NATHANIEL POLISH, Ph.D.
Daedalus Technology Group, Inc.
350 Seventh Avenue
NewYork, NY 10001
(212) 684-3890

business experience

2019-present

President, Founder

SuperAlert, Inc. **NEW YORK, NY**

SuperAlert has developed a range of wireless sensors used for monitoring building systems in large New York City residential buildings. SuperAlert manufactures, deploys, and operates sensor suites and generates notifications and alerts for building personnel and owners.

1980-present

President

NEW YORK, NY

Daedalus Technology Group, Inc. Successor to NPS ASSOCIATES

Co-founded computer consulting firm. Employs up to twenty people as needed.

clients include

Intellectual Property Consulting. Various anonymous clients. **NEW YORK, NY**

Consulting on patent valuation and strategy: Act as an advisor on technical and intellectual property matters to various clients. Developed intellectual property for various companies. 2001- present.

SpokenHub. **NEW YORK, NY**

Predictive dialer deployment and operation: During the 2012 election cycle assembled and ran a team of engineers to deploy, debug, and operate a large scale outbound calling server farm. This server farm supported hundreds of agents and millions of minutes of calling. 2012.

Risk Solutions International. **NEW YORK, NY**

Risk management: Developed technology platform to allow for complex question and answer sessions with airport managers. The results of the sessions then generated planning documents used in risk management. Results were published as part of a Transportation Research Board research program. 2011-2013.

Smart Systems/Specialty Acquirer. **NEW YORK, NY**

Advanced Transit fare collection: Founding member of board of directors. Advisor on technical and intellectual property matters. Developed intellectual property for the company. The company is engaged in the development and sale of advanced fare collection systems for mass transit using RFID technologies. 2004-present.

Skywi. **FORT WORTH, TX**

Wireless broadband: Founding board of directors member. Advisor on technical and intellectual property matters. The company provides a variety of wireless broadband services to semi-rural customers using mesh networks. 2004-2009

Placecorp. **NEW YORK, NY**

Wireless text messaging system: Designed and developed a very large scale, multi-platform text messaging system. Acted as the lead technologist for a startup. In this capacity attended many venture capital meetings and developed all technical sections to the business plans. The system integrated advanced Interactive Voice Response (IVR) with email, paging, and SMS messaging. Oversaw and planned initial development of very small paging device to be manufactured in very high volume. 2000-2001.

Marketboy. **NEW YORK, NY**

Distributed market making system: Provided a range of services in the areas of product definition, specification, and implementation strategy. Marketboy was a distributed system that allowed prospective purchasers and vendors to make bids and ask offers for proposed transactions. 2000.

Savos. **NEW YORK, NY**

Telephone to streaming audio bridge: Developed, designed and deployed an industrial strength IVR system that allows users to access streaming media via their cell phones. The system supports up to 96 streams on a single chassis. Developed web based content management system and interface for customizable user preferences. 2000.

Samsung et al. v. Techiya
IPR2024-01031
Exhibit 1003

deliverENow. **NEW YORK, NY**

Online delivery system: Developed a proof of concept prototype of online delivery system. This consisted of a stock clerk server written for Windows CE (Clio) with a CDPD network connection. It demonstrated how purchase and delivery information would be sent to an in-store stock person who prepares them for pickup by a member of the deliverENow courier network. Provided strategic technical advice. Served on board of advisors. Wrote technical specification of business and logistical components of the system. 2000.

Togglethis. **NEW YORK, NY**

Animation distribtion system: Developed critical components of initial version of email-delivered animation system. Components included MacroMedia Director Xtras as well as encryption functions. Developed tools to distribute and manage Togglethis's content, DTG built a custom UNIX email list-server. This server allowed Toggle administrators to create groups, upload episodes, and schedule the delivery of their content. Developed system architecture and language specification for the next version of the IC Engine, which drives the characters. 1998-1999.

