Gregory David Richardson

Cybersecurity Research Software Engineer, Situation Awareness and Visual Analytics Research Team

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Computational Sciences and Engineering Division <http:// computing.ornl.gov/cse/>
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Work Experience

- 2005 – Present: Oak Ridge National Laboratory. Cyber Security Research Engineer, Cyber and Information Security Research Group. Responsibilities include:

  - ORNL technical lead supporting the IARPA Knowledge Discovery and Dissemination research program. <http://www.iarpa.gov/index.php/research-programs/kdd>
  - Software engineer and architect for NA-242's Counter Trafficking System Development (CTSD) effort within the International Nonproliferation Export Control Program (INECP)
  - Lead engineer for implementing a material accountability solution that was used to expedite the removal of 550 metric tons of yellowcake from Iraq for Operation McCall in 2008.
  - Software engineer supporting the U.S. Army G-4 (Logistics) and USTRANSCOM. System used to deploy the 4th Infantry Division to Iraq in July 2006. This work resulted in three patents and two copyrights.
  - Software engineering / architect support to develop numerous research prototypes for cyber research and the protection of Special Nuclear Materials.

- 2000 – 2005: Y12 National Security Complex. Computing Systems Analyst, Technical Computing Group. Responsibilities:

  - Developed system software for the deployment of a custom built fiber optic monitoring system that reduced inventory costs by 75%. Deployment earned a Service Recognition award for cost savings.
  - Developed a custom image processing application to characterize crystalline materials based upon crystalline feature spacing using kikuchi patterns. This work led to a Journal Publication.
  - Engineering support to develop custom hardware sensors and software systems for ensuring the safety and security of Special Nuclear Materials (SNM).

Journal Publications

CARPENTER, D. A., PUGH, J. L., RICHARDSON, G. D. and MOONEY, L. R. (2007), Determination of pattern centre in EBSD using the moving-screen technique. Journal of Microscopy, 227: 246–247. doi: 10.1111/j.1365-2818.2007.01807.x

Conference Publications

Michael J. Kuhn, Stinson, B. J., Donaldson, T. L., G. David Richardson, Nathan C. Rowe, James R. Younkin, Chris A. Pickett, "A Physical Protection Systems Test Bed for International Counter-Trafficking System Development" July 2011, INNM 52nd Annual Meeting, Palm Desert, CA USA.

Brad J. Stinson, James R. Younkin, Nathan C. Rowe, Chris A. Pickett, Michael J. Kuhn Guzzardo, Tyler , Terrence L. Donaldson, Richardson, G David. "Counter Trafficking System Development Test Bed Capabilities and Preliminary Testing Report" ORNL/TM-2011/8, March 2011.

Alan M. Krichinksy, Lisa S. Bell, Chris A. Pickett, Miller, Paul , G. David Richardson, Nathan C. Rowe, James R. Younkin, "Working Toward Robust Process Monitoring for Safeguards Applications," July 2010, INMM 51st Annual Meeting, Baltimore, MD

Nathan C. Rowe, Chris A. Pickett, G. David Richardson, Mark D. Laughter, James R. Younkin, Adam M. Shephard, Peter Fitzgerald, Rose Martyn, "Authentication and Interpretation of Weight Data Collected from Accountability Scales at Global Nuclear Fuels," April 2010, 2010 Pacific Northwest International Conference on Global Nuclear Security, Portland, Oregon

Alan M. Krichinksy, Chris A. Pickett, G. David Richardson, Nathan C. Rowe, James R. Younkin, "Results of Continuous Load Cell Monitoring Field Trial for UF6 Withdrawals at An Operating Industrial Plant," July 2010, 2010 Pacific Northwest International Conference on Global Nuclear Security, Portland Oregon

Brad J. Stinson, James R. Younkin, Chris A. Pickett, Nathan C. Rowe, Brian J. Kaldenbach, G. David Richardson, S. Shane Frank, Michael J. Kuhn, Terrence L. Donaldson, "Performance Test Bed for Border Security Technologies," *Journal of Nuclear Materials Management* (Quarterly Journal) June 2010

Alan M. Krichinksy, Lisa S. Bell, Curtis A. Conchewski, Peters, Benjamin R, Chris A. Pickett, G. David Richardson, Nathan C. Rowe, James R. Younkin," Results of Continuous Load Cell Monitoring Field Trial for UF6 Withdrawals at an Operating Industrial Plant ," Jul 2010, INMM 51st Annual Meeting, Baltimore, MD

