

PENN NORRIS MARKHAM

markham@utk.edu

Min H. Kao Building
1520 Middle Drive
Knoxville, Tennessee 37996

Education

Ph.D., Electrical Engineering, expected December 2012

University of Tennessee
Knoxville, Tennessee

Research Interests: Information technology in power systems, applications of wide-area measurements, applications of machine learning to power systems

Advisor: Dr. Yilu Liu

GPA: 4.0/4.0

B.S. Electrical Engineering, Magna Cum Laude, Commonwealth Scholar

Concentration: Judaic Studies, May 2006

Virginia Polytechnic Institute and State University

Blacksburg, Virginia

GPA: 3.71/4.0

Skills

- C++
- Python
- MySQL
- PSS/E v.32
- Orcad Capture CIS
- Autodesk Building Systems 2006
- Linux
- MATLAB
- Microsoft Office
- Dreamweaver
- PHP
- SPSS

Experience

Graduate Research Assistant, University of Tennessee

Knoxville, TN, August 2009 – Present

- Conducted research in wide-area measurements
- Managed research group website and knowledgebase
- Assisted with writing and editing research proposals

Graduate Research Assistant, Virginia Tech

Blacksburg, VA, May 2008 – July 2009

- Researched implementation of IEEE C37.118 standard for FNET frequency disturbance recorders
- Assisted with writing and editing research proposals

Graduate Teaching Assistant, Virginia Tech

Blacksburg, VA, August 2008 – May 2009

Courses taught:

- ECE 3274 – Electronics II Lab (Fall 2008)
- ECE 3254 – Industrial Electronics Lab (Spring 2009)

Electrical Engineering Designer, ZMM Architects & Engineers

Charleston, WV, May 2006 – August 2008

- Designed lighting and electrical systems for new construction and renovation work
- Performed electrical survey work in support of renovation projects
- Developed online course content to facilitate preparation for the LEED-AP exam
- Revised and updated office standard details for electrical and mechanical construction

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Student Consultant, University Computing Support

Blacksburg, VA, April 2005 – May 2006

- Provided computing support for students and faculty at Virginia Tech

Research Assistant, NSF Research Experience for Undergraduates

Department of Electrical Engineering, Texas A&M University

College Station, TX, June – August 2005

- Developed documentation for expert system used in analysis of electrical substations
- Investigated the use of Substation Configuration Language to describe electrical substations.

Systems Administrator, Netmar Web Services

Blacksburg, VA, November 2004 – April 2005

- Managed Linux and Solaris web servers
- Provided technical and billing support to customers

Research Assistant, Center for Power Electronic Systems

Virginia Polytechnic Institute and State University

Blacksburg, VA, May 2004-August 2004

- Assisted with online research
- Created PCB layouts
- Assembled circuit boards

Technologist, Bowles Rice McDavid Graff & Love, PLLC

Charleston, WV, May 2003-August 2003

- Assisted with transition from Novell GroupWise to MS Outlook
- Managed Linux servers
- Provided troubleshooting support as needed

Computer Trainer, Bowles Rice McDavid Graff & Love, PLLC

Charleston, WV, January 1999-August 2002

- Assisted attorneys and staff with computer related questions
- Performed software upgrades as needed
- Assisted with system administration tasks

Honors & Activities

- Oak Ridge National Laboratory Grid Innovation Leadership Fellow, Summer 2011
- Min Kao Fellow, August 2009 - Present
- Presenter on behalf of Dr. Yilu Liu, EPRI Substation Equipment Maintenance Optimization and Diagnostics Conference XVI, "Transformer Fault Diagnostic Tool for Online DGA Monitors." March 2009.
- Presenter, Virginia Tech Symposium for Undergraduate Research. "A Searchable Online Database of Scientific Equipment in the College of Engineering." October 2004.
- Electrical and Computer Engineering Department Student Ambassador, Fall 2003 – Spring 2005
- Member, Tau Beta Pi, Fall 2003 – present
- Hekimian Scholarship 2005-2006
- William Murray Scholarship, 2003-2004, 2004-2005

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- Virginia Tech Honors Community, August 2001 – May 2002
- Virginia Tech Honors Program, August 2001 – May 2006
- Dean's List: Fall 2001 – Fall 2003, Spring 2005 – May 2006
- Volunteer, FIRST Lego League, Fall 2003, Fall 2004
- Volunteer, Read-Aloud, Fall 2006, Fall 2007
- Teacher of Hebrew, Temple Israel Religious School, November 2007 – May 2008

Certifications & Memberships

- Engineer-in-Training (EIT), April 2006
- Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Power and Energy Society

Publications

- P. Markham, Y. Liu, T. Bilke, and D. Bertagnolli, "Analysis of Frequency Extrema in the Eastern and Western Interconnections," *Power and Energy Society General Meeting, 2011 IEEE*, 24-28 July 2011.
- Y. Liu, Z. Yuan, P. Markham, R. Conners, and Y. Liu, "Wide-area frequency as a criterion for digital audio recording authentication," *Power and Energy Society General Meeting, 2011 IEEE*, 24-28 July 2011.
- Y. Zhang, L. Chen, Y. Ye, P. Markham et al., "Visualization of Wide Area Measurement Information from the FNET System," *Power and Energy Society General Meeting, 2011 IEEE*, 24-28 July 2011.
- L. Chen, P. Markham, C. Chen, and Y. Liu, "Analysis of Societal Event Impacts on the Power System Frequency using FNET Measurements," *Power and Energy Society General Meeting, 2011 IEEE*, 24-28 July 2011.
- L. Chen, M. Gandhi, J. Hurtt, P. Markham, Y. Zhang, and Y. Liu, "Island Grid Modeling and Validation Using Single Phase Phasor Measurement Data," *Power and Energy Society General Meeting, 2011 IEEE*, 24-28 July 2011.
- Y.C. Zhang, P. Markham et al., "Wide-Area Frequency Monitoring Network (FNET) Architecture and Applications," *Smart Grid, IEEE Transactions on*, vol. 1, no. 2, pp. 159-167, Sept. 2010.
- Zhiyong Yuan; T. Xia; Y. Zhang; L. Chen; P.N. Markham; R.M. Gardner; Y. Liu; , "Inter-area oscillation analysis using wide area voltage angle measurements from FNET," *Power and Energy Society General Meeting, 2010 IEEE*, pp.1-7, 25-29 July 2010.
- X. Li, X. Wen, P. Markham, and Y. Liu, "Analysis of Nonlinear Characteristics for a Three-Phase, Five-limb Transformer under DC Bias," *Power Delivery, IEEE Transactions on*, vol. 25, pp. 2504-2510, Oct. 2010.