Exponent®
Engineering & Scientific Consulting

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Professional Profile

Dr. John Pye is Exponent's Vice President for Global Offices and Innovation. With a technical background in mechanical and aerospace engineering, Dr. Pye leverages his understanding of fundamental engineering principles and his experience delivering safety-critical systems to assess and provide technology development guidance for complex products. His expertise includes, technical program management, rapid prototyping, product conceptual design, formal Verification and Validation test program development, mil-standard testing, technology readiness assessment, innovation management, fluid mechanics, structural analysis, and various aspects of systems engineering – to include architecture development within a model-based system engineering environment.

Dr. Pye has been the Program Manager or Chief Engineer for numerous 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, a Ground Penetrating Radar (GPR) system used in the hunt for buried explosive devices by various US and International customers, and as Chief Engineer for the US 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.

Prior to joining Exponent, Dr. Pye held a research position in the Aerospace Fluid Mechanics Lab at Stanford University, where he was responsible for the operation and upgrade of the Stanford Low- Speed wind tunnel component of the Stanford/NASA Ames Joint Institute for Aeronautics and Astronautics. 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.

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)

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.

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 was 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 are in use 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.