Exponent®
Engineering & Scientific Consulting

John Pye, Ph.D., P.E.

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Professional Profile

John Pye, Ph.D., P.E., is the President of Exponent. With over 25 years' experience in engineering design and early-stage product development, Dr. Pye addresses analysis, test, and technology integration issues around the rapid development and prototyping of complex systems that have the highest expectations of safety and performance.

His expertise includes technology readiness assessments, innovation management, ground and air robotics, wearable technologies, military systems, sensor development and interpretation, aerospace systems, fluid mechanics, and systems engineering. He earned his Ph.D. and M.S. in aeronautics and astronautics from Stanford University and his BASc in engineering science from the University of Toronto. Dr. Pye is a registered professional mechanical engineer in California.

Dr. Pye has been the principal investigator or chief engineer for multiple rapid development efforts focused on adapting and integrating advanced commercial technologies and components to the unique operational environment of the military customer, as well as hardening consumer technologies for use by industrial customers with extreme environment or high reliability application needs. Some of the programs he has led include the MARCbot inspection robot that was deployed in Iraq and Afghanistan as a tool in the hunt for roadside IEDs, the RDISS networked surveillance system, and a ground penetrating radar (GPR) system used in the hunt for buried explosive devices by various U.S. and International customers. He also served as chief engineer for the U.S. Army's Human Machine Integrated Formation (HMIF) effort, bringing together resilient networks, autonomy, ground robots, air robots, and an extensible suite of modular mission payloads.

He has worked within the U.S. Army soldier system community for two decades, beginning as the test and evaluation lead during the development of the Land Warrior future soldier program, continuing in various roles with the "warrior" programs that Land Warrior spawned up to the current wearable ensemble in use by Army Infantry: Nett Warrior.

In addition to Dr. Pye's client facing activities, he leads the development and execution of Exponent's geographic growth strategy, as well as an enterprise-level capability development strategy that leverages the firm's office, practice, and market-based infrastructure. He is responsible for driving cross-disciplinary innovation through investments in research, capability development, laboratories, and offices.

Before joining Exponent, Dr. Pye held a research position in the Aerospace Fluid Mechanics Lab at Stanford University. He was also part of the technology development team for a holographic data-storage company and worked in the R&D department of the Orenda engine division of Hawker Siddeley, Canada.

Dr. Pye has been appointed Exponent's President effective May 1, 2026.

Academic Credentials & Professional Honors

Ph.D., Aerospace Engineering, Stanford University, 1999

M.S., Aerospace Engineering, Stanford University, 1993

B.A.Sc., Engineering Science, University of Toronto, Canada, 1992

Licenses and Certifications

Professional Engineer Mechanical, California, #31675

Professional Affiliations

American Institute of Aeronautics and Astronautics (member)

American Society of Mechanical Engineers (member)

Patents

US Patent 2010/0178104 A1: Tire Rapid Entanglement and Arresting Device, July 2010 (Bare CI, Smyth BJ, Pye JD).

US Patent 8, 147, 163 B2: Tire Rapid Entanglement and Arresting Device, April 2012 (Bare CI, Smyth BJ, Pye JD).

US Patent 2012/0263525 A1: Tire Rapid Entanglement and Arresting Device, October 2012 (Bare CI, Smyth BJ, Pye JD).

US Patent 2017/0189756 A1: Creating Personalized Athletic-Performance Models, July 2017 (Brothers RJ, Gdoutos EE, Mulliken A, Pye JD).

US Patent 2017/0189757 A1: Monitoring Performance and Generating Feedback with Athletic-Performance Models, July 2017 (Brothers RJ, Gdoutos EE, Mulliken A, Pye JD).

US Patent 2017/0193140 A1: Monitoring Performance and Generating Feedback with Sensor Environment, July 2017 (Brothers RJ, Gdoutos EE, Mulliken A, Pye JD).

US Patent 10, 004, 949 B2: Monitoring Performance and Generating Feedback with Athletic-Performance Models, June 2018 (Brothers RJ, Gdoutos EE, Mulliken A, Pye JD).

US Patent 10, 010, 753 B2: Creating Personalized Athletic-Performance Models, July 2018 (Brothers RJ, Gdoutos EE, Mulliken A, Pye JD).

US Patent 2020/0309809 A1: Support Garment Testing System, October 2020 (Campbell L, Dufour GP, Munro B, Wright I, Blair KB, Kingsley DA, Middleton LR, Pye JD, Rapp van Roden EA).

US Patent 11, 604, 206 B2: Support Garment Testing System, March 2023 (Campbell L, Dufour GP, Munro B, Wright I, Blair KB, Kingsley DA, Middleton LR, Pye JD, Rapp van Roden EA).

US Patent 12, 000, 856 B2: Support Garment Testing System, June 2024 (Campbell L, Dufour GP, Munro B, Wright I, Blair KB, Kingsley DA, Middleton LR, Pye JD, Rapp van Roden EA).

