David Fugate

EDUCATION AND TRAINING

- M.S. Electrical Engineering, Tennessee Technological University, Cookeville, 1999
- B.S. Electrical Engineering, Tennessee Technological University, Cookeville, 1994

EMPLOYMENT HISTORY

David has worked primarily in the field of electrical engineering and control systems for Rockwell-Automation, Engineering Design & Manufacturing Services, Kimberly-Clark, and Pratt & Whitney before joining the Sensors and Controls Research team at Oak Ridge National Laboratory (ORNL). David's experiences include roles as an individual contributor, a team member and as team leader in roles such as conceptual development, system design, construction, installation, fielding, and support of control systems for manufacturing, research, and aerospace applications. David has significant experience with automation, electrical system design, robotics, induction heating, original equipment manufacturing, process heating, web converting and processing, process and system modeling, control algorithm design, fault detection, embedded systems, software development and testing, and mission-critical systems. At Oak Ridge National Laboratory, David has participated or led projects related to sensing, control, wireless communications, and transactive energy.

- 2011–Present R&D Staff, Sensors and Controls Research Group, Oak Ridge National Laboratory, Oak Ridge, TN
- 2005–2010 Control System Design and Integration Engineer, Military Engines, Pratt & Whitney Division of United Technologies
- 2000–2005 Lead Electrical Engineer, Infant Care Division, Kimberly-Clark
- 1997–2000 Lead Electrical Engineer, Engineering Design and Manufacturing Services
- 1994–1996 Manufacturing Engineer, Dodge Division of Rockwell-Automation

AWARDS AND HONORS

- ORNL Special Awards in 2013 and 2014
- Pratt & Whitney RAVE, EAGLE, and Special Award over 2006-2010 timeframe

PATENTS

- Apparatus for Aligning Material during a Splice US# 20050241774
- System and Process for Controlling the Deceleration and Acceleration Rates of a Sheet Material in Forming Absorbent Articles US# 20050139713/EU# 04749666.6-2314
- Component Maintenance Action Identification EPO 11919494 -2206, US# 201201611686
- 20150229288, August 13, 2015, Kisner; Roger Allen; (Knoxville, TN) ; Fugate; David Lee; (Lenoir City, TN), SHIELDED MULTI-STAGE EMI NOISE FILTER, UT-Battelle, LLC Oak Ridge, TN, US

SELECTED PUBLICATIONS:

[1] Nutaro, J., Starke, M., Kuruganti, T., Fugate, D., "An Inexpensive Retrofit Technology for Reducing Peak Power Demand in Small and Medium Commercial Buildings," 22nd International Compressor Engineering Conference at Purdue, 15th International Refrigeration and Air Conditioning Conference at Purdue, 3rd International High Performance Buildings Conference at Purdue, July 2014.

[2] D. Kim, J.E. Braun, J. Cai, D.L. Fugate, "Development and Experimental Demonstration of a Plug-and-Play Multiple RTU Coordination Control Algorithm for Small/Medium Commercial Buildings," Submitted to Energy and Buildings Journal, 2015.

[3] Alexander Melin, Roger Kisner, David Fugate, Timothy McIntyre, "Minimum State Awareness for Resilient Control Systems Under Cyber-Attack", 2012 Future of Instrumentation Workshop, October 8-9, 2012.

[4] Starke, Michael; Nutaro, James; Kuruganti, Teja; and Fugate, David, "Integration of Photovoltaics into Building Energy Usage through Advanced Control of Rooftop Unit", *Purdue International High Performance Buildings Conference 2014*, http://docs.lib.purdue.edu/ihpbc/155.

[5] Nutaro, J., Fugate, D., Kuruganti, T., Starke, M., Sanyal, J., "Cost Effective Retrofit Technology for Reducing Peak Power Demand in Small and Medium Commercial Buildings," *24th IIR International Congress of Refrigeration (ICR2015)*, August 16-22, 2015, Yokohama Japan.

[6] Nutaro J, Fugate D, Kuruganti T, Fricke B, "Refrigerated Display Case Defrosting using Inferential Ice Sensing," *24th IIR International Congress of Refrigeration*, August 16 – 22, 2015 Yokohama, Japan.

[7] Richard Hale, Sacit Cetiner, David Fugate, Lou Qualls, John Batteh and Michael Tiller, "Dynamic Modeling of Small Modular Nuclear Reactors using MoDSim," *Modelica User's Conference*, Lund Sweden, March 10-12, 2014.

[8] Cetiner, Mustafa Sacit, Fugate, David L., Kisner, Roger A., Muhlheim, Michael David, Wood, Richard Thomas, "Development of a Supervisory Control System Concept for Advanced Small Modular Reactors," *ASME 2014 Small Modular Reactors Symposium*, Washington DC, April 15-17, 2014.

[9] Ramsey, E., Alouani, A.T., Fugate, D., "Design and Development of a Fog Alert System," *IEEE Southeastcon 2014*, March 2014.

[10] Melin, A., Kisner, R., Fugate, D., "Advanced Instrumentation for Extreme Environments," *IEEE Instrumentation and Measurement Magazine*, Vol. 16, No. 3, June 2013.

[11] Cetiner, Mustafa Sacit, Fugate, David L., Kisner, Roger A., Muhlheim, Michael David, Wood, Richard Thomas, "Development of a Supervisory Control System Concept for Advanced Small Modular Reactors," ASME 2014 Small Modular Reactors Symposium, Washington DC, April 15-17, 2014.

[12] Melin, A., Kisner, R., Fugate, D., "Advanced Instrumentation for Extreme Environments," IEEE Instrumentation and Measurement Magazine, Submitted for Publication in 2013 Edition.

[13] David Fugate, Peter Fuhr, Teja Kuruganti, Instrumentation Systems for Commercial Building Energy Efficiency, "Instrumentation for Flexible Research Platform Buildings," *Future of Instrumentation International Workshop*, Oak Ridge National Laboratory, November 7-8, 2011.

[14] Michael Caufield, Adam Vucelich, Walter Brockway (Alcoa), Peter L. Fuhr, Timothy McIntyre, David Fugate, Kenneth Woodworth, Nasr Alkadi, Michaela Martin (ORNL), "Wireless Sensors and Energy Efficiency at Alcoa," *Future of Instrumentation International Workshop*, Oak Ridge National Laboratory, November 7-8, 2011

[15] R. T. Wood, M. S. Cetiner, D. L. Fugate, R. A. Kisner, and T. L. Wilson, Jr., Oak Ridge National Laboratory, *Highly Automated Control Room Design for VHTRS*, Project JCN N6177, August 2011.

[16] A.T. Alouani, D. Fugate, F. Yang, "Systematic Fuzzy Logic Control of a Gantry Crane", International *Journal of Control and Intelligent Systems*, Volume 31, Number 1, ACTA Press, Calgary, Alberta, 2003.

[17] D. Fugate and A.T. Alouani, "Fuzzy Logic Control of the Load Sway of a Crane System," *Proceedings of 20th IASTED International Conference on Modeling, Identification, and Control, MIC 2001*, Innsbruck, Austria, February 2001.