.a), the processor being configured to (see cl.12.b). E.g., EX1003, ¶¶277-278, 280. Harris in view of Florance also renders obvious this limitation (Ground 3): Florance discloses property information (see cl.12.a) stored in a “central real estate database.” E.g., EX1003, ¶¶279-280.
[9.d]: [the processor configured to] receive from a user	Harris discloses or renders obvious this limitation. (Grounds 1-4):

Claim 9	Prior Art
computer a query including a geographic location identifier, the geographic location	Harris discloses the processor (<i>see</i> cl.12.b-c) receiving, from a user computer (<i>see</i> cl.12.c), a query including a geographic location identifier ¹¹ (<i>see</i> cl.12.a, cl.12.c), the geographic location identifier including one of a geocoded location and multiple geocoded locations identifying a polygon (<i>e.g.</i> , “latitude and longitude values that define a geographical area”; “specify[ing] on the map” corners and/or edges forming “polygonal bounding area”; ¹² <i>see</i> cl.12.c ¹³). <i>E.g.</i> , EX1003,

¹¹ *See* n.8.

¹² POSITA would have understood that by, for example, drawing a polygonal bounding area on a map, a user, through the user computer, specifies geocoded locations to “define a geographical area of interest” and that these geolocations would include, *e.g.*, latitudes and longitudes or the corners or edges of the bounding area, which the system uses “as a geospatial search parameter in a resulting geo-temporal query.” EX1004, 6:65-7:1 (“queries that specify one or more geographical search parameters such as... latitude and longitude values that define a geographical area”), 9:47-64, 10:17-21 (“search mechanism may transform the user input received at graphical user interface 200 into a textual representation of the geo-temporal query that includes search parameters corresponding to the user input”); EX1003, ¶284.

¹³ Harris discloses this limitation for the same reasons given in cl.12.c. EX1003, ¶283. To the extent claim 9’s received “geographic location identifier” is narrower

Claim 9	Prior Art
identifier including one of a geocoded location and multiple geocoded locations identifying a polygon,	¶¶281-282, 285-286; EX1004, 6:58-7:4 (“latitude and longitude values that define a geographical area”), 9:47-64 (“user may specify on the map... <i>polygonal bounding area</i>.”), Fig.2: FIG. 2 
[9.e]: [the processor being configured to] receive from the user	Harris discloses or renders obvious this limitation. (Grounds 1-4): Harris discloses the processor (see cl.12.b) receiving from the user computer (see cl.12.c) a time period identifier¹⁴ including

than claim 12’s received “geographic location,” as shown, this limitation is expressly disclosed by Harris’s “latitude and longitude values that define a geographical area.” EX1004, 6:58-7:4; EX1003, ¶283.

¹⁴ Cl.12.c explains its “time information” is “indicative of the time history of an associated data item” and cl.9.e states “a time period identifier” includes “one or

Claim 9	Prior Art
computer a time period identifier including one or more time or time periods, indicative of a time history of an associated data item regarding the associated geographic point on earth,	one or more time or time periods, indicative of a time history of an associated data item regarding the associated geographic point on earth (<i>see</i> cl.12.c, cl.15). <i>E.g.</i> , EX1003, ¶¶287-288, 290.
[9.f]: [the processor being configured to] retrieve from the	Harris discloses or renders obvious this limitation. (Grounds 1-4): Harris discloses the processor (<i>see</i> cl.12.b) retrieving, from the integrated centralized property database, location data, ¹⁵ the

more time periods *indicative of a time history of an associated data item.*”

EX1003, ¶289. Thus “time periods” “indicative of the time history of an associated data item,” which Harris expressly discloses (*see* cl.12.c), also satisfy this limitation. EX1003, ¶289.

¹⁵ Claim 9 expressly states “location data” includes “data associated with the geographic location identifier of a geographic location on the earth.” EX1003, ¶293. As discussed (*see* cl.12.a, cl.12.d), Harris expressly discloses storing and

Claim 9	Prior Art
integrated centralized property database location data, the location data including data associated with the geographic location identifier of a geographic location on the earth, and associated	location data including data associated with the geographic location identifier of a geographic location on the earth (<i>see</i> “having associated geographic location identifiers” in cl.12.d)), and associated with the received time period identifier (<i>see</i> “having associated time identifiers matching the received time information” in cl.12.d). <i>E.g.</i> , EX1003, ¶¶291-292, 294.

retrieving such data. EX1003, ¶293. To the extent it is argued “location data” includes only a geographic location identifier of a geographic location on the earth (*e.g.*, latitude and longitude), Harris also expressly discloses this, disclosing a stored “data object representing each crime report may *include values representing a longitude and latitude*,” that its users submit queries “for crime reports associated with incidents within a specified geographical radius,” and that Harris’s system retrieves and outputs these data (including location data in crime reports) because Harris’s system retrieves and outputs all results that “satisfy the geospatial [and temporal] component of the query.” EX1004, 1:30-37, 4:30-3, 10:46-48; EX1003, ¶293.

Claim 9	Prior Art
with the received time period identifier, and	
[9.g]: [the processor configured to] provide the retrieved location data to the user computer via a graphical user interface.	Harris discloses or renders obvious this limitation. (Grounds 1-4): Harris discloses the processor (<i>see</i> cl.12.b) providing the retrieved location data¹⁶ to the user computer via a graphical user interface (<i>see</i> cl.12.e). <i>E.g.</i>, EX1003, ¶¶295-298.

(e) Claim 10 (Grounds 3-4)

Claim 10	Prior Art
[10.pre]: The system of claim 9, the processor further configured to:	Harris in view of Florance renders obvious claim 10. (Ground 3). EX1003, ¶300. To the extent the preamble is limiting, Harris discloses or renders obvious the preamble. (Grounds 1-2, 4) Additionally, Harris in view of Florance renders obvious the preamble. (Ground 3) Harris discloses or renders obvious, or Harris in view of Florance renders obvious the system of claim 9, the processor further configured to: (<i>see</i> cl.9). <i>E.g.</i>, EX1003, ¶¶301-303.

¹⁶ *See* n.15.

