



# BENMATHIEWS

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## STRENGTHS

I am an experienced and passionate systems engineer, systems architect, and algorithms developer, utilizing a multidisciplinary approach to lead the development of innovative solutions to communications and signal processing problems.

- Broad base of experience spanning DSP algorithm design and implementation, software development, systems architecture, program management, and business development
- Established track record of success in the roles of Systems Engineer, Systems Architect, and Program Manager on multiple SATCOM, GPS, radar, and navigation-related programs
- Serve as the primary technical interface to my current and potential customers, where I am adept at forging key relationships and establishing the credibility of my team and our solutions
- Possess solid technical leadership skills which enable me to lead, direct, and manage the efforts of cross-disciplinary teams of engineers
- I bring value to the business development process by combining deep technical understanding of problems and current technology trends with an ability to understand customer requirements and clearly and effectively communicate solutions in writing or discussion
- Regularly lead in the development of technical proposals, cost estimates, schedules, system specifications, system designs, interface documents, technical reports, etc.

## EXPERIENCE

**2008-Present • Cosmic Advanced Engineered Solutions**

**Colorado Springs, CO**

**Geolocation Portfolio Manager / Principal Engineer**

- Lead a team of 20+ scientists and engineers supporting a portfolio of multiple geolocation-focused programs and responsible for the overall management and execution of programs within the portfolio.
- Responsible for the design, development, delivery, and testing for complex terrestrial and space geolocation systems acting as a Principal Engineer, Program Manager, and Project Lead.
- Work closely with other portfolio managers and senior management to manage key aspects of the overall business, including staffing, recruiting, resource allocation, personnel management, and new business development.

**2008-2016 • RT Logic, EW and Assured Comms Group**

**Colorado Springs, CO**

**Systems Architect / New Product Incubation Manager / Advanced Enterprise Concepts Fellow**

- My primary responsibility was leading and overseeing the design, development, delivery, and marketing of signal processing solutions for Signal Monitoring, EW, and Assured Communications applications.
- Was the Lead System Architect and Program Engineer for Wideband Remote Monitoring System, which is a \$50M+ effort to field a remote signal monitoring and interference detection capability for the US Army. In this role I architected a cost-effective solution that was responsive to customer requirements using a combination of custom and COTS hardware, firmware, and software, for which a technology demonstrator was fielded within 6 months of contract award, which led to the subsequent award of multiple \$10M+ follow-on contracts. In addition to managing internal development, I also managed the engineering efforts of 2 subcontractors, and the subsequent successful delivery, integration, and fly-off demonstration at customer sites across the world.
- Was Program Manager and Program Engineer on a number of efforts with the Joint Spectrum Center, where I lead in the development, delivery, and support of a world-wide network of UHF SATCOM signal monitoring and geolocation systems that continue in operational use today.
- Served as an Advanced Enterprise Concepts Fellow, where I was twice awarded year-long corporate-sponsored fellowships to identify, explore, and develop potentially game changing technology for the corporate enterprise.

2005-2008 ■ NAVSYS Corp

Colorado Springs, CO

**Program Manager and DSP Group Section Manager**

- As PM and DSP group lead, I was responsible for all aspects of the success of opportunities and programs assigned to me
- Served as Program Manager and Principal Investigator on numerous research and development contracts, including the following selected programs (a complete list is available on request):
  - PM, Lead Systems Engineer, and Lead DSP Engineer on the \$2.5M DARPA "Robust Surface Navigation via Signals of Opportunity" program where I led the design, development, and testing of an urban and indoor navigation solution
  - PM and PI on "Wideband Adaptive Signal Processing to Counter Jamming" contract with AFRL/RV. In this \$850K SBIR program I led in the development of a FPGA-based wideband beamforming system for use in SAR and GMTI radar systems
  - PM and Lead Systems Engineer on \$2M "GPS Network Assisted Positioning" program with NAVAIR, where I led in the development of a solution designed to allow airborne MIDS terminals to perform precision navigation in the absence of GPS
- Supervised and oversaw the work of 3-6 DSP and navigation engineers.
- Served as the product manager for our line of test and simulation products where I was responsible for domestic and international sales and support
- Authored and regularly won Phase 1-2 SBIR proposals and related commercialization opportunities

