Timothy Chevalier, PH.D.

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PROFESSIONAL PROFILE

Consultant and entrepreneur with over 15 years of experience driving growth and innovation at the intersection of science, technology and artificial intelligence (AI). Deep technical foundation in electrical engineering and applied physics combined with a proven track record of delivering solutions to complex engineering challenges. Demonstrated success leading cross-functional, multidisciplinary teams to execute high-impact projects across sectors including consumer electronics, healthcare, energy, utilities, space, and defense. Extensive experience advising startups, government agencies, and multinational corporations on product and system design, root cause failure analysis, and intellectual property (IP) litigation. Skilled at translating and presenting complex scientific and technical information to nontechnical audiences, supported by a strong publication and presentation record. Extensive domain expertise in theoretical and applied electromagnetics and plasma physics, with a strong background in scientific and high-performance computing (HPC), including numerical simulation and modeling. Skilled in data science, data analytics, and artificial intelligence techniques such as anomaly detection, pattern recognition, and machine learning. Experienced in signal and image processing, embedded control systems, and the development of autonomous systems. Deep familiarity with remote sensing and imaging technologies—including radar, lidar, and optical cameras. Successfully led and participated in scientific field campaigns under extreme conditions, including deployments to Alaska and Antarctica.

POSITIONS

Brillouin Consulting — **San Francisco Bay Area, CA**
Senior Manager — Jul 2025 - Present
Lead expert in electronic devices, electrical systems, control systems, Li-ion battery controls and protection, and fire origin and cause matters. Substantial litigation experience in electrical related matters. Experience includes root cause failure investigations into electronic devices, power generation and distribution, battery systems, industrial controls, and embedded systems. Additional experience with the evaluation, review, FMEA analysis, single point failure analysis, reliability analysis, and safety analysis of electronics and the manufacturing process.

Atlas5D, Inc. — **Lincoln, MA**
Chief Executive Officer — Jan 2020 - Present
Led the product development and commercialization efforts for early-growth stage MedTech startup building AI-enabled edge and cloud-based sensor systems designed to monitor and track changes in a person's health condition over time. Established product market fit in conjunction with domestic and international partners across three market segments: individual health, institutional care, and clinical trials. Raised $10M in venture funding across multiple financing rounds. Grew IP portfolio in digital health and remote monitoring. Effectively supervised and mentored junior staff.

Chief Science Officer — Jan 2017 - Jan 2020
Conducted clinical trials for Multiple Sclerosis (MS) and Duchenne Muscular Dystrophy (DMD), demonstrating product efficacy in collecting real-world evidence (RWE) for drug development.

Vice President of Engineering — Sep 2015 - Jan 2017
Directed research and development efforts of early-stage startup in creation of minimum viable product (MVP).

Exponent, Inc. **Menlo Park, CA**
Manager Mar 2012 - Sep 2015
Provided clients with technical consulting services related to product design, root cause failure analysis and IP litigation in the areas of consumer electronics, power systems, software development, data analysis, battery failures, high voltage arc discharges as well as cases involving electromagnetic interference, compatibility and exposure.

Senior Associate Mar 2010 - Mar 2012
Spearheaded effort to design, develop and monetize a big-data eDiscovery solution in support of litigation work that saved clients substantial time and money on discovery services.

Associate Apr 2009 - Mar 2010
Led the algorithm development effort for DoD-funded ground-penetrating radar (GPR) programs that were critical to the detection of improvised explosive devices (IEDs) in various theaters. The success of these efforts was instrumental in securing subsequent multimillion-dollar contracts.

Stanford University, Department of Electrical Engineering **Stanford, CA**
Research Associate 2007 - 2009
Developed Linux-based large-scale high-performance distributed simulation tools (e.g., particlein- cell, finite element, finite volume, and finite difference methods) for simulating antennaplasma coupling and wave propagation in collisional and collisionless magnetized plasmas and presented the research at national and international forums. Engineered and deployed sensitive scientific instrumentation (e.g. very low frequency (VLF) receivers, photometer arrays) for conducting VLF remote sensing campaigns to measure signatures from electromagnetic wave propagation in the Earth's ionosphere and magnetosphere induced by natural and man-made sources. Directed research and development (R&D) efforts to establish methods for determining the physical properties of underground structures using lightning-induced electromagnetic waves, which subsequently received patent approval. Taught undergraduate and graduate level electromagnetics and plasma physics courses.

ACADEMIC CREDENTIALS

Stanford University **Standford, CA**
Ph.D., Electrical Engineering

University of New Hampshire **Durham, NH**
M.S., Electrical Engineering

University of New Hampshire **Durham, NH**
B.S., Electrical Engineering

LICENSES & CERTIFICATIONS

- PADI - Advanced Open Water Scuba Diver.
- FAA - Private Pilot License (In Training).

PROFESSIONAL AFFILIATIONS

- IEEE (Institute of Electrical and Electronics Engineers).
- SPIE (Society of Photo-Optical Instrumentation Engineers).

HONORS

- Young Scientist Award., URSI General Assembly, Chicago, IL, 2008.
- Antarctica Service Medal., National Science Foundation, 2002–2003.
- Tau Beta Pi., Engineering Honor Society.

PEER REVIEWER

- IEEE Transactions on Antennas and Propagation.
- IEEE Antennas and Wireless Propagation Letters.
- Radio Science.