Claim 10	Prior Art
[10.a]: retrieve parcel information from the integrated centralized property database;	Harris in view of Florance renders this limitation obvious. (Ground 3): Harris discloses or renders obvious, or Harris in view of Florance renders obvious the processor retrieving information from the integrated centralized property database (<i>see</i> cl.9.c, cl.12.b). <i>E.g.</i>, EX1003, ¶¶304-305, 314. Florance further discloses parcel information¹⁷ (<i>e.g.</i>, “latitudes and longitudes associated with the property”; “who owns the parcels around where the user is standing, who the tenants are, what the rent is, and what the sale points are”; “a record associated with the property [in] the real estate database... [which] can include, for example,... land use, lot size, building square footage, percent improved, stories, zoning, and total assessed value”) stored in a “central real estate database.” <i>E.g.</i>, EX1003, ¶¶306, 308-312, 314; EX1005, ¶0330 (“who owns the parcels around where the user is standing, who the tenants are, what the rent is, and what the sale points are.”), ¶0397, ¶0602 (“record associated with the property... can include... land use, lot size, building square footage, percent improved, stories, zoning, and total assessed value.”), ¶611 (“latitudes and longitudes associated with the property”), ¶619, ¶634 (“central real estate database”). POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Harris’s disclosed retrieval of information from an integrated centralized

¹⁷ To the extent “property information” and “parcel information” (as required by cl.10.a) are different from one another in ’648’s Claims, Florance expressly discloses both. *See* cl.12.a; EX1003, ¶307.

Claim 10	Prior Art
	property database (performed by Harris’s processor, <i>see</i> cl.12.b)—formed from data sources including, <i>e.g.</i>, “databases” of information with both geo-spatial and temporal components (<i>e.g.</i>, EX1004, 4:7-33, Fig.1)—using, as one data source for retrieval, Florance’s teachings of <i>parcel information</i> (which Florance also stores in a database). EX1003, ¶313. POSITA would have recognized that doing so would have advantageously made available another useful type of data to Harris’s (or Harris-Florance’s) existing integrated centralized property database for retrieval in response to queries, thus increasing its usefulness to users performing geo-temporal searches as Harris expressly discloses—including to determine and display (output) to the user parcels associated with a geographic location identifier in the centralized database. EX1003, ¶313. Indeed, as Harris expressly discloses, “[o]rganizations would appreciate a way to efficiently analyze collections of data including geo-temporal data to quickly identify information of interest or information pertinent to a line of inquiry.” EX1004, 4:46-49; EX1003, ¶313. For example, Florance itself teaches that a database user “investigating a

Claim 10	Prior Art
	property” in some location and “looking at 5 or 6 adjoining parcels could” advantageously use a database including parcel information to “tell[] the user who owns the parcels around where the user is standing, who the tenants are, what the rent is, and what the sale points are.” EX1005, ¶0330; EX1003, ¶313. For POSITA, this would have been an obvious, routine implementation choice and (particularly given Harris’s express disclosures that its system uses multiple different types of geo-temporal data, <i>e.g.</i>, EX1004, 5:50-65, and Florance’s express disclosure that its parcel information is stored in a database with both geo-spatial and temporal components and accessible based on, <i>e.g.</i>, location data, including to determine and display (output) to the user parcels associated with a geographic location identifier in the centralized database, <i>e.g.</i>, EX1005, ¶¶330, 397, 602, 619, 634) clear this would work, predictably yielding the expected functionality with REOS.¹⁸ EX1003, ¶313.

¹⁸ See n.6.

Claim 10	Prior Art
[10.b]: compare the retrieved parcel information with the location data to determine parcels associated with the geographic location identifier; and	Harris in view of Florance renders this limitation obvious. (Ground 3): Harris renders obvious the processor comparing retrieved information with the location data to determine information associated with the geographic location identifier (<i>see</i> cl.9.f, cl.12.b, cl.12.d). <i>E.g.</i>, EX1003, ¶¶315-316, 321. Florance discloses parcel information (<i>see</i> cl.10.a) and parcels (<i>e.g.</i>, “assessor parcel number, legal description, address”) associated with a geographic location identifier (<i>e.g.</i>, “[t]he property would be associated with a geocode in a real estate database”). <i>E.g.</i>, EX1003, ¶¶317-318, 321; EX1005, ¶0330 (“who owns the parcels around where the user is standing”), ¶0397 (“[T]he Overview page lists the property’s metro market, county, submarket, and zip code. This section also provides the map book and page on which to find the property, the block/lot of the property, and the parcel number.”), ¶602 (“The information... can include... assessor parcel number, legal description, address....”), ¶619 (“property would be associated with a geocode in a real estate database...”). POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Harris’s disclosed querying (performed by Harris’s processor) of multiple different types of data from disparate sources stored in Harris’s (or Harris-Florance’s) integrated centralized property database (including Florance’s parcel information and parcels in the combined Harris-Florance system), and including multiple search

Claim 10	Prior Art
	parameters (<i>e.g.</i>, “<i>one or more other search parameters</i>, for example, a search string, a sort order, etc.,” EX1004, 10:13-14) to compare location data and parcel information retrieved in response to a query to determine parcels associated with the geographic location identifier of the query (<i>e.g.</i>, in response to a query requesting crimes that occurred at particular parcels within a geographic area, to output crimes and the parcels at which they occurred). EX1003, ¶319. Harris expressly discloses, <i>e.g.</i>, “[d]ata analysts and other computer users often interact with and request data from computer-based databases containing large collections of data objects” from many organizations, for example, making “a search request for crime reports associated with incidents within a specified geographical radius” or many other types of data. EX1004, 1:13-17, 1:35-37, 3:1-6 (“bank transaction records, phone call records”), 4:24-25 (“using a key card to gain access to a building”), 4:30-32 (“cell phone call records... associated with data values reflecting a particular geographic location”); EX1003, ¶319. And Florance expressly discloses users beneficially searching for other types of

Claim 10	Prior Art
	information, including parcel information, such as “a user... investigating a property, looking at 5 or 6 adjoining parcels could” query, <i>e.g.</i>, “who owns the parcels around where the user are standing” and querying “the block/lot of the property and the parcel number.” EX1005, ¶¶330, 397; EX1003, ¶319. POSITA would have thus understood users beneficially query the Harris-Florance system across the various types of information it stores, and would have found it obvious to do so across the various types of information in the combined Harris-Florance system (containing parcel information as well as, for example, crime information); EX1003, ¶319. Harris also discloses that in response to queries, all data items satisfying the geospatial and temporal aspects of the query are retrieved. <i>E.g.</i>, EX1004, 10:44-58; EX1003, ¶319. POSITA would have thus have understood that in response to a user query seeking, <i>e.g.</i>, information as to crimes within a certain geographic search area and the parcels at which they occurred, Harris-Florance would have retrieved from its data repository all data items “representing a longitude and latitude corresponding to the geographical location of...