JuniorNet. **BOSTON, MA**

Children's on-line service: Designed, developed and lead the implementation of a large scale network system for delivery of children's entertainment and education content. Worked with the president and other key players to fit a technology strategy to corporate goals. System is required to serve from 200,000 to 1,000,000 subscribers and be supportable over three to five years. All project goals met within a $1,000,000+ budget. 1997-2000.

One Click Charge. **NEW YORK, NY**

Provide a wide range of consulting services starting with technology evaluation for the principal investor. Provided services in the areas of product definition, team formation and implementation strategy. Developed significant components of a substantial Internet micropayment and authentication system. 1998-2000.

Swatch. **WEEHAWKEN, NJ**

Ticketing system: Implemented a radio frequency identification (RFID) based system for providing access to the 1998 Goodwill Games utilizing RFID tagged wristwatches. 1998-1999.

Instant Video Technologies, Inc./Burst.com **SAN FRANCISCO, CA**

Burstware: Designed and developed a series of products to deliver digital video and audio materials over wide-area internet using consumer grade computers. Products were designed to fit within the client's existing patent portfolio. 1995-1997.

Technical evaluation: Provided technology strategy and evaluation services and acted as Technology Director. 1995-1997.

Assurenet. **BETHESDA, MD**

Internet Insurance system: Designed and developed a system for utilization of the Internet for the distribution and control of insurance agent support software. System can handle tens of thousands of simultaneous users. Member of Board of Directors. 1995-2002.

New Zealand Antarctic Project (NZAP) and US Antarctic Program (USAP). **ANTARCTICA**

Penguin Weighbridge: Designed, developed, and deployed system for tracking the comings and goings, weights, and Ids of Adelie penguins in their natural environment on three colonies on Ross Island, Antarctica. Systems run continuously for months in adverse conditions. System was upgraded and replaced in 2016. 1994-present.

Electronic Digital Documents, Inc. **NEW YORK, NY**

Check Image Compression system: 1995-1999.

American Veterinary Identification Devices, Inc. **NORCO, CA**

AVID reader: Designed and developed digital computer components of radio frequency identification system. Work involved imbedded microcontrollers and real-time digital signal processing in very noisy environment. Designed communications protocols including encryption and error checking schemes. Product in high volume (50,000 unit) production. 1988-1995.

Amprobe Instrument, Inc. **LONG ISLAND, NY**

REMCON tester: Designed and implemented product life-cycle test fixture for a new and innovative solid state switch. Test fixture used by Underwriters Labs for approval. 1988.

Personal Computer Card Corporation **NEW YORK, NY**

Smart Cards: Designed smart card reader/writer system. Performed general design and component selection and wrote software for smart card communications. System design implemented in commercial product. 1987.

The Dun & Bradstreet Corporation **NEW YORK, NY**

Voice editing systems: Designed and built all parts of four generations of interactive voice editing systems. Editing systems produce output used in extensive, high quality speech synthesis system that is part of larger information delivery system. The systems are built on networks of computers in a variety of programming languages and systems. The system involved interactive user interfaces, screen windows, signal processing, and voice file systems. 1982-1991.

1997-2001

Co-Founder, Director and CTO

I-RECALL,INC. **NEW YORK, NY**

Co-founded a company that developed software to enable note-taking and linking of notes to streaming media. Used platforms such as PalmPilot and CrossPad for note-taking and provided time-stamped links to audio and video media. Company sold to a focus group company.

1996-1999

Co-Founder, Director, CTO & Principal Product Designer

SOLILOQUY,INC. **NEW YORK, NY**

Natural language interfaces to databases: Co-founded in 1996 a company to provide next generation interfaces to structured databases. Developed prototype system using speech recognition and speech synthesis to provide access to music and ecommerce databases. Raised $1.5 million in angel investments. Company has raised a total of $8 million through a variety of institutional and individual investors. Hired replacement CTO and exited company in 1999.