Publications

Caligiuri R, Steffey D, Pye J, Ganot G. The effect of various environmental and physical factors on the measured internal pressure of NFL Footballs, 2015.

Pye J. Optimizing GPR usage with integrated route proofing and clearance solutions. Counter IEDs 2013.

Pye J. Monetizing clean energy. Panel Speaker, Poland-Silicon Valley Technology Symposium, Stanford University, 2010.

Pye J. Outpacing acquisition — Using innovation to manage risk. Army Strategic Leadership Development Course, 2007.

Pye J. Developments and field trials of the advanced robotic controller — Lessons learned. Interfaces for Ground and Air Military Robots (Workshop Summary), National Academies Press, 2005.

Pye J. Analysis of a 747-100 passenger to cargo conversion. AA252 Techniques of Failure Analysis, Stanford University, 2001.

Medhekar S, Pettinger A, Pye J. SSD design risk assessment. Prepared for Space Systems LORAL, Exponent Failure Analysis Associates, Inc., June 2000.

Calligiuri R, Pye J. MSA passport testing. Prepared for Pennzoil, Exponent Failure Analysis Associates, Inc., February 2000.

Coakley S, Duffner D, Pye J. Pump station analysis study. Prepared for the Union Sanitary District, Exponent Failure Analysis Associates, Inc., October 1999.

Pye J. An Investigation of the flap edge flowfield. Ph.D. Dissertation, Stanford University, 1999.

Pye J. The flap-edge noise source. AA290 Fluid Mechanics Seminar Series, Stanford University, 1998.

Mathias DL, Pye JD, Cantwell BJ. Correlation of wingtip noise with mean flow parameters. American Institute of Aeronautics and Astronautics 16th Applied Aerodynamics Conference, 1998.

Pye J. Flap edge flow field measurements. American Physical Society — Division of Fluid Dynamics Conference, 1997.

Georgakis K, Smith J, Goodfellow H, Pye J. Review and evaluation of models estimating the minimum atmospheric dilution of gases exhausted near buildings. Air & Waste Management Assoc. 1995; 45:722-729.

Project Experience

Nett Warrior — Lead engineer for the 2020 Architecture definition of the Nett Warrior program. Nett Warrior is the evolution of the Land Warrior, Objective Force Warrior, and Ground Soldier programs that leverage an ensemble of commercially derived wearable electronics to bring situational awareness and command and control capabilities to the dismounted soldier.

Supplementary Closure Device — Lead Engineer for the development of prototype downhole oilfield tool used to close off the flow of product in an emergency situation.

Duracrete — Lead engineer for the adaption of a commercial ground penetrating radar system and development of custom detection software for a deployed Route Proving and Clearance system for the US Army.

Duraplex — Lead engineer for a research and development program for an advanced multi-channel counter IED radar detection system.

Panama — Lead engineer of the PANAMA detection capability for the UK Ministry of Defence's robotic Route Proving and Clearance system (Talisman).

Land Warrior — Contractor test lead for the Land Warrior 1.0 program. Land Warrior is a U.S. government program with the objectives of bringing advances in situational awareness, lethality, and survivability to the soldier through a networked collection of wearable digital devices.

Objective Force Warrior — Lead engineer for the Phase One Objective Force Warrior program. Objective Force Warrior (now Future Force Warrior) is a follow-on exploration of the Land Warrior capabilities, treating the soldier and all of his gear as a single system and examining opportunities for enhancement that the 'soldier-as-a-system' concept brings.

MARCbot IV — Program manager for the MARCbot IV development and production. The MARCbot is an IED (Improvised Explosive Device) inspection robot, of which ~1000 have been delivered and were used by soldiers in Iraq and Afghanistan.

RDISS — Program manager for the development and initial fielding of RDISS: Rapidly Deployed Integrated Surveillance System. RDISS is networked collection of surveillance assets that can be quickly installed in small, fixed sites. Approximately 300 systems have been delivered and were used by soldiers in Iraq and Afghanistan.

MAVARC — Program manager for the development of the MAVARC micro-air vehicle. MAVARC is a man-portable, impact resistant, unmanned air vehicle that was developed with a PDA controller to explore the limits of portability and very simple interfaces for the dismounted soldier working with unmanned air vehicles. A prototype system was flown in Afghanistan in 2004.

Auto-Mortar — Program manager for the development of a robotic conversion kit for a captured-piston, multiple-launch, 51-mm mortar system.

Apple iMac — Participated in the structural analysis, failure mode analysis, load envelope determination, and performance evaluation of the articulating display for the original Apple iMac.

747 Cargo Conversion Analysis — Performed a detailed structural analysis of a retro-fit cargo door surround structure in a 747-100 aircraft. Non-linear finite element techniques were used to quantify structural failure loads.