Claim 10	Prior Art
	incident[s]” within that geographic search area and further retrieved parcel information (<i>e.g.</i>, based on “latitudes and longitudes associated with the property”) within that geographic search area. EX1003, ¶319. To determine and output, from within this larger group of retrieved data, those parcels associated with the latitudes/longitudes of the incidents (as requested by the user query), POSITA would have found it obvious, advantageous, and straightforward to use well-known database operations to compare the retrieved parcel information with the location data concerning the incidents, such as “spatial join” (which would have been performed by Harris’s processor)—which was a well-known operation that compares different, disparate data sets each having spatial attributes (<i>e.g.</i>, longitude/latitude) stored in, <i>e.g.</i>, database tables (such as Harris’s expressly disclosed database tables (“other forms of data output may be used such as... storing in database tables,” EX1004, 9:35-37)) to determine whether there is any overlap in those data sets and determine whether any crimes occurred at longitudes/latitudes matching longitudes/latitudes associated with parcels stored in Harris’s database, and output the

Claim 10	Prior Art
	requested results of that comparison, <i>i.e.</i>, parcel(s) associated with the location(s) at which any incidents occurred (<i>e.g.</i>, the assessor parcel number, legal description, and/or address). EX1003, ¶319; EX1008, 5. For POSITA, this would have been an obvious, routine implementation choice and (particularly given Harris’s express disclosure of querying data with spatial attributes obtained from “disparate” sources, EX1004, 3:1-6, using multiple search parameters, EX1004, 10:13-14, storing results in database tables, EX1004, 9:35-37, and outputting the specific results requested by users and Florance’s express disclosures of beneficially querying and identifying parcels associated with a particular location, EX1005, ¶330), clear this would work, predictably yielding the expected functionality with REOS.¹⁹ EX1003, ¶319. As discussed (<i>see</i> cl.10.a), POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Harris’s disclosed retrieval of information from an integrated centralized property database—formed from data

¹⁹ *See* n.6.

Claim 10	Prior Art
	sources including, <i>e.g.</i>, “databases” of information with both geo-spatial and temporal components (<i>e.g.</i>, EX1004, 4:7-33, Fig.1)—using, as one data source, Florance’s teachings of <i>parcel information</i> and further using parcels associated with a geographic location identifier (which Florance also stores in a database). EX1003, ¶320. And as discussed (<i>see</i> cl.10.a), for POSITA, this would have been an obvious, routine implementation choice and (particularly given Harris’s express disclosures that its system uses multiple different types of geo-temporal data, <i>e.g.</i>, EX1004, 5:50-65 and Florance’s express disclosures that its parcel information and parcels are stored in a database with both geo-spatial and temporal components and accessible based on, <i>e.g.</i>, location data, including to compare location data with parcel information to determine and display (output) to the user parcels associated with a geographic location identifier in the database, <i>e.g.</i>, EX1005, ¶¶330, 397, 602, 619, 634) clear this would work, predictably yielding the expected functionality with REOS. EX1003, ¶320.

Claim 10	Prior Art
[10.c]: output the parcels associated with the geographic location identifier.	Harris in view of Florance renders this limitation obvious. (Ground 3): Harris discloses the processor outputting information associated with the geographic location identifier (<i>see</i> cl.9.g, cl.12.b). <i>E.g.</i>, EX1003, ¶¶322-323, 328. Florance discloses parcels associated with a geographic location identifier (<i>see</i> cl.10.b). <i>E.g.</i>, EX1003, ¶¶324-326, 328. As discussed (<i>see</i> cl.10.a, cl.10.b), POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Harris’s (or Harris-Florance’s) disclosed retrieval of information from an integrated centralized property database using Florance’s teachings of parcel information and parcels to determine and display (output) to the user parcels associated with a geographic location identifier in the database. <i>E.g.</i>, EX1003, ¶327. And as discussed (<i>see</i> cl.10.a, cl.10.b), for POSITA, this would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with REOS. <i>E.g.</i>, EX1003, ¶327.

(f) Claim 11 (Ground 4)

Claim 11	Prior Art
[11.pre]: The system of claim 10, the processor further configured to:	Harris in view of Florance and Salvagio renders obvious claim 11. (Ground 4). EX1003, ¶330. To the extent the preamble is limiting, Harris in view of Florance renders it obvious. (Ground 3): Harris in view of Florance render obvious the system of claim 10, the processor further configured to: (see cl.10). E.g., EX1003, ¶¶331-333.
[11.a]: retrieve insurance policy information from the integrated centralized property database;	Harris in view of Florance and Salvagio render this limitation obvious. (Ground 4): Harris discloses or renders obvious, or Harris in view of Florance renders obvious the processor retrieving information from the integrated centralized property database (see cl.9.c, cl.9.f, cl.12.b). E.g., EX1003, ¶¶334-335, 341. Salvagio discloses insurance policy information (e.g., “insurance carrier,... the effective date of insurance, the maximum amount of coverage under the policy, the person who procured the insurance, the expiration date of the policy, and the like”; “insurance information”) in a “property database.” E.g., EX1003, ¶¶336-339, 341; EX1006, Abstract (“property database...”), 6:5-19 (“.... [S]erver 204 may process the received file by adding insurance information which may cover the property... determine... insurance carrier, insurance policy number, the effective date of insurance, the maximum amount of coverage under the policy, the person who procured the insurance, the expiration date of the policy, and the like.”), 8:8-18 (“insurance information”), 10:48-63, 11:17-25, 11:63-64, cl.1, cl.7, Fig. 3 (including step 305):

