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EDUCATION:

PhD – College of William and Mary, 1991
MS – College of William and Mary, 1988
BS – Roanoke College, 1986

NPS EXPERIENCE:

- Apr 2012 – Present: Associate Professor, Department of Electrical and Computer Engineering

OTHER EXPERIENCE:

- Aug 1997 – Apr 2012: AVP and Technical Fellow; SAIC; Chantilly, VA
- July 1995 – July 1997: Systems Engineering Specialist; Raytheon E-Systems; Garland, TX
- Jan 1994 – June 1995: Research Scientist; SAIC; McLean, VA
- Oct 1991 – Dec 1993: ONR Postdoctoral Fellow; Naval Research Laboratory; Washington, DC

TEACHING INTERESTS:

- Radar systems
- Radar cross section
- Electronic warfare
- Signals Intelligence
- Remote sensing

RESEARCH INTERESTS:

- Synthetic aperture radar
- Moving target radar phenomenology
- Tomographic image formation and focusing

AWARDS:

- Selected to be a SAIC Technical Fellow and a member of the Science and Technology Fellow Council (STFC) in 2006, which is an honor bestowed upon less than 0.2% of all company employees
- Elevated to Senior Member of Institute of Electrical and Electronics Engineers (IEEE) (2001)
- Served on the Technology Development Team for the National Security Space Architecture Space-Based Radar Congressionally Directed Action Team (2001)
- Salutatorian of graduating class at Roanoke College (1986)
- Recipient of a Reserve Officers Association (ROA) Scholarship while at Roanoke College
- **Patents:**
    - Garren, D. A., and Greene, R. R., "Method for developing and using an image reconstruction algorithm for multipath scattering" U.S. Patent 7,515,098, filed: Apr 26, 2007, granted: Apr 7, 2009
    - Garren, D. A., "Method and System for Developing and Using an Image Reconstruction Algorithm for Detecting and Imaging Moving Targets," U.S. Patent 7,456,780, filed: July 26, 2006, granted: Nov 25, 2008
    - Garren, D. A., "Process for mapping multiple-bounce ghosting artifacts from radar imaging data," U.S. Patent 7,385,553, filed: Dec 20, 2006, granted: June 10, 2008
    - Garren, D. A., and Greene, R. R., "Method for developing and using an image reconstruction algorithm for multipath scattering" U.S. Patent 7,259,715, filed: Oct 19, 2004, granted: Aug 21, 2007
    - Garren, D. A., "Process for mapping multiple-bounce ghosting artifacts from radar imaging data," U.S. Patent 7,173,562, filed: Oct 1, 2004, granted: Feb 6, 2007
    - Garren, D. A., "Process for mapping multiple-bounce ghosting artifacts from radar imaging data," U.S. Patent 6,812,886, filed: Aug 1, 2003, granted: Nov 2, 2004
    - Garren, D. A., "Process for mapping multiple-bounce ghosting artifacts from radar imaging data," U.S. Patent 6,646,593, filed: Jan 31, 2002, granted: Nov 11, 2003

SELECTED PUBLICATIONS:

- **Book Chapter:**
    - Garren, D. A., Sacchini, J. J., and Goldstein, J. S., "*Investigation of Non-Traditional Transmit Waveforms for SAR Based Target Detection,"* in *Principles of Waveform Diversity and Design*, edited by Wicks, M. C., et al., SciTech, Raleigh, 2010
- **Refereed Journal Publications:**
    - Garren, D. A., "Signature Morphology Effects of Squint Angle for Arbitrarily Moving Surface Targets in Spotlight Synthetic Aperture Radar," IEEE Transactions on Geoscience and Remote Sensing; Vol. 53, No. 11, Nov. 2015, pp. 6241-6251; DOI: 10.1109/TGRS.2015.2436371; Date of Publication to IEEE Xplore as an Early Access Article: 29 June 2015
    - Garren, D. A., "Theory of Two-Dimensional Signature Morphology for Arbitrarily Moving Surface Targets in Squinted Spotlight Synthetic Aperture Radar," IEEE Transactions on Geoscience and Remote Sensing; Vol. 53, No. 9, Sept. 2015, pp. 4997-5008; DOI: 10.1109/ TGRS.2015.2416066; Date of Publication to IEEE Xplore as an Early Access Article: 17 April 2015
    - Garren, D. A., "Smear signature morphology of surface targets with arbitrary motion in spotlight synthetic aperture radar imagery," IET Radar, Sonar & Navigation; Vol. 8, Issue 5, June 2014, pp. 435-448; DOI: 10.1049/iet-rsn.2013.0169; Print ISSN 1751-8784, Online ISSN 1751-8792; Available online as an IET E-First article: 06 January 2014
    - Garren, D. A., Odom, A. C., Osborn, M. K., Goldstein, J. S., Pillai, S. U., Guerci, J. R., "Full-Polarization Matched-Illumination for Target Detection and Identification," *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 38, No. 3, July 2002, pp. 824-837
    - Garren, D. A., Osborn, M. K., Odom, A. C., Goldstein, J. S., Pillai, S. U., Guerci, J. R., "Enhanced Target Detection and Identification via Optimized Radar Transmission Pulse Shape," *IEE Proceedings – Radar, Sonar, and Navigation: Special Issue on Modelling and Simulation of Radar Systems*, Vol. 148, No. 3, June 2001, pp. 130-138

