Kevin R Cross

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PROFESSIONAL STRENGTHS

- **Structural Dynamics Expertise:** In-depth knowledge of structural dynamics principles, including vibration analysis, modal testing, and dynamic response evaluation of structures under various loading conditions
- **MIMO Vibration Testing and Analysis:** Experienced in Multi-Input Multi-Output (MIMO) vibration testing, equipment, and analysis, enabling comprehensive understanding of complex dynamic systems and their interactions.
- **Equipment Installation:** Proficient in the installation and calibration of specialized equipment for structural testing and analysis, ensuring optimal performance and compliance with safety standards.
- **Project Management:** Effective project management abilities, including planning, execution, and monitoring of projects related to structural dynamics and hazardous operations, ensuring timely delivery and adherence to budgets.
- **Data Acquisition:** Proficient in utilizing advanced data acquisition systems for real-time monitoring and analysis of structural performance, ensuring accurate data collection and interpretation.
- **Team Building:** Proven ability to build and nurture cohesive teams by fostering a collaborative environment that encourages open communication, trust, and shared goals.
- **Mentorship and Professional Development:** Committed to mentoring team members and supporting their professional growth through guidance, training, and development opportunities, enhancing individual skills and team performance.
- **Mass Properties Measurements:** Skilled in conducting precise mass properties measurements, including center of gravity, moment of inertia, and product of inertia, to inform design and analysis processes.
- **Hazardous Test Planning:** Adept at developing and implementing hazardous test plans that prioritize safety, regulatory compliance, and risk mitigation while achieving project objectives.
- **Analytical Problem-Solving:** Strong analytical skills to identify and resolve technical challenges in structural dynamics and hazardous operations, employing innovative solutions to enhance testing outcomes.
- **Continuous Improvement Mindset:** Commitment to continuous improvement through the application of best practices, lessons learned, and innovative approaches to enhance operational efficiency and safety.

EDUCATION

Clarkson University Potsdam, NY
- Master of Science degree in Mechanical Engineering Class of 2007

Clarkson University Potsdam, NY
- Bachelor of Science degree in Mechanical Engineering minor in math Class of 2005

Hudson Valley Community College Troy, NY
- Associate of Science degree in Engineering Science Class of 2003

PROFESSIONAL EXPERIENCE

Sandia National Laboratories
9/2011 – Present
Principle Mechanical Engineer, R&D S&E
- Lead a diverse team of engineers and technologists in hazardous testing across two remote facilities, enhancing operations through cross-training and fostering a safe, inclusive work environment.
- Conduct research in Structural Dynamics, multiple input multiple output (MIMO), and 6-degree-of-freedom vibration testing to advance environmental simulation capabilities.
- Contributed to the FY23 ERA-winning team for Survivability for Reentry Environments, demonstrating innovative techniques for qualifying ND hardware through realistic mechanical environment simulations.
- Mentor junior staff & technologists in structural dynamics theory and providing on-the-job training and guidance in support of complex hazardous test operations and methodologies.

- Procure and manage the installation of multi-million-dollar equipment to enhance testing capabilities, leading design teams to upgrade facility infrastructure.
- Serve as a subject matter expert in Mass Properties and Shock and Vibration testing for the nuclear weapons complex and various international test facilities.
- Collaborate with program leads across multiple nuclear weapon systems to assess testing needs, secure funding, and implement improvement plans for test facilities.

Remington Arms Company Inc
7/2007 – 9/2011
Research Engineer
- Designed and developed new products and expanded existing lines to meet customer specifications and market demands, overseeing the process from concept to production.
- Created a patented Hypersonic Steel shot shell line with a novel ignition chamber and wad design, generating over $8 million in profit in its first year.
- Developed custom manufacturing equipment, including an automated inspection machine for shotgun explosive primer pellets, ensuring quality without slowing production.
- Implemented a SolidWorks EPDM system to address data management issues across remote sites, serving as the corporate administrator and providing user training.
- Participated in the corporate "Strategic Business Unit" team, interfacing with executive management to provide technical feedback for strategic planning.