1991-1992

President & Principal Product Designer

SIMPLICITY COMPUTING,INC. **NEW YORK, NY**

Co-founded in 1991 a computer peripherals manufacturing company concentrating on portable products with international mass-market appeal. Main product: Simplicity Portable Drive, an IBMPC parallel port connected, portable disk storage system. Marketed domestically and in 25+ countries. Products marketed direct via telemarketers, trade shows, sales reps, and national advertising. Products distributed through dealers, distributors and national catalog houses. Company employed 10 people.

- Wrote business plan and raised $350,000 startup funding
- Established marketing plans
- Directed marketing of products in trade shows, national advertisements and focus groups
- Managed employees
- Designed hardware and software for products
- Supervised hardware & software implementation teams
- First units shipped less than six months from start of project
- Supervised all aspects of manufacturing and testing process
- Contracted with four manufacturing facilities and many suppliers for production
- Supervised and established call-in customer support services

1989-1999

President & CEO

MEASUREMENT & CONTROL PRODUCTS, INC. **NEW YORK, NY**

Founded in August 1989 an electronic products development company. M&CP designs, develops, markets and sells its own products through retail, wholesale and catalog channels domestically and abroad. All manufacturing is contracted. Company was profitable in its first year of operation.

Flagship product:

BitView: Hand held RS-232 data communications diagnostic monitor. Invented, developed and produced hardware and software. Developed and oversaw implementation of marketing strategies, budgets, and business plans. Product currently in third production run.

education

1980-1993 **COLUMBIA UNIVERSITY** **NEW YORK, NY**

Ph.D. in Computer Science, May 1993.
Thesis: *Mixed Distance Measures for the Optimization of Concatenative Vocabularies in Speech Synthesis.*
MPhil in Computer Science, December 1989.
MS in Computer Science, December 1987.
BA in Physics, Columbia College, May 1984.

teaching positions

1997 **COLUMBIA UNIVERSITY** **NEW YORK, NY**

Adjunct Professor, Computer Science.
Advanced undergraduate course: Artificial Intelligence.

1989 **COLUMBIA UNIVERSITY** **NEW YORK, NY**

Graduate Lecturer, Computer Science.
Advanced undergraduate course: Software Design. Taught 68 advanced undergraduates. Supervised two teaching assistants. Students implemented full spreadsheet application under UNIX.

1984-1985 **CITY UNIVERSITY OF NEW YORK** **NEW YORK, NY**

Adjunct Professor, Experimental Psychology.
Graduate-level course: Computer Methods in Experimental Psychology.

publications and patents

2024 Beth Polish, Nathaniel Polish, Seth Godin, and Robert Gehorsam. Real-time event and participant communication systems. United States Patent 11,962,628. April 16, 2024.

2022 Nathaniel Polish. Calibration apparatus and method. United States Patent 11,215,499. January 4, 2022.

2016 Michael L. Beigel, Nathaniel Polish, Steven R. Frank, and Robert E. Malm. Electronic identification system with improved sensitivity. United States Patent 9,430,728. August 30, 2016.

2010 Michael L. Beigel, Nathaniel Polish, Steven R. Frank, and Robert E. Malm. Electronic Identification System with Improved Sensitivity. United States Patent 7,737,821B2. June 15, 2010.

2009 Martin Silbernagl and Nathaniel Polish**.** Learning Fare Collection System for Mass Transit. United States Patent 7,568,617. August 4, 2009.

2009 Martin Silbernagl and Nathaniel Polish. Learning Fare Collection System for Mass Transit. United States Patent 7,566,003. July 28, 2009.

2009 Michael L. Beigel, Nathaniel Polish, Steven R. Frank, and Robert E. Malm**.** Electronic identification system with improved sensitivity. United States Patent 6,472,975. October 29, 2002.

2002 Nathaniel Polish. Bilateral speech system. Speech dialogs for database access. United States Patent 6,430,531. August 6, 2002.