2002-2005 ■ Northrop Grumman IT – TASC, RF Systems Division

Chantilly, VA

**Communications Systems Engineer**

- As a member of the technical staff, I performed analysis, systems engineering, prototyping, and development work related to real-time SIGINT communications and signal processing systems, frequently while interfacing directly with end-users and customers.
- Developed and integrated a classified real-time signal processing M2K application onto Air Force's RIVET JOINT reconnaissance platform. This application is currently in operational use.
- Developed and prototyped a software radio-based orthogonal frequency division multiplexing (OFDM) modem in the X-Midas framework. I performed all aspects of the design and implementation. This work eventually led to significant business capture by my department.

1994-1998 ■ U.S. Army Military Intelligence Corps

Republic of Panama

**Spanish Linguist / Mission Supervisor / Squad Leader**

- I served as a Technical Operator, Mission Supervisor, and Mission Operations Instructor aboard Airborne Reconnaissance Low - SIGINT gathering aircraft throughout Central and South America. From 1997-98 served as a squad leader and first-line supervisor over 12 SIGINT collectors and analysts.

**EDUCATION**

2003-2005 ■ Virginia Tech

Falls Church, VA

- MS in Electrical Engineering, with significant course work in DSP and Radar Systems
- Thesis title: "Auxiliary Vector Selection Algorithms and Simulation for Adaptive Beamforming"

1998-2002 ■ University of Illinois at Urbana-Champaign

Champaign-Urbana, IL

- BS in Electrical Engineering, minors in Mathematics and Computer Science
- Major course work in Communications Systems Engineering and Signal Processing

**SELECTED PUBLICATIONS**

I have an established track record of authoring technical articles and presenting at industry and academic conferences. A complete list of publications is available upon request.

- B. Mathews, "GPS Threat Detection and Geolocation," Joint Navigation Conference, June 9, 2010
- B. Mathews, "SATCOM Interference Detection, Characterization, and Geolocation," Joint Electronic Warfare Conference, San Antonio, TX, September 2, 2009

- Jay, E., "Increasing Space Situational Awareness," Military Space and Missile Forum, December 2009 (Quoted as a Subject Matter Expert and unattributed author of significant parts of the article)
- B. Mathews, J. Griesbach, and A. Brown, "Wideband Radar Adaptive Beamforming Using Frequency-Domain Derivative Based Updating," SDR Forum, November 2008
- B. Mathews, A. Brown, and Y. Lu, "Indoor Navigation using an Integrated GPS/TOA/Inertial Nav System," International Symposium on Advanced Radio Technologies (ISART), February 2007
- B. Mathews and A. Brown, "A Novel Passive Bi-Static GPS Radar Using a Phased Sensor Array," IEEE Position Location and Navigation (PLANS) conference, April 2005
- B. Mathews, and A. Zaghloul, "Auxiliary Vector Selection Algorithms for Adaptive Beamforming," IEEE AP-S International Symposium and URSI Radio Science Meeting, Washington, DC, July 2005.

#### MISCELLANEOUS

- Currently hold a DOD Top Secret w/ Secure Compartmented Information security clearance (TS/SCI, SI/TK), PR Date: August 2013
- Proficient developing with Python, MATLAB, GNURadio, and C#, in both Linux and Windows environments
- Experience developing with Simulink, X-Midas, C/C++, SQL, and Julia
- Numerous personal projects involving DSP, software development, Linux, home theater, astronomy, etc.
- I place a very high priority on staying informed of current research in my fields of interest, and maintaining and expanding my skill set through continuing education, professional development, mentorship, and independent research and projects – I am genuinely excited about technology and it shows in how I approach and perform my work
- Member of IEEE and previously served as a reviewer for IEEE Transactions on Geoscience and Remote Sensing
- Fluent Spanish speaker