COMPUTER SKILLS

Engineering and Mathematical software packages: Python, Matlab, LabVIEW, Maple, Mini Tab

Test & Data Acquisition Packages: Data Physics, Rattlesnake, Simcenter Testlab, Spectral Dyanmics

CAD/CAM software packages: Solid Works, Creo, Autodesk Fusion 360, 3D Studio Max

FEM software packages: Abaqus, Ansys, Simulink

General Productivity Software: Microsoft Teams, Excel, Word, Power Point, Project, Outlook, Adobe

PATENTS

RA BRANDS, L.L.C.. (2009) **Shot Confinement Wad**. 61/149,059.

RA BRANDS, L.L.C.. (2008) **Wad with Ignition Chamber**. 61/113,286.

PUBLICATIONS

Cross, K., Melendez, G., Arnold, F., Brenner, K., Throneberry, G., Soine, D., "Combining Pyroshock with MIMO Vibration," *International Modal Analysis Conference,* 10-13 February 2025, Orlando, FL.

Throneberry, G., Melendez, G., Cross, K., "Developments on Combined Thermal-Vibration MIMO Testing," *International Modal Analysis Conference,* 10-13 February 2025, Orlando, FL.

Cross, K., Zwink, B., Melendez, G., "Natural Excitation Within a Test Frame," *International Modal Analysis Conference,* 7-10 February 2023, Austin, TX.

Zwink, B., Cross, K., Fowler, D., "MIMO Vibration Test Design for BARC Challenge Problem," *International Modal Analysis Conference,* 7-10 February 2023, Austin, TX.

Throneberry, G., Paripovic, J., Cross, K., Sanchez, M. Aulbach, S., Brown, T., "Comparative Failure Analysis of Components Exposed to Multi-axis and Single-axis Vibration Testing," *International Modal Analysis Conference,* 7-10 February 2023, Austin, TX.

Nelson, G., Cross, K., Hunter, N., "A Systematic Evaluation of Test Specification Derivation Methods for Multi-Axis

Vibration Testing," *International Modal Analysis Conference,* 12-15 February 2018, Orlando, Fl.

Hunter, N., Cross, K., Nelson, G., "The Cross Spectrum in Multiple Input Multiple Response Vibration Testing," *International Modal Analysis Conference,* 12-15 February 2018, Orlando, Fl.

Nelson, G., Hunter, N., Cross, K., "Defining the Error of Single and Multi-Axis Vibration Tests: A Move from Qualitative to Quantitative Metrics," *87th Shock and Vibration Symposium,* 17-20 October 2016, New Orleans, LA.

Kevin R. Cross**, "**Numerical and Experimental Investigations of Bridge Health Monitoring Using Modal Curvature and Instantaneous Phase Methods," MS Thesis, Clarkson University, November 2007

Cross, K., Jha, R., Whelan, M.*, Janoyan, K., and Gangone, M., "Bridge Health Monitoring Using Linear and Nonlinear Approaches: Experimental Validation," The Sixth International Workshop on Structural Health Monitoring, 11–13 Sep 2007, Stanford University, CA.

Cross, K., Jha, R., Whelan, M.*, and Janoyan, K., "Bridge Health Monitoring Using Linear and Nonlinear Approaches: Numerical Simulations," The Sixth International Workshop on Structural Health Monitoring, 11–13 Sep 2007, Stanford University, CA.

Cross, K., Jha, R., Whalen, M., Janoyan, K., "Numerical Evaluation of Hilbert-Huang Transform and Fourier Spectrum for Benchmark Bridge Health Monitoring," *Engineering Mechanics Division Conference of the American Society of Civil Engineers,* 3-6 June 2007, Blacksburg, VA.

Jha, R., Cross, K., Janoyan, K., Sazonov, E., Fuch*, M., Krishnamurthy*, V., "Experimental Evaluation of Instantaneous Phase Based Index for Structural Health Monitoring," SPIE Paper Number 6173-51, *Smart Structures and Materials and NDE for Health Monitoring and Diagnostics*, 26 Feb.-2 March 2006, San Diego, CA

PERSONAL

Happily married with 3 fur babies. Avid cyclist, runner, wood worker and generally have too many hobbies I'm trying to master at any one time.