1999 Nathaniel Polish. System and method for distributing and managing digital video information in a video distribution network. United States Patent 5,963,202. October 5, 1999.

1993 Michael L. Beigel, Nathaniel Polish and Robert E. Malm. Multi-Mode Identification System. Fundamental RFID technology. United States Patent 5,235,326. August 10, 1993.

1991 Nathaniel Polish. Mixed Distance Measures for Synthetic Speech Evaluation. In Proceedings of ICASSP-91, Toronto, Canada, 1991.

1988 Nathaniel Polish. A Distributed Signal Processing Facility for Speech Research. In Proceedings of AVIOS88, San Francisco, CA. October 4-6 1988.

1987 Nathaniel Polish. Mixed Distance Measures for Optimizing Concatenative Vocabularies for Speech Synthesis: A Thesis Proposal. Columbia University Department of Computer Science technical report number CUCS-310-87, 1987.

1983 M. Morris, N. Polish, B. Zuckerman, and N. Kaifu. The Temperature of Molecular Gas in the Galactic Center Region. The Astronomical Journal, 88(8):1228-1235, August 1983.

research interests

Computer Speech, Distributed Systems, Interactive Environments. Software Engineering, Systems Engineering, Technology Policy. Knowledge-Based Approaches to Signal Processing. Computational Physics, Non-Linear Dynamics.

professional societies

International Society for Electrical and Electronics Engineers (IEEE), Association of Computing Machinery (ACM), American Association for the Advancement of Science (AAAS).

other interests

Foreign Policy, Political Science, Long Distance Bicycling, United States Space Program.

grants

- AT&T Special Projects Grant of $25,000 for synthetic speech, 1986.
- Financial support for Ph.D. work was provided by the New York State Science and Technology Foundation Center for Advanced Technology in Computers and Information Systems at Columbia University.
- Santa Fe Institute Complex Systems Summer School, 2003. Month-long workshop in agent-based models, non-linear systems, and complexity.

1982-present

Technology development projects

Some technology development projects have included:

Wildlife Tracking Systems: Implemented a remote monitoring system to track and weigh Adelie penguins on Ross Island, Antarctica. System was debugged on-site and made to function in adverse environmental circumstances. 1994-1997, 2016.

Internet Systems: Implemented a LINUX Internet server with FTP and gopher services. Installed an Internet client for IBM/PC platform. 1994-1995.

Image Compression Technology: Developed proof-of-concept system for a system to compress images of checks to very small file size. 1994.

Biomedical Systems: Implemented a large biomedical system used in patient diagnostics. Provided all necessary materials for Food and Drug Administration compliance. 1992-1993.

Synthetic Speech Systems: Implemented and supported several generations of synthetic speech systems for commercial as well as research purposes. 1985-1999.

Graphics: Developed high-speed drivers for several graphical devices and evaluated their applicability for interactive uses. Devices included: Vectrix, RAMTEK, Apple Lisa, and IBM Enhanced Graphic Adapter. 1983-1987.

Voice Boards: Specified function requirements for several generations of high quality voice boards for Q-bus (PDP-11), Apple, MultiBus, and IBMPC bus. Developed high-speed drivers for each of the boards. 1982-1986.

Video Disk and Touch Screens: Developed experimental interactive system utilizing computer controlled video disks and touch screens. 1982.

1994-present

Intellectual property projects

A separate document detailing intellectual property projects is available on request.

tools

Languages commonly used:
  Pascal 1980-1988
  C 1985-present.
  Other languages used: C++, Lisp, Java and Python .
Assembler:
  Intel 8048, 8051, 8088-pentium
  Motorola 680xx
  TI 320xx signal processors
  Zilog Z8, Z80, PIC
Protocols include:
  TCP/IP, UDP, RPC and NFS
Operating systems commonly used:
  UNIX, MSDOS, Windows and p-system.
In circuit emulators.
Database tools.
ARM processors for embedded systems.
I^2C bus interfacing.

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Academic and business references available upon request.