

**Daniel Kingsley, Ph.D.**  
**Senior Associate**

**Professional Profile**

Dr. Daniel Kingsley is a Senior Associate in Exponent's Technology Development practice. Dr. Kingsley's research to date has focused on conceptualization, specification, and design of mechanical systems, specifically robotic systems and actuator design. Dr. Kingsley has 7 years of experience working with biologically-inspired/biomimetic robotics and novel actuation systems. In addition, he is experienced with a wide range of conventional and CNC fabrication processes, as well as man-machine interface for robotic systems and functional human muscular-skeletal anatomy.

Prior to joining Exponent, Dr. Kingsley worked for Sarcos Research Corporation, where his primary focus was mechanical design of robotic and actuation systems. While a graduate student at Case Western Reserve University, Dr. Kingsley was responsible for the design and fabrication of a cockroach-inspired walking robot that used muscle-like pneumatic actuators. During this time he was supported by a Graduate Student Research Program fellowship with NASA Jet Propulsion Lab, where he designed and fabricated two mechanical arms that were later used to test a cerebellum based control network.

Dr. Kingsley has twice been deployed Afghanistan (November 2006–June 2007 and September 2008–April 2009) working with the US Army Rapid Equipping Force as the managing theater engineer. While in theater, he provided engineering expertise for maneuver, explosive ordinance disposal, military intelligence, force protection, and Special Forces units. His work in Afghanistan provided warfighters with an in-theater resource for the rapid design and fabrication of prototypes designed to address critical capability gaps. This work covered a wide range of topics, from vision enhancement systems to counter-IED systems.

**Academic Credentials and Professional Honors**

Ph.D. Mechanical Engineering, Case Western Reserve University, 2004

M.S. Mechanical Engineering, Case Western Reserve University, 2001

B.S. Mechanical Engineering, Case Western Reserve University (*magna cum laude*), 1999

Graduate Student Research Program Fellowship (NASA JPL), 2002–2004

**Patents**

Patent 6,964,309: Vehicle with compliant drive train (with R.D. Quinn, J.T. Offi, and R.E. Ritzmann).

## **Publications and Presentations**

Kingsley DA, Quinn RD, Ritzmann RE. A cockroach inspired robot with artificial muscles. International Conference on Intelligent Robots and Systems (IROS) Beijing, China, October 2006.

Kingsley DA, Quinn RD, Ritzmann RE. A cockroach inspired robot with artificial muscles. 2<sup>nd</sup> International Symposium on Adaptive Motion of Animals and Machines (AMAM '03) Kyoto, Japan, March 2003.

Kingsley DA, Quinn RD. Fatigue life and frequency response of braided pneumatic actuators. IEEE International Conference on Robotics and Automation (ICRA'02), Washington, D.C., May 2002.

Mangan EV, Kingsley DA, Quinn RD, Chiel HJ. Development of a peristaltic endoscope. IEEE International Conference on Robotics and Automation (ICRA'02), Washington, D.C., May 2002.

Mangan EV, Kingsley DA, Quinn RD, Chiel HJ. Development of a peristaltic endoscope. IEEE International Conference on Robotics and Automation (ICRA'02) Video Proceedings, Washington, D.C., May 2002.

Offi J, Quinn RD, Kingsley DA, Ritzmann RE. Its got Whegs. IEEE International Conference on Robotics and Automation (ICRA'02) Video Proceedings, Washington, D.C., May 2002.

Quinn RD, Allen TJ, Horchler AD, Morrey JM, Lambrecht B, Offi JT, Rutter BL, G.M. Nelson, Bachmann RJ, Kingsley DA, Birch MC, Pollack AJ, Ritzmann RE. Highly mobile scalable UGVs for near term and far term missions. Proceedings, SPIE Vol. 5083 Unmanned Ground Vehicle Technology V Video Session.

Bachmann RJ, Quinn RD, Kingsley DA, Ritzmann RE. A Cockroach robot with artificial muscles. Proceedings, 5<sup>th</sup> International Conference on Climbing and Walking Robots (CLAWAR 2002), Paris, France, September 25–27, 2002.

Quinn RD, Kingsley DA, Offi JT, Ritzmann RE. Improved mobility through abstracted biological principles. IEEE International Conference on Intelligent Robots and Systems (IROS'02), Lausanne, Switzerland, 2002.

Quinn RD, Nelson GM, Bachmann RJ, Kingsley DA, Offi J, Ritzmann RE. Insect designs for improved robot mobility. Proceedings, Climbing and Walking Robots Conference (CLAWAR01), Karlsruhe, Germany, September 2001.

Kingsley DA. Design and manufacture of a passively stabilized monopedic robot. AIAA 38<sup>th</sup> Aerospace Science Meeting, Reno, NV, January 10–13, 2000.