

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE**

MALIKIE INNOVATIONS LTD., KEY
PATENT INNOVATIONS LTD.,
Plaintiffs,

v.

NINTENDO CO., LTD.,
NINTENDO OF AMERICA INC.,
Defendants.

NO. 2:24-cv-01490-JLR

Declaration of Tony Givargis, Ph.D.

1. I am a Professor in the Department of Computer Science at the University of California, Irvine (UCI), where I have been a faculty member since July 2001. Since July 2021, I have been serving as the Department Chair. Prior to that, I served as Vice Chair of the department for three years and as Associate Dean in the Donald Bren School of Information and Computer Sciences (ICS) from 2011 to 2016.

2. I earned my Bachelor of Science in Computer Science, graduating Cum Laude in 1997, and my Ph.D. in Computer Science in 2001, both from the University of California, Riverside. My doctoral dissertation, titled "*System-Level Exploration for Pareto-Optimal Configurations in Parameterized System-on-a-Chip*," received the School's Best Thesis Award that year.

3. My research interests broadly encompass various aspects of embedded systems and system software design. Embedded systems are computing devices integrated into larger systems, commonly found in consumer electronics, handheld devices, office and industrial equipment, medical devices, autonomous vehicles, and many other applications. These systems are typically characterized by rich sensing and actuation capabilities, as well as complex control logic implemented through programmable embedded processors, dedicated hardware components, and extensive software. More specifically, my work focuses on software for embedded systems, real-time systems, Internet of Things (IoT) devices, and mobile platforms. In addition, my research explores operating systems, storage systems, compilers for embedded software, computer architecture, VLSI design, and code transformation techniques to enable efficient software-to-hardware migration. My curriculum vitae (attached as Exhibit 1) includes numerous peer-reviewed articles that outline specific research in these areas, as well as the testimony I have given in the prior four years.

4. In addition to my research, I teach all Embedded Systems courses at UCI, both undergraduate and graduate, as well as the graduate-level Operating Systems course. My upper-division Embedded Systems courses (CS 145 and CS 145L) are highly popular, with

annual enrollments exceeding 350 students. In these courses, students design and build Embedded Systems from the ground up, assembling components such as power supplies, microcontrollers, input/output devices, and oscillators. They also program these systems with algorithms and application logic to address real-world application-level problems. At the graduate level, I teach Embedded Software (CS 245), which focuses on advanced topics in Embedded Systems design, including modeling, design, and validation of complex devices. I also teach Operating Systems (CS 238P), a graduate course covering advanced topics such as scheduling, device drivers, file systems, and microkernel architectures.

5. I have co-authored two textbooks on Embedded Systems design and contributed chapters to two additional books that are widely used in academia. In recognition of my teaching over the years, I received the ASEE's prestigious Frederick Emmons Terman Award in 2011 for advancing higher education in Embedded Systems. To date, I have published over 125 peer-reviewed and archived conference and journal papers, several of which have been nominated for or received best paper awards. I hold 13 issued U.S. patents. I have advised and graduated nine Ph.D. students who have gone on to successful careers as professors, research scientists, software engineers, and technical leaders. In addition, I have consulted in the technology sector, designing embedded system products and serving as a technical expert for numerous corporations. In 2013, I co-founded a venture-backed startup focused on developing a data analytics platform optimized for Solid State Drives (SSDs). Currently, I serve on multiple Technical Program Committees for Embedded Systems conferences and on the editorial boards of leading journals.

6. I am being compensated at \$500 per hour for work performed in this matter. My compensation does not depend on the matter's outcome.

7. I have been asked to review the Declaration of Dr. Regan Zane Regarding Claim Construction of U.S. Patent No. 8,610,397 ('397 Patent), and to provide my opinions on the methodologies and conclusions contained in his declaration. In forming my opinions, I have reviewed the '397 Patent as well as the portions of the related file history, including those identified in Dr. Zane's declaration.

Dr. Zane's Opinions Regarding "Charging Rate"

8. I understand that the defendants propose to construe the term "charging rate" found in the '397 Patent, claims 1, 11, 18 as meaning "the current expressed in amperes at which a battery is charged." Dr. Zane appears to agree with the defendants' proposal. In my opinion, Dr. Zane's declaration omits key facts that cut against the defendants' proposed construction, namely, that there are other ways "charging rate" can be "expressed" that are not limited to what defendants propose.