Claim 11	Prior Art
	FIG. 3 <pre> graph TD 300[RECEIVE ELECTRONIC DATA FILE FOR A PARTICULAR PROPERTY] --> 305[PROCESS FILE] 305 --> 310{DAMAGE INDICATOR?} 310 -- YES --> 315[PASS FILE TO TECHNICAL AGENT] 315 --> 320[RECEIVE DAMAGE DETAILS] 320 --> 325[CREATE SUBFILES CORRESPONDING TO DAMAGES FOUND] 325 --> 330{DAMAGE SUFFICIENT FOR CLAIM?} 330 -- YES --> 335{EXTERNAL INSURANCE CARRIER OR ADDITIONAL RESEARCH NEEDED?} 335 -- YES --> 340[PASS TO COVERAGE TEAM] 340 --> 345[RECEIVE RESEARCH DETAILS] 345 --> 350{COVERAGE IDENTIFIED?} 350 -- YES --> 355[CREATE TPA FILE] 355 --> 360{INTERNAL INSURANCE CARRIER?} 360 -- YES --> 365[FILE CLAIM WITH INTERNAL INSURANCE CARRIER] 365 --> 390[CLOSE FILE] 360 -- NO --> 370[PASS TO CLAIMS TEAM] 370 --> 375[RECEIVE EXTERNAL CLAIM FILING DETAILS] 375 --> 380[FILE ASSIGNED USING LICENSING MATRIX] 380 --> 385[RECEIVE WORK FOLLOW UP DIARY ENTRY] 385 --> 390 330 -- NO --> 390 335 -- NO --> 390 350 -- NO --> 390 </pre> FIG. 4 <pre> graph TD 400[RECEIVE ELECTRONIC DATA FILE FOR A PARTICULAR PROPERTY] --> 405[MATCH PROPERTY INFORMATION WITH INSURANCE POLICY] 405 --> 410[DETERMINE INSURANCE CARRIER] 410 --> 415[UPDATE FILE TO INCLUDE INSURANCE INFORMATION] </pre>
	Fig.4: As discussed (<i>see</i> cl.10.a), POSITA would have been motivated and found it obvious, straightforward, and advantageous to

Claim 11	Prior Art
	implement Harris’s disclosed retrieval of information from an integrated centralized property database—formed from data sources including, <i>e.g.</i>, “databases” of information with both geo-spatial and temporal components (<i>e.g.</i>, EX1004, 4:7-33, Fig.1)—using, as one data source, Florance’s teachings of <i>parcel information</i> (which Florance also stores in a database). EX1003, ¶340. POSITA would further have been motivated and found it obvious, straightforward, and advantageous to implement the resulting Harris-Florance combination’s retrieval of information from Harris’s (or Harris-Florance’s) integrated centralized property database—formed from data sources including, <i>e.g.</i>, “databases” of information with both geo-spatial and temporal components (<i>e.g.</i>, EX1004, 4:7-33, Fig.1)—using, as one data source, Salvagio’s teachings of <i>insurance policy information</i> (which Salvagio stores in a database). EX1003, ¶340. POSITA would have recognized that doing so would have advantageously added another useful type of data to Harris-Florance’s existing integrated centralized property database, thus increasing its usefulness to users performing geo-temporal searches as Harris

Claim 11	Prior Art
	expressly discloses—including to determine and display (output) to the user insurance policies associated with a geographic location identifier in the centralized database. EX1003, ¶340. Indeed, as Harris expressly discloses, “[o]rganizations would appreciate a way to efficiently analyze collections of data including geo-temporal data to quickly identify information of interest or information pertinent to a line of inquiry.” EX1004, 4:46-49; EX1003, ¶340. For example, Salvagio itself discloses it is desirable to “avoid wasting... time and resources” in retrieving insurance information as part of, <i>e.g.</i>, a claims process. EX1006, 1:56-62; EX1003, ¶340. For POSITA, this would have been an obvious, routine implementation choice and (particularly given Harris’s express disclosures that its system uses multiple different types of geo-temporal data, <i>e.g.</i>, EX1004, 5:50-65 and Salvagio’s express disclosures that its data has geo-spatial components accessible based on, <i>e.g.</i>, location data, including to determine and display (output) to the user insurance policies associated with a geographic location identifier in the database, <i>e.g.</i>, EX1006, Abstract, 6:5-19, 8:8-18, 10:48-63) clear this would work,

Claim 11	Prior Art
	predictably yielding the expected functionality with REOS.²⁰ EX1003, ¶340.
[11.b]: compare the retrieved insurance policy information with the parcels associated with the geographic location identifier to determine the insurance policies associated with the geographic location identifier; and	Harris in view of Florance and Salvagio render this limitation obvious. (Ground 4): Harris renders obvious the processor comparing retrieved information with the geographic location identifier to determine information associated with the geographic location identifier (<i>see</i> cl.9.f, cl.12.b). <i>E.g.</i>, EX1003, ¶¶342-343, 351. Florance discloses parcels associated with a geographic location identifier (<i>see</i> cl.10.b). <i>E.g.</i>, EX1003, ¶¶344, 351. Salvagio discloses insurance policy information (<i>see</i> cl.11.a) and insurance policies (<i>e.g.</i>, “insurance policy”; “policy number”) associated with a geographic location identifier (<i>e.g.</i>, “particular property” identified by, <i>e.g.</i>, “street address..., city..., state..., [and] a ZIP code”). <i>E.g.</i>, EX1003, ¶¶345-348, 351; EX1006, 6:5-19 (“insurance policy number”), 8:8-18 (“file for a particular property...”), 9:6-27 (“claims summary file may contain, where applicable... property information (<i>e.g.</i>, access info, location of property, and the like)... insurance information (<i>e.g.</i>, carrier name, carrier contact information), policy information (<i>e.g.</i>, policy number, policy effective date, coverage amount, damage threshold, deductible amount)...”), 11:11-32, 11:33-48, Figs.4 (showing “Insurance Policy”), 5-7 (showing “Policy Number”):

²⁰ See n.6.

Claim 11

Prior Art

FIG. 4

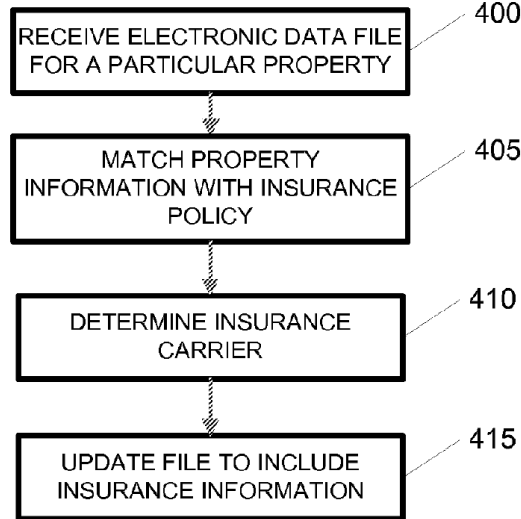


FIG. 5

FIG. 5 is a screenshot of a web interface for property insurance management. The interface includes a navigation bar at the top with tabs: PAYMENT, COVERAGE, ADMIN, CLAIMS, RESEARCH, PROPERTY, FILES, ACTIVITIES, MAILBOX, and CHECKS. The main content area is divided into several sections:

