

III. Curriculum Vitae

Dr. Willie L. Thompson, II

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I. Education

- **D.Eng.**, 2003. Morgan State University, Baltimore, Maryland
Electro-physics Concentration: 4.0 G.P.A.
- **B.S.E.E.**, 1997. Morgan State University, Baltimore, Maryland
Summa Cum Laude: 3.8 G.P.A.

II. Professional Appointments

- 8/15 – Present: **Associate Professor**, Morgan State University, Baltimore, MD
- 8/09 – 8/15: **Senior Research Engineer**, Morgan State University, Baltimore, MD
- 5/05 – 8/09: **Electronic Engineer**, NASA Goddard Space Flight Center, Greenbelt, MD
- 5/03 – 4/05: **Post-Doctoral Position**, Morgan State University, Baltimore, MD

III. Research Contracts & Grants

- **Project:** Multi-Band, Multi-Mode Software-Defined Platform, **PI**
Funding: U.S. Army PEO STRI, \$2.3M/\$807K (FY16 Award), 9/13 to 1/17
Description: The contract is for the development of a multi-band, multi-mode SDR platform.
- **Project:** Embedded SDR Framework Investigation, **PI**
Funding: Johns Hopkins University Applied Physics Laboratory, \$85K, 6/15 – 6/16
Description: Investigation into integration of Redhawk and OpenCPI framework onto embedded system platform to support SDR applications.
- **Project:** Embedded Systems Security via Reverse Engineering Countermeasures, **Co-PI**
Funding: National Science Foundation, \$999K/\$50K (FY16 Award), 4/15 to 4/18
Description: Grant to fund research infrastructure improvements and student support in support of the IoT security research.

- **Project:** Wideband RF Interference Detection for Microwave Radiometer, **Co-PI**
Funding: NASA, \$311K/\$66K (FY16 Award), 3/15 to 3/18
Description: Student support to perform a radiometer architecture study and analysis in support of RFI detection.
- **Project:** RF Signal Channelization and Perfect Reconstruction, **PI**
Funding: Ventra Solutions, Inc. (VSI), \$50K, 9/14 – 9/15
Description: Research and analysis of Cognitive Radio (CR) techniques, and REDHAWK General Purpose Processor (GPP) tool development.
- **Project:** EMT Systems –RE and Countermeasures, **Co-PI**
Funding: U.S. Army Research Office, \$225K Instrumentation, 1/14 – 1/15
Description: Instrumentation grant in support of research for reverse engineering (RE) and countermeasures within embedded, mobile, and tactical systems.
- **Project:** Test & Evaluation Enhancement for Cognitive Radio Technologies, **PI**
Funding: U.S. Army Research Office, \$490K Instrumentation, 1/13 – 1/14
Description: Instrumentation grant for critical research infrastructure to support software-defined and cognitive research.
- **Project:** HAWSKNEST Embedded SDR Framework, **Co-PI**
Funding: Ventra Solutions, Inc. (VSI), \$192K, 3/13 – 8/13
Description: Investigation into the asymmetric multiprocessing (AMP) capabilities of the Xilinx Zynq-7000 All-programmable System-on-Chip (SoC).
- **Project:** Multi-band Transmitter Design for Telemetry Application, **PI**
Funding: Scientific Research Corporation (SRC), \$250K, 2/11 – 9/12
Description: Investigation into development of L/S/C-Band Transceiver Design for DoD telemetry application.
- **Project:** NASA Software-Defined Radio Testbed, **Technical Investigator**
Funding: NASA MUREP, \$300K , 8/10 – 9/13
Description: Development of a S-Band SDR that integrated adaptive power control capabilities for crosslink space communications and cognitive functionality for data rate and modulation detection was demonstrated within the digital radio sub-system.
- **Project:** Advanced Digital Radiometry Technology, **Post-Doc**
Funding: NASA, Goddard Space Flight Center, (5/03 – 4/05)
Description: Focused on the development of low-power components for digital radiometry using SiGe technology with a direct sampling architecture.
- **Project:** Knowledge-Based Adaptable Control Network (KBACN), **Post-Doc**
Funding: Northrop Grumman Space Technology (NGST), 7/02 – 4/05
Description: DARPA-sponsored program for the development of Intelligent RF Front End (IRFFE) technology.

- **Project:** Large-Signal Biased Independent Neural Network Model, **Graduate Student Funding:** COMSARE, Morgan State University, (5/98 – 8/99)
Description: Focused on the development of innovative device modeling techniques using neural network technology.