9. In my opinion, a person of ordinary skill in the art (POSITA) of the invention, at the time it was made, would have had a bachelor's degree in electrical engineering, computer engineering, or similar degree, with at least two years of experience designing, studying, or implementing systems that include rechargeable batteries and chargers.

10. I agree with Dr. Zane's general description of "charging rate" stated in paragraph 38 of his declaration: "'charging rate' is commonly understood by a POSITA to describe how quickly a battery can be charged." However, I disagree with his conclusion that "charging rate" "refers directly to the battery current."

11. Dr. Zane's opinion regarding the meaning of "charging rate" is flawed because a POSITA would have understood that "charging rate" can be expressed in various ways, each of which were well known in the art at the time of the invention of the '397 Patent and commonly used in practice. All that is required for a quantity to be a "rate" is that it occurs over time. The following are examples of other ways in which a POSITA could have "expressed" a "charging rate." These examples illustrate that limiting "charging rate" to only "current expressed in amperes" would not be how a POSITA would have understood the term, each of which was known at the time of the invention of the '397 Patent.

a. **C-rate:** A charging rate may be expressed as a C-rate. A C-rate indicates how quickly a battery is charged or discharged relative to its capacity. For example, a 1C rate corresponds to charging or discharging the battery at a rate equal to its capacity. A POSITA would have understood that C-rate is distinct from current expressed in amperes: C-rate is a relative measure of charge or discharge rate, while current in amperes measures the absolute flow of electrical charge. In other words, C-rate is a ratio, whereas amperes represent electrical current of a specific magnitude.

b. **Power (e.g. watts):** A charging rate may be expressed in terms of the power delivered to a battery during the charging process, typically measured in watts or kilowatts, depending on the system. Power is simply the energy delivered over time. Energy can be measured in joules, with one watt representing one joule per second. A POSITA would have understood that the power at which a battery is charged is distinct from current at which it is charged.

c. **Charging pulses (e.g. pulses/second):** A charging rate may be expressed in terms of the number of pulses of energy per second delivered to the battery in a method called pulse charging in which the charge is delivered in short bursts (pulses) rather than a continuous stream of energy. This is typically done using a pulse width modulation (PWM) technique where the charger alternates between on and off states, giving the battery time to rest during each pulse. A POSITA would have understood that a charging rate from pulse charging is distinct from one associated with current.

d. **Capacity rate (e.g. percent/hour):** A charging rate may be expressed in terms of the time it takes to fill a battery. For example, if a full charge takes four hours, a battery is being charged at a rate of 25% per hour. This is the expression of charging rate most apparent to consumers. A POSITA would have understood that the capacity rate at which a battery is charged is distinct from the charging current.

12. The examples above are various ways in which "charging rate" may be described. The '397 Patent does not limit the term to any one of these forms, consistent with a POSITA's

understanding that “charging rate” simply refers to the rate at which a battery is charged. In my opinion, in view of the '397 Patent and the plain language of claims themselves, “charging rate” would have been understood by a POSITA to mean only what it says—the rate at which something (in this case, the battery) is charged—and that a POSITA would not have understood it to be restricted to “current expressed in amperes.”

Dr. Zane’s Reliance on the Dictionary of IEEE Standard Terms

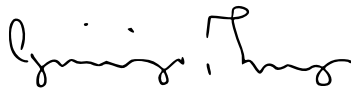
13. It appears to me that Dr. Zane’s analysis relies on a definition of “charging rate” from *The Authoritative Dictionary of IEEE Standards Terms* which includes defendants’ proposed definition verbatim. However, it is my opinion that this reference is an inappropriate one for evaluating how a POSITA would have understood the meaning of “charging rate” in the context of the '397 Patent. By its title, the reference Dr. Zane relies on applies only to “IEEE Standard Terms.” In fact, the back cover of the seventh edition (found on NINMALIKIE0013913) states that the reference “is today’s trustworthy resource for terminology in IEEE standards.” In other words, the reference is a guide to understanding IEEE standards, not a general or specific dictionary of electrical engineering terms.

14. A POSITA would have understood that the field of electronics, charging devices, and rechargeable batteries extends far beyond the scope of IEEE standards. I find nothing to indicate that the understanding of a POSITA at the time of the invention of the '397 Patent would have been limited to the narrow definition of “charging rate” presented in the IEEE Standard Terms.

* * *

I swear under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

Dated: Sep 5, 2025



Tony Givargis