- **Conference Proceedings Publications:**
    - Garren, D. A., “Signature predictions of surface targets undergoing braking maneuvers in squinted spotlight synthetic aperture radar imagery,” in the proceedings of SPIE, Vol. 9843, 984303-1, "Algorithms for Synthetic Aperture Radar Imagery XXIII, " edited by Edmund Zelnio and Frederick D. Garber; presented on 21 April 2016 at the SPIE Defense and Security Conference, held 17 - 21April 2016, in Baltimore, Maryland, USA
    - Garren, D. A., "Signatures of Surface Targets with Increasing Speed in Spotlight Synthetic Aperture Radar," in the proceedings of the 2015 IEEE International Radar Conference, 11-15 May 2015 in Arlington, Virginia, USA, pp. 1114 – 1118.
    - Garren, D. A., “Signature predictions of surface targets undergoing turning maneuvers in spotlight synthetic aperture radar imagery,” in the proceedings of SPIE, Vol. 9475, 94750A, "Algorithms for Synthetic Aperture Radar Imagery XXII, " edited by Edmund Zelnio and Frederick D. Garber; presented on 23 April 2015 at the SPIE Defense and Security Conference, held 20 - 24 April 2015, in Baltimore, Maryland, USA
    - Garren, D. A., “Signatures of Braking Surface Targets in Spotlight Synthetic Aperture Radar, in the proceedings of 2014 Sensor Signal Processing for Defence, held in Edinburgh, UK, on 08-09 September 2014, 978-1-4799-5294-6/14 IEEE, pp. 51-55.
    - McAbee, A., Scrofani, J., Tummala, M., Garren, D. and McEachen, J., “Traffic Pattern Detection Using the Hough Transformation for Anomaly Detection to Improve Maritime Domain Awareness,” in the proceedings of Fusion 2014, 17th International Conference on Information Fusion, held in Salamanca, Spain on 7-10 July 2014
    - Garren, D. A., Pace, P. E., and Romero R. A., “Use of P-3 Coded Transmission Waveforms to Generate Synthetic Aperture Radar Images,” in the proceedings of the 2014 IEEE Radar Conference, held at Cincinnati Marriott RiverCenter, Ohio on 19-23 May 2014, pp. 0765 – 0768.
    - Garren, D. A., Pace, P. E., and Romero R. A., “Phenomenology of Low Probability of Intercept Synthetic Aperture Radar via Frank Codes,” in the proceedings of SPIE, Vol. 9093, 909302, "Algorithms for Synthetic Aperture Radar Imagery XXI, " edited by Edmund Zelnio and Frederick D. Garber; presented on 7 May 2014 at the SPIE Defense and Security Conference, held 5 - 9 May 2014, in Baltimore, Maryland
    - Garren, D., Scrofani, J., Tummala, M., and McEachen, J., “Range Migration Phenomenology of Moving Targets in Spotlight SAR,” in the proceedings of SPIE, Vol. 8746, 87460B, "Algorithms for Synthetic Aperture Radar Imagery XX, " edited by Edmund Zelnio and Frederick D. Garber; presented on 1 May 2013 at the *2013 SPIE Defense, Security, and Sensing Conference* held 29 April - 3 May 2013 in Baltimore, Maryland, pp. 87460B-1 – 87460B-7

KEYWORDS/TECHNOLOGIES:

- **Keywords:** Synthetic Aperture Radar, Remote Sensing, Digital Signal Processing, Image Processing