- PROPERTY DETAILS**: Includes fields for NEXT FILE, RELEASE FILE, FILE: XXXXXX, LENDER: BANK NAME, LOAN NO.: XXXXXX, BORROWER NAME: FIRST NAME LAST NAME, ADDRESS: XXX AAA DRIVE, CITY, STATE XXXXX, and STATUS: VACANT.
- REPORTS**: Includes fields for REPORT FREQUENCY: 1, DAMAGE INDICATOR: YES, STATUS: COMPLETED, and INSURABLE DAMAGE: Y.
- SUBFILE SUMMARY**: Includes two columns of subfile information. Subfile 1: SUBFILE NUMBER: 1, LOSS TYPE: NO DAMAGE, LOSS CAUSE: INCOMPLETE REMODEL, LOSS DESCRIPTION: MISSING FIXTURES, STATUS: NO INSURABLE DAMAGE, DAMAGE SUFFICIENT FOR CLAIM?: NO. Subfile 2: SUBFILE NUMBER: 2, LOSS TYPE: HAIL, LOSS CAUSE: HAIL DAMAGE, LOSS DESCRIPTION: DAMAGE TO ROOF, STATUS: SUBMITTED, DAMAGE SUFFICIENT FOR CLAIM?: YES.
- DETAILED DESCRIPTION OF SELECTED SUBFILE**: Includes fields for SUBFILE: 1, DATE OF LOSS: 1/1/2009, CARRIER: COMPANY1, COVERAGE: OI, COVERAGE AMOUNT: 100,000, and POLICY NUMBER: XXXXXX.

As discussed (cl.10.b), POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement

Claim 11	Prior Art
	the combined Harris-Florance system to compare retrieved location information with retrieved parcel information to, <i>e.g.</i>, determine and output parcels at which crimes or other incidents occurred. EX1003, ¶349. For the reasons discussed in claim 10, POSITA would have understood that in response to a user query (by, <i>e.g.</i>, “an insurance provider or claims administrator,” EX1006, Abstract) seeking certain types of information, <i>e.g.</i>, crimes and the parcels at which they occurred as well as insurance information concerning those parcels (<i>e.g.</i>, to “file insurance claims,” “receive a determination of coverage,” “determine damage,” and/or “track... insurance claims” as expressly taught in Salvagio (EX1006, 2:26-30)), Harris-Florance-Salvagio would have retrieved from its data repository all data items regarding the location of those incidents, parcel information, and insurance policy information within that geographic search area. EX1003, ¶349. POSITA would have further been motivated and found it obvious, straightforward, and advantageous to implement the combined Harris-Florance system using Salvagio’s disclosed data including insurance policy information and insurance policies

Claim 11	Prior Art
	(each associated with a geographic location identifier) to compare—in response to a user query of Harris’s multiple, disparate data sets further seeking insurance policies associated with parcels at which crimes or other incidents have occurred (<i>see</i> cl.10.b)—retrieved insurance policy information associated with a particular property with the parcels at which such incidents occurred to determine and output insurance policies associated with those properties. EX1003, ¶349. This would have advantageously enabled a user of the combined system who is concerned with crimes occurring within particular parcels (<i>see</i> cl.10) to, <i>e.g.</i>, “receive a determination of coverage,” “file insurance claims,” “determine damage,” and/or “track... insurance claims” as to crimes in such parcels using the combined database, as expressly discussed in Salvagio. EX1006, 2:26-30, 2:46-50; EX1003, ¶349. To determine and output insurance policies associated with the geographic location identifier, POSITA would have found it obvious, advantageous, and straightforward to use well-known database operations, such as “join” (which would have been performed by Harris’s

Claim 11	Prior Art
	processor)—a well-known operation that compares different, disparate data sets based on something other than spatial attributes (such as address or parcel number, as opposed to latitude/longitude), EX1003, ¶349; EX1015, 1—on data stored in, <i>e.g.</i>, database tables (Harris’s expressly disclosed database tables, EX1004, 9:35-37)) to compare the retrieved insurance policy information with the parcels associated with the incidents (<i>see</i> cl.10) to determine whether there is any overlap in those data sets and determine and output any insurance policies associated with the geographic location identifier associated with such parcels. EX1003, ¶349. For POSITA, this would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with REOS.²¹ EX1003, ¶349. As also discussed above (cl.11.a) POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement the Harris-Florance combination’s

²¹ *See* n.6.

Claim 11	Prior Art
	retrieval of information (performed by Harris’s processor, <i>see</i> cl.12b) from Harris’s (or Harris-Florance’s) integrated centralized property database—formed from data sources including, <i>e.g.</i>, “databases” of information with both geo-spatial and temporal components (<i>e.g.</i>, EX1004, 4:7-33, Fig.1)—using, as one data source, Salvagio’s teachings of <i>insurance policy information and insurance policies</i> (which Salvagio also stores in a database). EX1003, ¶350. For POSITA, this would have been an obvious, routine implementation choice and (particularly given Harris’s express disclosures that its system uses multiple different types of geo-temporal data, <i>e.g.</i>, EX1004, 5:50-65 and Salvagio’s express disclosures that its data has geo-spatial components accessible based on, <i>e.g.</i>, location data, including to determine and display (output) to the user insurance policies associated with a geographic location identifier in the database, <i>e.g.</i>, EX1006, Abstract, 6:5-19, 8:8-18, 10:48-63) clear this would work, predictably yielding the expected functionality with REOS. EX1003, ¶350.

Claim 11	Prior Art
[11.c]: output the insurance policies associated with the geographic location identifier.	Harris in view of Salvagio renders this limitation obvious. (Ground 4): Harris discloses the processor outputting data associated with the geographic location identifier (<i>see</i> cl.9.g, cl.12.b). <i>E.g.</i>, EX1003, ¶¶352-353, 358. Salvagio discloses insurance policies associated with a geographic location identifier (<i>see</i> cl.11.b). <i>E.g.</i>, EX1003, ¶¶354-356, 358. As discussed above (cl.11.a, cl.11.b) POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Harris-Florance’s disclosed retrieval of information (performed by Harris’s processor, <i>see</i> cl.12b) from an integrated centralized property database using Salvagio’s teachings of <i>insurance policy information</i>. EX1003, ¶357. And as discussed (<i>see</i> cl.11.a, 11.b), for POSITA, this would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with REOS. EX1003, ¶357.