IV. Publications

A. Referred Conferences

- A. Haj-Omar, W. L. Thompson, Y. Kim, P Glick, M. Tolley, T. Coleman, “Stretchable and flexible adhesive-integrated antenna for biomedical”, *IEEE International Symposium on Antennas and Propagation*, 2016.
- A. Haj-Omar, W. L. Thompson, Y. Kim, T. Coleman, “Adaptive flexible antennas for wireless biomedical applications”, *IEEE 17th Annual Wireless and Microwave Technology Conference (WAMICON)*, 2016.
- W. L. Thompson, S. Berhanu, N. Richardson, “System framework for multi-band, multi-mode software-defined radio”, *International Telemetry Conference*, 2014.
- N. Richardson, S. Berhanu, W. L. Thompson, “Evaluation and analysis of a multi-band transceiver for next generation telemetry applications”, *International Telemetry Conference*, 2014.
- W. L. Thompson, “A multi-band transceiver design for L/S/C-Band telemetry”, *International Telemetry Conference*, 2012.
- S. Berhanu, K. Neupane, W. L. Thompson, “Digital radio implementation for NASA S-Band Space Network transceiver”, *International Telemetry Conference*, 2012.
- A. Wilder, R. Pannu, A. Haj-Omar, W. L. Thompson, “The process of a RF front-end transceiver for NASA’s Space Network”, *International Telemetry Conference*, 2012.
- W. L. Thompson, D. J. Israel, “Adaptive Power Control for Space Communications”, *IEEE Aerospace Conference*, 2008.
- D. J. Israel, J. Marquart, W. L. Thompson, “The GSFC Communications, Standards, and Technology Laboratory”, *IEEE Aerospace Conference*, 2008.
- W. L. Thompson, N. Richardson, B. Davis, C. White, “Adaptive control network for an intelligent RF front-end amplifier”, *IEEE/Sarnoff Symposium on Advances in Wired and Wireless Communication*, 2005.
- N. Richardson, W. L. Thompson, D. Watkins, D. Davis, C. White, “Self-recovery system for an intelligent RF front end amplifier”, *IEEE/Sarnoff Symposium on Advances in Wired and Wireless Communication*, 2005.
- J. I. Upshur, C. White, M. E. Bayne, B. Davis, L., Walker, M. A. Reece, W. L. Thompson, S. Cheng, R. E. Wallis, “Advanced non-linear model for accurate predication of harmonically terminated power amplifier performance”, *IEEE MTT-S Intentional Microwave Symposium*, 2004.
- W. L. Thompson, W. G Hall, J. R. Piepmeier, C. T. Johnson-Bey, “Low-power radio-frequency SiGe analog-to-digital converter”, *IEEE Geoscience and Remote Sensing Symposium*, 2003.
- M. A. Reece, C. White, J. Penn, B. Davis, M. E. Bayne, N. Richardson, W. L. Thompson, L. Walker, “A Ka-Band class F MMIC amplifier design utilizing adaptable knowledge-

based neural network modeling techniques”, *IEEE MTT-S Intentional Microwave Symposium*, 2003.

- B. Davis, C. White, A Reece, M. E. Bayne, W. L. Thompson, N. Richardson, L. Walker, “Dynamically configurable pHEMT model using neural networks for CAD” *IEEE MTT-S International Microwave Symposium*, 2003.

Invited Talks/Presentations

- Electrical and Computer Engineering Department Graduate Seminar, Virginia Polytechnic Institute and State University, Fall 2015.
- Associate of Old Crows, Patuxent River Chapter, Spring 2015.
- Board of Regents, Morgan State University, Spring 2013.
- Innovation Day, Maryland State House, Spring 2013.

V. Teaching

A. Doctor of Engineering

Name	Dissertation	Graduation Date	Place of Employment
1. Nathan Richardson	An Adaptive Neuro-Control System for a 5 to 10 GHz MMIC-based Intelligent Front-End Amplifier	May 2006	Engility Corporation
2. Amr Haj-Omar	Wireless Flexible Electronics for Biomedical Applications	May 2016	Texas Instruments
3. Alimayo Muhammad	Improved Spectrum Utilization Exploiting Polyphase Channelization for Telemetry Applications	Projected May 2017	Goddard Space Flight Center
4. Randeep Pannu	Performance Analysis of RF Front-end Architectures for Radio Frequency Interference (RFI) Detection in Microwave Radiometers	Projected May 2017	Morgan State University GESTAR

B. Master of Science

Name	Thesis	Graduation Date	Place of Employment
1. Tevin Dixon	First-Order Feature Extraction of Internet Traffic	May 2016	Texas Instruments

C. Master of Engineering

Name	Scholar Report	Graduation Date	Place of Employment
1. Kamal Neupane	Optical Communication Testbed for Digital and Analog Links	May 2012	Communications Electronic, Inc.
2. Angela Nicole Jean-Louis	FFT-Based New Energy Detector on a Software-Defined Radio Platform	May 2014	Defense Information Security Agency

D. Bachelor of Science/Master of Science

Name	Scholar Report	Graduation Date	Place of Employment
1. Darian Phillips	Principal Component Analysis of the Worldwide Oceanic RF Refractivity Database	December 2015	Johns Hopkins University Applied Physics Laboratory
2. Antonio Samuel	Designing for Embedded System with Open Component Portability Infrastructure	December 2015	Geon Technologies, Inc.

E. Appointments

- Lecturer, Morgan State University, Engineering & Computer Engineering
 - Microware Systems and Components: Spr 2011, Spr 2013, Spr 2015
 - Advanced Topics in Microwave Engineering: Spr 2012
 - Automated Measurements, Devices, and Systems: Fall 2009
 - Special Topic in Communications: Software Radio: Spr 2006
- Lecturer, John Hopkins University, Engineering Programs for Professionals
 - RF & Microwave I & II: Fall 2007 – Present
 - MMIC Design: Fall 2009 – Present
 - Microwave Systems and Component: Fall 2008

V. Services

A. Professional

- NASA Earth Science Technology Office Microwave Technology Working Group
- JHU APL Software-Defined Radio Working Group

B. University

- HAM Radio Club, Mentor
- NSA Codebreaker, Mentor
- Embedded Systems Track, Chair
- Graduate Committee, Member
- Promotion and Tenure Policy Review Taskforce, Member

C. Outreach

- New Song Academy STEM Outreach
- Varsity M Club, MSU Athletic Alumni Chapter, President (2004 – 2009)