# Christopher A. Maxey

BAE Systems Inc. 4301 N. Fairfax Drive Suite 800 Arlington, VA 22203 703-853-0195 (C) 703-284-8436 (O) Christopher.maxey@baesystems.com cmaxey@vt.edu

## Education

Ph.D Electrical Engineering, Virginia Polytechnic Institute & State University, Expected 2016

- M.S. Electrical Engineering, Virginia Polytechnic Institute & State University, 2004
- B.S. Computer Engineering, Virginia Polytechnic Institute & State University, 2002

## **BAE Systems, Inc.**

Technology Development Manager (9/2014 – Present) Business development and technical lead for several analog and RFIC-related R&D programs for customers such as DARPA and AFRL. Specific duties include:

- Tracking business leads and pursuits for customers such as AFRL, DARPA and ONR
- Winning >\$5M in competitive R&D funding for projects in reconfigurable system design, RF frontend channelization and GaN device cooling
- Managing internal R&D activities related to signal classification and identification in small SWaP form-factors
- Managing team of business development and program execution leads

#### **Booz Allen Hamilton**

#### Associate (3/2008 - 8/2014)

Systems Engineering and Technical Assistance (SETA) support staff for Program Managers in the Defense Advanced Research Projects Agency (DARPA). Specific duties include:

- Providing subject matter expertise in MEMS, analog/RF microelectronics, digital IC design, IC processing, especially for RF and microwave tunable filters, amplifiers, analog-to-digital converters, digital-to-analog converters, phase-locked loops and field-programmable gate arrays (FPGAs)
- Providing system analysis and requirements derivation for radar, communications and electronic warfare designed for next generation US Defense platforms
- Contributing to the initiation of several research and development programs in mixed-signal design for deep-submicron CMOS; advanced component technology for phased arrays and software defined radios; and nano-scale lithography techniques for semiconductor fabrication beyond the 7 nm technology node.
- Supporting on-going research and development programs by evaluating technical proposals, advising on technical progress and authoring technical papers outlining program highlights and achievements.

#### Virginia Polytechnic Institute & State University

PhD Graduate Research Assistant (1/2009 – Present)

- Currently researching the development and implementation of phase-locked loops (PLL) for Kaband transceivers under a grant from the US Air Force Research Laboratory.
- Designed, taped-out and tested several PLL circuit breakouts in IBM's 8HP semiconductor fabrication process

#### **Prior Experience**

#### Evergrid

Software Engineer (06/2007 – 03/2008)

Wrote and tested C code for multi-processor, high performance computing platforms specifically
designed for the acceleration of multi-physics finite-element modeling and computer aided design
software suites.

Institute for Scientific Research Research Staff (09/04-05/07)

- Designed three generations of synchronized MEMS gyroscopes in Jazz Semiconductor's sbc35gtx 350 nm BiCMOS process
- Used chaos-based nonlinear drive signals to investigate in situ nondestructive evaluation (NDE) of comb-drive MEMS resonators
- Wrote (in C++) various software tools, including a GUI front-end for a suite of nonlinear methods, an IC process, and a parallelized version of SPICE

#### Wireless Microsystems Lab

Graduate Research Assistant (05/02-09/04)

- Developed Silicon-On-Insulator-based MEMS resonator fabrication process
- Designed, fabricated and tested several iterations of contour-mode SOI disk resonators
- Performed ANSYS finite element simulations of various resonator topologies
- Designed and tested three low power 5-6 GHz Voltage Controlled Oscillator topologies for fabrication in Motorola's SiGe hip6wrf process using Cadence
- Designed low-power multi-band frequency-hopped ultra wideband (UWB) transmitter for 2003 Motorola Wireless and Beyond Design Exposition

## PUBLICATIONS:

#### JOURNAL PUBLICATIONS

1. **C. Maxey**, S. Raman, K. Groves, T. Quach, L. Orlando, A. Mattamana, G. Creech, J. Rockway, "Mixed-Signal SoCs with In Situ Self-Healing Circuitry," IEEE Design and Test, vol 29, no. 6, pp 27-39, Dec 2012.

#### CONFERENCE PUBLICATIONS

- C. Maxey and S. Raman, "K-band digitally controlled oscillator with integrated divide-by-16 divider chain for ADPLL applications," 2014 IEEE Bipolar/BiCMOS Circuits and Technology Meeting (BCTM), Coronado, CA, 2014, pp. 195-198.
- 3. **C. Maxey** and S. Raman, "K-band differential and quadrature digitally-controlled oscillator designs in SiGe BiCMOS technology," Silicon Monolithic Integrated Circuits in RF Systems (SiRF), 2014 IEEE 14th Topical Meeting on, Newport Beach, CA, 2014, pp. 110-112.
- S. Fazzari, G. Jones, A. Brown, C. Maxey, "Do You Know What You are Buying? A Study in Microelectronic System Development Using Untrusted Advanced Electronic Parts, and the Impact on the Supply Chain," 2012 Government Microcircuit Applications & Critical Technology Conference, (19-22 March 2012)
- S. Raman, T.-H. Chang, I. Abdomerovic, C. Dohrman, C. Maxey, M.J. Rosker, "The DARPA COSMOS and ELASTx Programs: Towards Next Generation Linearized Microwave/Mm-Wave Transmitters," 2010 IEEE Compound Semiconductor Integrated Circuit Symposium (CSICS), (3-6 Oct. 2010)
- S. Fazzari, C. Maxey, "The Challenge and Necessity of Circuit Design with Unknown Intellectual Property (IP) Blocks", 2010 Government Microcircuit Applications & Critical Technology Conference, (22-25 March 2010)
- S. Raman, L. Da Silva, M. Agah, A. MacKenzie, C. Maxey, A. Bell, "A First-Year Engineering Experience in Wireless Sensor Networks for Electrical/Computer Engineering and Computer Science Students", 2008 American Society for Engineering Education Annual Conference and Exhibition, (22-25 June 2008)

- 8. J. Zhao, **C. Maxey**, A. Narayanan, S. Raman, "CMOS Wideband Pulse Generators for UWB Transmitter Applications", 2006 IEEE Sarnoff Symposium, (27-28 March 2006)
- J. Zhao, C. Maxey, A. Narayanan, S. Raman, "A SiGe BiCMOS ultra wide band RFIC transmitter design for wireless sensor networks", 2004 IEEE Radio and Wireless Conference, (19-22 Sept. 2004)
- C. Maxey, S. Raman, "Finite Element-Based Analysis of Single-Crystal Si Contour-Mode Electromechanical RF Resonators", 2004 International Conference on MEMS, NANO and Smart Systems, (25-27 Aug. 2004)
- W. Barnhart, C. Maxey, S. Raman, S. Evoy, "Development of Capacitively Actuated and Detected Nanometer Scale Single Crystal Silicon Resonators", 1st International Conference on Nanoscale and Molecular Mechanics, (12-17 May 2002)