(a) Claim 1 (Grounds 1-2)

Claim 1	Prior Art
[1.pre]: A method, comprising:	Harris anticipates or renders obvious claim 1. (Grounds 1-2). EX1003, ¶211. To the extent the preamble is limiting, Harris discloses or renders obvious the preamble. (Grounds 1-2): Harris discloses a method (<i>e.g.</i>, “method and apparatus for a data analysis system for analyzing data object collections that include geo-temporal data”; “methods for indexing and searching geo-temporal data stored in a data repository”; “method of creating and processing geo-temporal queries”). <i>E.g.</i>, EX1003, ¶¶212-218; EX1004, Abstract (“method... for analyzing... collections that include geo-temporal data”), 2:1-3, 2:50-67 (“methods for indexing and searching geo-temporal data stored in a data repository”), 9:8-25 (“method of creating and processing geo-temporal queries”), cl.1, Fig. 3:

Claim 1	Prior Art
	FIG. 3 <pre> graph TD 300[RECEIVE INPUT DATA THAT IS ASSOCIATED WITH A GEOSPATIAL COMPONENT AND A TEMPORAL COMPONENT 300] --> 302[STORE A REFERENCE TO THE INPUT DATA IN A GEOSPATIAL INDEX BASED ON THE GEOSPATIAL COMPONENT 302] 302 --> 304[RECEIVE TEMPORAL INDEX CONFIGURATION DATA SPECIFYING ONE OR MORE TIME GRANULARITIES 304] 304 --> 306[GENERATE A TEMPORAL INDEX BUCKET GROUP FOR EACH SPECIFIED TIME GRANULARITY 306] 306 --> 308[STORE A REFERENCE TO THE INPUT DATA IN A PARTICULAR TEMPORAL INDEX BUCKET OF EACH TEMPORAL INDEX BUCKET GROUP BASED ON THE TEMPORAL COMPONENT 308] </pre>
[1.a]: storing a plurality of data items in a data aggregation system,²²	Harris discloses or renders obvious this limitation. (Grounds 1-2): Harris discloses storing a plurality of data items in a data aggregation system (<i>e.g.</i>, system including, <i>e.g.</i>, “data repository,” “one or more adaptors”; <i>see</i> cl.12.a (mapping for storing data in an

²² As discussed (*see* §VI.A), the claimed “data aggregation system” is a system that aggregates data from multiple distributed external data sources into a centralized database. EX1001, 1:48-62, 14:42-15:63, Fig. 6; EX1012, 2, 5-7, 10. Harris discloses this limitation. *See* cl.12.a; EX1003, ¶221. To the extent aggregating data is not required, the claims are broader and clearly met. EX1003, ¶221.

Claim 1	Prior Art
each of the plurality of data items being associated with one or more geographic location identifiers of a particular geographic point on earth, wherein at least a portion of the plurality of data items stored in the data aggregation system are further associated with one or more time identifiers including one or more time or time periods, indicative of a time history of an associated data item	“integrated centralized property database,)), each of the plurality of data items being associated with one or more geographic location identifiers of a particular geographic point on earth (<i>see</i> cl.12.a.), wherein at least a portion of the plurality of data items stored in the data aggregation system are further associated with one or more time identifiers including one or more time or time periods, indicative of a time history of an associated data item regarding the associated geographic point on earth (<i>see</i> cl.12.a). <i>E.g.</i>, EX1003, ¶¶219-220, 222-223; EX1004, 5:9-12 (“data repository 111, one or more adaptors 103”).

Claim 1	Prior Art
regarding the associated geographic point on earth;	
[1.b]: receiving, by at least one processor, a query regarding a geographic location and including time information;	Harris discloses or renders obvious this limitation. (Grounds 1-2): Harris discloses receiving, by at least one processor (<i>see</i> cl.12.b, cl.12.c), a query regarding a geographic location and including time information; (<i>see</i> cl.12.c). <i>E.g.</i>, EX1003, ¶¶224-226.
[1.c]: retrieving, from the data aggregation system, data	Harris discloses or renders obvious this limitation. (Grounds 1-2): Harris discloses retrieving, from the data aggregation system²³ (<i>see</i> cl.12.d mapping “retrieve, from the integrated centralized

²³ Harris discloses retrieving data from its “data repository” (which is a component in Claim 1’s “data aggregation system”) and thus Harris discloses “retrieving[] from the data aggregation system.” EX1003, ¶229. To the extent it is argued data must be retrieved by a user or user computer external to the data aggregation system, Harris expressly discloses a data analyst external to the data aggregation system retrieving data from its system (*see* EX1004, Fig.1 (“Data Analyst”)) and

Claim 1	Prior Art
items having associated geographic location identifiers matching the received geographic location and having associated time identifiers matching the received time information; and	property database”; the “integrated centralized property database” is part of a “data aggregation system” (<i>see</i> cl.1.a)), data items having associated geographic location identifiers matching the received geographic location and having associated time identifiers matching the received time information; and (<i>see</i> cl.12.d). <i>E.g.</i> , EX1003, ¶¶227-228, 230.
[1.d]: outputting the retrieved data items.	Harris discloses or renders obvious this limitation. (Grounds 1-2): Harris discloses outputting²⁴ the retrieved data items (<i>see</i> cl.12.e). <i>E.g.</i> , EX1003, ¶¶231-232, 234.

also that its system “can send messages and receive data... through [] networks,” EX1004, 13:28-30, and thus would have been accessible from a user computer system external to the data aggregation system. EX1003, ¶229.

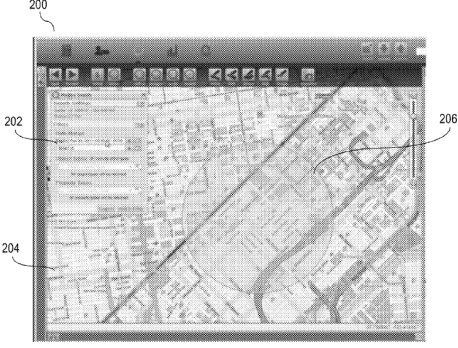
²⁴ “Outputting” includes providing the retrieved data items to a user via a graphical user interface, and thus Harris expressly discloses this limitation (*see* cl.12.e). EX1003, ¶233.