PATENTS

- Varsanik, J. S., Chevalier, T. W., Kimmel, Z. M. (2024). Systems and methods for on-the-floor detection without the need for wearables. U.S. Patent No. 20240193992. U.S. Patent and Trademark Office.
- Chevalier, T. W., Kimmel, Z. M., Varsanik, J. S. (2021). Systems and methods to identify persons and/or identify and quantify pain, fatigue, mood, and intent with protection of privacy. U.S. Patent No. 11017901. U.S. Patent and Trademark Office.
- Linscott, I. R., Chevalier, T., Inan, U. S., Strauss, D. (2014). Techniques for determining physical properties of underground structures using lightning. U.S. Patent No. 8633699. U.S. Patent and Trademark Office.

PUBLICATIONS

- Bethoux, F., Varsanik J. S., Chevalier, T. W., Halpern, E. F., Stough, D., Kimmel, Z. M. Walking speed measurement with an Ambient Measurement System (AMS) in patients with multiple sclerosis and walking impairment. Gait & Posture, Volume 61, 2018, Pages 393-397, ISSN 0966-6362, https://doi.org/10.1016/j.gaitpost.2018.01.033.
- Roberts, J. W., Shkolnikov, Y. P., Varsanik, J. S., Chevalier, T. W. Robust entropy-guided image segmentation for ground detection in GPR. Proceedings of SPIE Defense, Security, and Sensing 2013; 8709-1N.
- Varsanik, J. S., Roberts, J. W., Chevalier, T. W., Mulliken, A. D. GPR preprocessing optimization with signal-to-clutter metrics. Proceedings of SPIE Defense, Security, and Sensing 2013; 8709-1O.
- Chevalier, T. W., Inan, U. S., Bell, T. F. Fluid simulation of the collisionless plasma sheath surrounding an electric dipole antenna in the inner magnetosphere. Radio Science 2010; 45:RS1010. doi:10.1029/2008RS003843.
- Chevalier, T. W., Inan, U. S., Bell, T. F. Terminal impedance and antenna current distribution of a VLF electric dipole in the inner magnetosphere. IEEE Transactions on Antennas and Propagation 2008; 56(8):2454–2468.
- Payne, J. A., Inan, U. S., Foust, F. R., Chevalier, T. W., Bell, T. F. HF modulated ionospheric currents. Geophys Res Lett 2007; 34:L23101. Epub: doi:10.1029/2007GL031724.
- Chevalier, T. W., Inan, U. S., Bell, T. F. Characterization of terminal impedance and radiation properties of a horizontal VLF antenna over Antarctic ice. Radio Science 2006; 41:RS6001. Epub: doi:10.1029/2005RS003298.
- Chevalier, M. W., Chevalier, T. W., Inan, U. S. A PML utilizing k-vector information as applied to the whistler mode in a magnetized plasma. IEEE Transactions on Antennas and Propagation 2006; 54:2424–2429.
- Bell, T. F., Inan, U. S., Chevalier, T. W., Current distribution of a VLF electric dipole antenna in the plasmasphere, Radio Science 2006., 41, RS2009, doi:10.1029/2005RS003260.

PRESENTATIONS

- Chevalier, T. W., Experimental validation of near-field antenna-plasma coupling. Workshop on the Remediation of Enhanced Radiation Belts, Stanford, CA, February 2009.
- Chevalier, T. W., Linear mode coupling of whistler and lower hybrid waves. Workshop on the Remediation of Enhanced Radiation Belts, Stanford, CA, February 2009.
- Chevalier, T. W., Inan, U. S., Bell, T. F., VLF electromagnetic wave propagation over large distance using time-domain segmented long path technique. URSI General Assembly, Chicago, IL, August 2008.
- Marshall, R. A., Inan, U. S., Chevalier, T. W., Early VLF perturbations driven by lightning-EMP generated density perturbations in the ionosphere: Model results. URSI General Assembly, Chicago, IL, August 2008.
- Chevalier, T. W., Antenna-in-plasma code development and laboratory verification. Workshop on the Remediation of Enhanced Radiation Belts, Lake Arrowhead, CA, March 2008.
- Chevalier, T. W., Stanford VLF antenna modeling. Workshop on the Remediation of Enhanced Radiation Belts, Lake Arrowhead, CA, March 2008.
- Chevalier, T. W., Inan, U. S., Bell, T. F., Chevalier, M. W., Fluid model of the collisionless plasma sheath surrounding an electric dipole antenna. URSI North American Meeting, Ottawa, Canada, August 2007.
- Chevalier, T. W., Inan, U. S., Bell, T. F., Chevalier, M. W. Numerical simulation of electric dipole antennas in the inner magnetosphere. URSI National Meeting, Boulder, CO, January 2006.
- Chevalier, T. W., Inan, U. S., Bell, T. F., Injection of VLF waves using electric dipole antennas in the magnetosphere. URSI National Meeting, Boulder, CO, January 2004.
- Chevalier, T. W., Controlled precipitation of radiation belt particles. GEM Workshop, Telluride, CO, June 2002.
- Chevalier, T. W., Bell, T. F., Inan, U. S., Reinisch, B. W., The characteristics of the long dipole antennas on IMAGE at VLF frequencies within the plasmasphere. AGU Fall Meeting, San Francisco, CA, December 2000.