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Education: Ph.D., Aerospace Engineering, Virginia Polytechnic Institute and State University, September 2006; M.S., Aerospace Engineering, Virginia Tech, May 2004; B.S., Aerospace Engineering, Virginia Tech, May 2001.

In more than 5 years of work as a graduate research assistant in the Virginia Tech Department of Aerospace and Ocean Engineering, he co-developed advanced laser Doppler velocimetry (LDV) systems for the Turbulent Boundary Layer Research Laboratory, Dr. Roger L. Simpson, P.I. This work has involved many facets of state-of-the-art optical instrumentation research and development including advanced signal-processing software, photodetection systems, data acquisition systems, and custom optics design. The work has resulted in several advances in flow instrument technology including sensor spatial resolutions down to 5 microns for any dynamic flow scale and direct measurements of turbulent flow velocity-acceleration statistics. Two subsystems for LDV burst detection and signal acquisition and processing he developed have been shared through collaborative efforts with researchers at NASA Langley to update their LDV systems. In this same time, he has served two years as instructor and three as the graduate student administrator of the senior-level aerospace engineering laboratory course with duties including experimental setup in subsonic and supersonic flow facilities.

During his tenure at Applied University Research, Inc. (AUR), he has been the principal investigator for two Department of Defense Small Business Innovation Research (SBIR) projects and represented the company in a high profile Defense Advanced Research Projects Administration project. Among other thrusts, his work with AUR involves the identification of opportunities for novel instrumentation development, including optical laser-based systems that leverage his general instrumentation development background.

He is a senior member of the American Institute of Aeronautics and Astronautics and was the recipient of the 2000-2001 Virginia Tech Sigma Gamma Tau Student of the Year.

Publications:

1. Lowe, K.T. and Simpson, R.L. 2006 "Measurements of velocity-acceleration statistics in turbulent boundary layers," *Int. J. Heat and Fluid Flow*, Vol. 27, No. 4, pp. 558-565; also in **4th Intl. Symp. on Turb. Shear Flow Phenom.**, June 27-29, 2005, Williamsburg, VA, USA, Vol. 3, pp. 1043-1048.
2. Lowe, K. T. 2006 "Design and application of a novel Laser-Doppler Velocimeter for turbulence structural measurements in turbulent boundary layers," *Ph.D. Dissertation*, September, Department of Aerospace and Ocean Engineering, Virginia Polytechnic Institute and State University.
3. Lowe, K.T. And Simpson, R.L. 2007 "Doppler chirp signal processing for particle acceleration measurement with laser-Doppler velocimetry," *proc. 14th Coherent Laser Radar Conf.*, Snowmass, CO, USA, July 9-13.

4. Tian, Q., Lowe, K.T. and Simpson, R.L. 2007 "A three-velocity-component laser-Doppler velocimeter for measurements inside the linear compressor cascade," *Exp. Fluids*, **43**, pp. 487-99.
5. Lowe, K.T. and Simpson, R.L. 2008a "Turbulence structural measurements using a comprehensive laser-Doppler velocimeter in two- and three-dimensional turbulent boundary layers," *Int. J. Heat and Fluid Flow*. Vol. 29, pp. 820-829 and the *5th Int. Symp. on Turb. Shear Flow Phenom*, Aug. 27-29, 2007 Garching, Germany.
6. Lowe, K.T. and Simpson, R.L. 2008b "A sub-miniature laser-Doppler velocimeter for high speed flow measurements," *14th Intl. Symp. on Applications of Laser Techniques to Fluid Mechanics*, Lisbon, Portugal, 7-10 July, 2008, Paper #1292.
7. Lowe, K.T. and Simpson, R.L. 2009a "An advanced laser-Doppler velocimeter for full-vector particle position and velocity measurements," *Meas. Sci. Tech.*, Vol. 20, pp. 1-16.
8. Lowe, K.T. and Simpson, R.L. 2009b "Turbulence structure and spectral measurements in the wakes of isolated cylindrical protuberances submerged in turbulent boundary layers," *in preparation for Exp. Fluids*.