(b) Claim 2 (Grounds 1-2)

Claim 2	Prior Art
[2]: The method of claim 1, wherein the one or more geographic location identifiers include latitude and longitude coordinates of a surface of the earth.	Harris anticipates or renders obvious claim 2. (Grounds 1-2). EX1003, ¶236. Harris discloses or renders obvious this limitation. (Grounds 1-2): Harris discloses the method of claim 1, wherein the one or more geographic location identifiers (<i>see</i> cl.1) include latitude and longitude coordinates of a surface of the earth (<i>see</i> cl.12.a, cl.13). <i>E.g.</i>, EX1003, ¶¶236-238.

(c) Claim 4 (Grounds 1-2)

Claim 4	Prior Art
[4]: The method of claim 1, wherein the received geographic location includes a region on the earth.	Harris anticipates or renders obvious claim 4. (Grounds 1-2). EX1003, ¶240. Harris discloses or renders obvious this limitation. (Grounds 1-2): Harris discloses the method of claim 1 (<i>see</i> cl.1), wherein the received geographic location (<i>see</i> cl.1. (citing cl.12.c)) includes a region on the earth (<i>e.g.</i>, “search for data objects associated with particular geographic regions”; “geo-temporal queries that specify one or more geospatial search parameters corresponding to geographical areas of interest”). <i>E.g.</i>, EX1003, ¶¶240-247; EX1004, 1:21-37, 4:44-59 (“[G]eo-temporal queries that specify one or more geospatial search parameters corresponding to geographical areas of interest.... activities within a single city

Claim 4	Prior Art
	block... [or] within an entire city...”), 5:59-6:6, 6:58-7:4, 8:36-57 (“search for data objects associated with particular geographic regions....”), 9:47-64, Fig.2: FIG. 2 

(d) Claim 5 (Grounds 1-2)

Claim 5	Prior Art
[5]: The method of claim 4, wherein the region on the earth is identified by multiple geocoded^[25]	Harris anticipates or renders obvious claim 5. (Grounds 1-2). EX1003, ¶249. Harris discloses or renders obvious this limitation. (Grounds 1-2):

²⁵ ’648 confirms geocoding information includes latitude, longitude, and/or Z-axis information. EX1001, 1:67-2:3 (“data items may be processed to determine or extract geocoding information, such as latitude, longitude and/or Z-axis information (i.e., height above or depth below the surface of the earth”)); EX1003, ¶251.

Claim 5	Prior Art
locations, the multiple geocoded locations described in at least latitude and longitude coordinates.	Harris discloses the method of claim 4 (see cl.4), wherein the region on the earth (see cl.4 (citing cl.1)) is identified by multiple geocoded locations (e.g., “geospatially searchable data may be searched using queries that specify one or more geographical search parameters”), the multiple geocoded locations described in at least latitude and longitude coordinates (e.g., “latitude and longitude values that define a geographical area”). E.g., EX1003, ¶¶249-250, 252-254; EX1004, 6:58-7:4 (“[G]eospatially searchable data may be searched using queries that specify one <i>or more</i> geographical search parameters... latitude and longitude values that define a geographical area.”), 9:47-64, cl.4.

(e) Claim 6 (Grounds 1-2)

Claim 6	Prior Art
[6]: The method of claim 1, wherein the time information of the query includes one or more time periods.	Harris anticipates or renders obvious claim 6. (Grounds 1-2). EX1003, ¶256. Harris discloses or renders obvious this limitation. (Grounds 1-2): Harris discloses the method of claim 1 (see cl.1), wherein the time information of the query includes one or more time periods (e.g., “temporal range of interest”; “specified temporal range”; “range of time values” specified “temporal search parameters”; “query is received that specifies a temporal range”; “temporal search parameters corresponding to... time ranges of interest”; “query is received specifying a particular... temporal range spanning the years 2008 and 2009”; see cl.15). E.g., EX1003, ¶¶256-263; EX1004, 3:50-4:3 (“query... specifying a particular geospatial and a temporal range spanning... 2008 and 2009”), 9:65-10:14 (“specify a ... temporal range...”), 9:38-46 (“range of time values as geospatial and temporal search parameters”), 10:24-43 (“query... specifies a temporal range”),

Claim 6	Prior Art
	4:44-59 (“temporal search parameters corresponding to... time ranges of interest.”), 10:59-11:19.

* * *

Petitioner is aware of no evidence from PO of secondary considerations with a nexus to '648, and reserves the right to address any PO raises. *Petroleum Geo-Servs. Inc. v. WesternGeco LLC*, IPR2014-01475, Pap.18, 28 (Mar. 17, 2015) (secondary considerations evidence “must be first developed... by Patent Owner”). EX1003, ¶360.

VII. THE BOARD SHOULD NOT EXERCISE §314(a) DISCRETION

Discretionary denial under *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Pap.11 (Mar. 20, 2020) (precedential) is not relevant here because no trial date has been set and the median time to trial in the District of Utah where parallel litigation is ongoing would not yield a trial date until about May 21, 2026, long after the projected September 2024 statutory deadline for a final written decision in this proceeding. See EX1013, 85; USPTO, *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation*, at 3, 8-9 (June 21, 2022).

VIII. CONCLUSION

Petitioner requests this Petition be instituted and the Claims found unpatentable/canceled. Per §§1.33(c), 42.105(c), and 42.100, pursuant to

agreement with PO's counsel this Request is being served via electronic mail on PO's counsel. The Director is authorized to charge any fee deficiency (including for any paper this firm hereafter files in this proceeding) to Deposit Account DA604974.

Respectfully submitted,

March 23, 2024

By: /J. Steven Baughman/
J. Steven Baughman

CLAIM APPENDIX

The claim listing below assigns element labels to the independent claim(s) corresponding to the mappings provided in the Petition.