Michael J. Kuhn, Chris A. Pickett, G. David Richardson, Nathan C. Rowe, Brad J. Stinson, James R. Younkin, Alan M. Krichinksy," Containment and Surveillance Systems at ORNL," Jun 2010, International Containment Surveillance Workshop, Oak Ridge, TN

G. David Richardson, Wesley J. Bicha, Chris A. Pickett , Bradley S. Weil, James R. Younkin, "Material Reconciliation: A Software Solution for Accurate and Rapid Identification of Assets" July 2009, INMM 50th Annual Meeting, Tucson, AZ

Alan M. Krichinsky(ORNL Miller, Paul , Chris A. Pickett , G. David Richardson, Nathan C. Rowe , J. Michael Whitaker, James R. Younkin," Integrating UF6 Cylinder RF Tracking With Continuous Load Cell Monitoring for Verifying Declared UF6 Feed and Withdrawal Operations Verifying Declared UF6 Feed and Withdrawal Operations" July 2009, INMM 50th Annual Meeting, Tucson, AZ

Alan M. Krichinsky, Sinsze Koo , Chris A. Pickett , G. David Richardson, Nathan C. Rowe, R. Matthew Wham, J. Michael Whitaker, James R. Younkin," Implementing Continuous Load Cell Monitoring of UF6 Withdrawals at An Enrichment Plant" July 2009, INMM 50th Annual Meeting, Tucson, AZ

James R. Younkin , Chris A. Pickett , G. David Richardson, Alan M. Krichinsky, Nathan C. Rowe , "Using Rules-Based Event Processing for Safeguards Monitoring Systems" July 2009, INMM 50th Annual Meeting, Tucson, AZ

Alan M. Krichinksy, Jonathon W. Hickerson, Laughter, Mark, Chris A. Pickett , G. David Richardson, Nathan C. Rowe, J. Michael Whitaker, Whitney A. Wutzler, "Evaluating Continuous Load Cell Monitoring as an Effective Safeguards Strategy for Feed and Withdrawal Systems". July 2008, INMM 49th Annual Meeting, Nashville, TN

James R. Younkin, Chris A. Pickett, G. David Richardson, Brad J. Stinson, "Using RF Technology for Protected Asset Tracking". April 2008, 8th Annual Conference on Facility Operations--Safeguards Interface.

Chris A. Pickett, G. David Richardson, Brad J. Stinson, James R. Younkin, "Technologies for Real-Time Monitoring and Surveillance of High-Valued Assets". July 2008, INMM 48th Annual Meeting, Tucson AZ

G. David Richardson, Chris A. Pickett, Oak Ridge National Laboratory. Mark Baumann, Ed Rankin, Gary Shannon Sandia National Laboratories. "The Seal Selection Tool" July, 2006, INMM 47th annual meeting, Nashville, TN

G. David Richardson, James R. Younkin, Zane W. Bell "ReflectoActive^{TM} Seals for Material Control and Accountability". January 2002, paper presented at Institute of Nuclear Materials Management 43rd Annual Meeting, June 23-27, 2002, Renaissance Orlando Resort, Orlando, Florida (Y/DV-1758).

Patents / Copyrights

"Weigh-In-Motion Scale with Foot Alignment Features", R.K. Abercrombie, G.D. Richardson, M.B. Scudiere, US Patent 8,389,878 B2, Issued March 5, 2013

"Portable Weighing System with Alignment Features", R.K. Abercrombie, G.D. Richardson, M.B. Scudiere, F.T. Sheldon, US Patent 8,304,670 B2, Issued November 6, 2012

"Static Scale Conversion", US Copyright TXu 1-703-492 , Effective Date July 28, 2010

"Automated In Motion Vehicle Evaluation Environment (AIMVEE)", US Copyright TXu 1-619-362, Effective Date March 17, 2008

Awards

2011 – ORNL Distinguished Employee Contribution for NA-242's CTSD effort.
2009 – Federal Laboratory Consortium Southeast region, Honorable Mention, Excellence in Technology Transfer
      "Automated In-Motion Vehicle Evaluation Environment"
2008 – UT-Battelle Award of Excellence, Operation McCall
2008 – ORNL Awards Night, Excellence in Technology Transfer
2004 – NNSA Award of Excellence for inventory cycle time reduction, resulting in savings of $1.1 million.
2003 – NNSA Award of Excellence for work on a new gas sampling technology.
2001 – Service Recognition Award for reduction of inventory costs of Special Nuclear Materials.

Education

UNIVERSITY OF TENNESSEE, Knoxville
Bachelor of Science, Computer Science
Graduated - 12/1999, GPA 3.36