Anthony Bisulco

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Education

Gordon Scholar at Northeastern University   **Boston, MA**
Candidate for a Bachelor of Science in Electrical and Computer Engineering (GPA: 3.97/4)   Sept 2014-May 2018
Activities
• Department of Homeland Security Leadership Council • Institute of Electrical and Electronics Engineers   • Tau Beta Pi
• American Institute of Aeronautics and Astronautics   • Northeastern Program for Teaching Undergraduates • Eta Kappa Nu
Selected Courses
• Linear Systems • Embedded Design • Electromagnetics • Biomedical Imaging • Machine Learning • Robotic Sensing

Stony Brook University   **Stony Brook, NY**
Young Scholars Program in Astronomy   Jan-May 2014

Professional Experience

Google Research and Machine Intelligence   **Mountain View, CA**
Engineering Intern   July 2017-Present
- Applied transfer learning in Tensorflow to retrain models for audio and image recognition on embedded devices
- Developed AIY vision kit an on-device neural network accelerator for computer vision
- Assisted in rapid prototyping/full scale manufacturing process of developing 10000+ units

Singh Robotics Laboratory   **Boston, MA**
Systems Integration Engineer   Jan 2017-Present
- Implemented a visual-based navigation technique for GPS denied urban areas using computer vision
- Integrated Velodyne LIDAR and 5 Point Grey Cameras into ROS for light field array
- Developed acquisition camera array software for light field calibration in C++

Northeastern University Sensing, Imaging, Control and Actuation Laboratory   **Boston, MA**
ALERT Gordon-CensSSIS Scholar/Undergraduate Researcher/REU (2016)   Sept 2014-Present
- Developed an FPGA control system for a multiple-input multiple-output radar system with 400 channels
- Implemented simulated annealing and compressive sensing methods for a coded imaging system
- Implemented a fused millimeter/infrared imaging system for target validation
- Designed the system architecture for a fused digital breast tomosynthesis/nearfield radar imaging system
- Won Best Research Process in 2016 REU Research Showcase
- Collaborated with a group of researchers to advance laboratory projects

European Organization for Nuclear Research (CERN)   **Geneva, Switzerland**
ATLAS Systems Engineer   Sept-Dec 2016
- Developed array synthesis algorithms for multi-anode photomultiplier tubes for increased sensor resolution
- Designed and 3D printed a fiber light guide for 85% increased sensor coverage of the photomultiplier tube
- Built Spectrum a web application for laboratory simulation and experimental data comparison
- Presented at an International Collaboration Conference on Tile Calorimeter Upgrades
- Collaborated with a multi-disciplinary/cultural team on experimental particle physics projects

Massachusetts Institute of Technology Lincoln Laboratories   **Lexington, MA**
Summer Researcher   May-Aug 2015
- Adapted MATLAB image processing algorithms to an FPGA for a UAV Micro-LIDAR
- Developed and implemented a configurable FPGA moving average filter for Avalanche Photo Diodes (APD)
- Built a visualization tool to process APD camera binary files
- Performed sensor characterization on APDs under varying temperature and voltage conditions
- Collaborated with employees and outside consultants to further development of active optical system

Engineering Projects

Pharma (Best Health Hack/Most Innovative Embedded Hack at Penn Apps)   **Philadelphia, PA**
Software Engineer   Jan 2017
- Developed a suite of connected health tools using Amazon Alexa to allow easy medical information access
- Wrote Amazon Web Service functions for Alexa to interact with commands such as what are side effects of my medication, how should I take this medication or how many pills do I have left
- Collaborated with startup accelerator in furtherance of this project

Pong over Laser Link (3rd Place at Columbia University Hackathon)   **New York, NY**
Laser Engineer   Feb 2016
- Developed a wireless laser link to send data over to play a game of pong between two remote terminals
- Developed custom packet format between two links to send and receive data
- Redeveloped hackathon prototype for display at Atmel Developer Conference

Radiation Detection and Localization (1st Place URI Hackathon)   **Kingston, RI**
Programmer/Electrical Engineer   Nov 2015
- Developed a framework in Python for an Internet of Things platform to detect and localize a radiation source
- Developed machine learning-based localization algorithm based on sensor readings

A Practical Notification System to Identify Incoming Sudden Ionospheric Disturbances   **Commack, NY**
Independent Researcher   Sept 2012-March 2014
- Designed, implemented and tested a new way to detect solar disturbances using off-the-shelf parts with a custom MATLAB program
- Applied concepts including Fourier transforms, digital filters, sampling theory and electromagnetics to signal processing algorithms

Selected Publications

- Ali Molaei, Juan Heredia-Juesas, Luis Tirado, Weite Zhang, **Anthony Bisulco**, Alexande Zhu, Digego Cachay, Ashkan Ghanbarzadeh and Jose Martinez-Lorenzo, "3D Printed Compressive Horn Antenna for High-Sensing-Capacity Millimeter-Wave Imaging," European Conference on Antennas and Propagation Submission, April 2018
- Tile Calorimeter Collaboration, "Initial Design for the Phase-II Upgrade of the ATLAS Tile Calorimeter System," CERN Document Server, Geneva, Switzerland, Dec. 2016
- **Anthony Bisulco**, Luis Tirado, Shaan Patel, Luigi Annese, Galia Ghazi and Jose Martinez-Lorenzo, "Massive MIMO Millimeter Wave Radar Imaging System," Union of Radio Science presenter, July 2016
- Galia Ghazi, Ashkan Ghanbarzadeh, Ali Molaei, Luis Tirado, **Anthony Bisulco**, Juan Heredia Juesas, Jose Martinez-Lorenzo, "High Frequency Modeling of Large Composite Scatters for Arbitrary Shape: Vortex Lens Validation," European Conference on Antennas and Propagation, April 2016
- **Anthony Bisulco**, "Real Time Solar Flare Analysis," United Nations Space Weather Journal, June 2013
- **Anthony Bisulco**, "A Practical Notification System to Identify Sudden Ionosphere Disturbances," accepted for publication in Journal for Experimental Secondary Science and presented at International Science and Engineering(ISEF) fair and Junior Science and Humanities Symposium. Received NOAA Alternate Award at ISEF, May 2013-Sept 2014

Certifications/Skills

Programming/Software: • MATLAB • C++ • Python • Verilog • SolidWorks

Technical Skills: • Radar • Remote Sensing • Machine Learning • FPGA/Microcontroller Programming • Robotics • Light Field Imaging • Compressive Sensing • Digital Signal Processing

Federal Communications Commission: Extra Class Amateur Radio Operator KD2BBR (Nov 2011)

Honors: • Eagle Scout • Stanford Solar Science award • 1st place at the New York Institute of Technology Showcase