Limitation	Text
1[pre]	A method, comprising:
1[a]	storing a plurality of data items in a data aggregation system, each of the plurality of data items being associated with one or more geographic location identifiers of a particular geographic point on earth, wherein at least a portion of the plurality of data items stored in the data aggregation system are further associated with one or more time identifiers including one or more time or time periods, indicative of a time history of an associated data item regarding the associated geographic point on earth;
1[b]	receiving, by at least one processor, a query regarding a geographic location and including time information;
1[c]	retrieving, from the data aggregation system, data items having associated geographic location identifiers matching the received geographic location and having associated time identifiers matching the received time information; and
1[d]	outputting the retrieved data items.
2	The method of claim 1, wherein the one or more geographic location identifiers include latitude and longitude coordinates of a surface of the earth.
4	The method of claim 1, wherein the received geographic location includes a region on the earth.
5	The method of claim 4, wherein the region on the earth is identified by multiple geocoded locations, the multiple geocoded locations described in at least latitude and longitude coordinates.
6	The method of claim 1, wherein the time information of the query includes one or more time periods.
9[pre]	A system, comprising:

Limitation	Text
9[a]	a computer processor;
9[b]	a memory coupled to the processor; and
9[c]	an integrated centralized property database, the processor being configured to:
9[d]	receive from a user computer a query including a geographic location identifier, the geographic location identifier including one of a geocoded location and multiple geocoded locations identifying a polygon,
9[e]	receive from the user computer a time period identifier including one or more time or time periods, indicative of a time history of an associated data item regarding the associated geographic point on earth,
9[f]	retrieve from the integrated centralized property database location data, the location data including data associated with the geographic location identifier of a geographic location on the earth, and associated with the received time period identifier, and
9[g]	provide the retrieved location data to the user computer via a graphical user interface.
10[pre]	The system of claim 9, the processor further configured to:
10[a]	retrieve parcel information from the integrated centralized property database;
10[b]	compare the retrieved parcel information with the location geographic location data to determine parcels associated with the geographic location identifier; and
10[c]	output the parcels associated with the geographic location identifier.
11[pre]	The system of claim 10, the processor further configured to:
11[a]	retrieve insurance policy information from the integrated centralized property database;
11[b]	compare the retrieved insurance policy information with the parcels associated with the geographic location identifier to determine the insurance policies associated with the geographic location identifier; and
11[c]	output the insurance policies associated with the geographic location identifier.

Limitation	Text
12[pre]	A system, comprising:
12[a]	an integrated centralized property database stored on computer - readable storage media, the integrated centralized property database including a plurality of items each of the plurality of data items being associated with one or more geographic location identifiers indicating a particular geographic point on earth, and at least a portion of the plurality of data items further being associated with one or more time identifiers including one or more time indicative of a time history of an associated data item regarding the associated geographic point on earth;
12[b]	at least one computer processor communicatively coupled with the integrated centralized property database, the at least one computer processor configured to:
12[c]	receive, from a user computer system, a query of a geographic location and time information indicative of the time history of an associated data item regarding the geographic point on earth;
12[d]	retrieve, from the integrated centralized property database, data items having associated geographic location identifiers matching the received geographic location and having associated time identifiers matching the time information, and
12[e]	provide the retrieved data items to the user computer system via a graphical user interface.
13	The system of claim 12, wherein the one or more geographic location identifiers include latitude and longitude coordinates.
15	The system of claim 12, wherein the time identifier includes one or more time periods.

CERTIFICATE UNDER 37 C.F.R §42.24(d)

Pursuant to 37 CFR §42.24(d), the undersigned certifies that this Petition complies with the type-volume limitation of 37 C.F.R. §42.24(a). The word count application of the word processing program used to prepare this Petition indicates that the Petition contains 13,985 words, excluding the parts of the brief exempted by 37 C.F.R. §42.24(a).

Respectfully submitted:

/Michael F. Milea /
Michael F. Milea

March 23, 2023

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the following documents has been served in its entirety on the patent owner as provided in 37 C.F.R. §42.105:

Petition for *Inter Partes* Review of United States Patent No. 10,671,648 and accompanying exhibits:

Exhibit	Description
EX1001	U.S. Patent No. 10,671,648
EX1002	U.S. Patent No. 10,671,648 File History
EX1003	Declaration of Cyrus Shahabi, Ph.D.
EX1004	U.S. Patent No. 9,501,507 (Harris)
EX1005	U.S. Patent Pub. No. 2009/0132316 (Florance)
EX1006	U.S. Patent No. 8,401,877 (Salvagio)
EX1007	U.S. Patent No. 8,260,775 (Ahn)
EX1008	Samet, H., “Foundations of Multidimensional and Metric Data Structures” (2006)
EX1009	U.S. Pub. No. 2016/0210326 (Tolman)
EX1010	U.S. Patent No. 9,927,941 (Steimle)
EX1011	U.S. Patent Pub. No. 2009/0063424 (Iwamura)
EX1012	Plaintiffs’ Opposition to Defendants’ Motion to Dismiss Based on Unpatentability Under 35 U.S.C. § 101, Dkt. 297, <i>Eagle View Technologies Inc., and Pictometry International Corp v. Nearmap US, Inc., Nearmap Australia Pty Ltd, and Nearmap Ltd</i> , C.A. No. 2:21-cv-00283-TS-DAO (D. Utah May 16, 2023)
EX1013	<i>U.S. District Courts—National Judicial Caseload Profile</i> , available at https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_distprofile1231.2023.pdf (Dec. 31, 2023)
EX1014	Fourth Amended Patent Case Scheduling Order, Dkt. 372, <i>Eagle View Technologies Inc., and Pictometry International Corp v. Nearmap US, Inc., Nearmap Australia Pty Ltd, and Nearmap Ltd</i> , C.A. No. 2:21-cv-00283-TS-DAO (D. Utah Dec. 27, 2023)

Exhibit	Description
EX1015	Gotlieb, L., "Computing Joins of Relations," SIGMOD '75: Proceedings of the 1975 ACM SIGMOD international conference on Management of data (May 1975)
EX1016	Declaration of Sayem Osman

Pursuant to agreement with PO's counsel, the copy has been served on March 23, 2024, by causing the aforementioned document to be electronically mailed to the following attorneys for PO listed below:

Counsel Authorized to Accept Service:	Gregory P. Webb HAYNES AND BOONE, LLP 6000 Headquarters Dr. Suite 200 Plano, TX 75024 greg.webb@haynesboone.com Patricia Hauglum HAYNES AND BOONE, LLP 6000 Headquarters Dr. Suite 200 Plano, TX 75024 patricia.hauglum@haynesboone.com By Electronic Mail
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Dated: March 23, 2024

**GROOMBRIDGE, WU, BAUGHMAN &
STONE LLP**

/Sayem Osman/
Sayem Osman