

# RYAN LAGOY

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## OBJECTIVES

- 1) To do my ultimate best to improve the world and quality of life of the people who inhabit it.
  - 2) To continually grow, learn and innovate to solve the complex and diverse problems of today and tomorrow.
  - 3) To maintain and further develop my skills as an entrepreneur, technical leader and mentor.
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## EDUCATION

- *University of Massachusetts Amherst, Master of Science in Electrical Engineering, 2017*
    - Concentration in Analog/RF/Digital Processing Engineering
    - 4.0 Cumulative GPA
  - *Boston University, Bachelor of Science in Electrical Engineering, 2013*
    - Summa Cum Laude
    - 3.94 Cumulative GPA
  - *Massachusetts Academy of Mathematics and Science, 2010*
    - Advanced two-year secondary school program at Worcester Polytechnic Institute
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## ENGINEERING AND RESEARCH EXPERIENCE

- *Starry, Inc. Systems Integration and Validation Engineer (October 2017 – Present)*
  - Developing digital signal processing and calibration techniques to improve overall system performance.
- *BAE Systems, Inc., Senior Research Engineer (June 2016 – October 2017)*
  - Acted as Cost Account Manager and Project Technical Lead of a strategic RF/microwave program within the research and development business area.
  - Integrated digital and RF domains for modular and rapidly developing technology in various internal research and development prototyping efforts.
  - Researched and developed novel pre-distortion and equalization adaptive Volterra series algorithms for suppression of undesired non-linear behavior inherent in RF/microwave front ends.
- *BAE Systems, Inc., Engineering Leadership Development Program (2013 – June 2016)*
  - Year 3:
    - Attended the highly selective University of Massachusetts, Amherst RF/Microwave Engineering Industry Master's Program.
    - Researched and developed novel signal processing algorithms for use on a modular software defined radio platform.
  - Year 2:
    - Program managed an internal research and design project to address the need for a simple, modular and low loss radio frequency distribution unit.
    - Researched and developed antenna systems in the specialized High Power Antenna Systems Product Realization Group with Dr. Michael O'Brien.
    - Lead the communications mentor group with Dr. Karl Brommer, researching innovative applications of software defined radios, communication protocols and algorithms.
    - Established a secure configuration management system with Subversion, Apache and LDAP Authentication for Engineering Development.
  - Year 1:
    - Graduated from the intensive Technical Development Curriculum, which consists of a series of weekly classes spanning mechanical, software and electrical topics taught by company leaders.
    - Researched autonomous remote sensing via a personal innovative EMPOWER idea submission.
    - Coordinated BAE Systems FIRST Robotics \$200,000+ budget and sponsorship, which included optimizing spending for increased community outreach, employee support and company return on investment.
    - Proposed and designed an embedded solution for a customer in response to an obsolescent parts alert.
    - Integrated and tested a 3U embedded system for military use.

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- *Part-Time Pro Bono STEM Website Developer (May 2014 – Present)*
  - Designed, updated and fully maintain the BAE Systems FIRST Robotics online grant application.
- *Boston University Senior Project, Calibration of Microarray Slides in the Optical Characterization and Nanophotonics Laboratory (2012-2013)*

Advisor: Professor M. Selim Ünlü

  - Improved immunodiagnostics in a more compact, inexpensive and computationally efficient precision optics device than what is currently available on the market.
  - Designed software that implements various image-processing techniques, such as filtering, background subtraction and Hough transformation.
  - Used CUDA to program a NVIDIA graphical processing unit for parallel computation of the Levenberg-Marquardt fitting algorithm.
- *BAE Systems, Inc., Technical Engineering Intern 2 (2012)*
  - Designed and performed verification and validation tests on military avionic system modules.
  - Designed and performed signal analysis and acceptance tests on two military avionic test system backplanes.
  - Designed control system with proportional feedback and data logging for automated thermal survey of military avionic modules using C coding in LabWindows/CVI, NI TestStand and MATLAB.
- *Transient Electric Field Simulation to Understand Nanoparticle Injection Via Electroporation (2012)*

Advisor: Professor Mark Horenstein

  - Modeled the electric field through horizontal layers of two mediums (layers of skin) with different conductivities, thicknesses and permittivities when a high voltage is applied by any custom contour on the top surface of the skin.
  - Utilized Maxwell's equations, charge simulation method, electric field boundary conditions and image charge theory for simulation in MATLAB.
- *Neuroscience Research in the Gardner Laboratory of Neural Circuits (2010-2012)*

Advisor: Professor Timothy Gardner

  - Performed echoic memory research with two choice learning paradigm (design/program/create large scale testing system).
  - Programmed in LabVIEW of a NI-Speedy-33 DSP module for data acquisition and timed/random actions.
  - Clustered sonogram data with MATLAB.
  - Performed brain surgeries on live Zebra Finches.

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## PATENTS

- Patent Pending in Adaptive Antenna Field.
- Patent Pending in Machine Learning/RF Adaptation Field.

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## PUBLICATIONS AND PAPERS

- Lim, Y., **Lagoy, R.**, Shinn-Cunningham, B. G., & Gardner, T. J. (2016). Transformation of temporal sequences in the zebra finch auditory system. *ELife*,5. doi:10.7554/elife.18205.
- **Lagoy, R.**, Intercepting Quad-Copter Spread Spectrum Communications (2016), from [http://ryanlagoy.com/doc/lagoy\\_intercept\\_comms.pdf](http://ryanlagoy.com/doc/lagoy_intercept_comms.pdf).
- **Lagoy, R.**, Transient Electric Field Simulation to Understand Nanoparticle Injection Via Electroporation (2012), from <http://ryanlagoy.com/doc/lagoy-transient-e-field.pdf>.

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## HONORS AND AWARDS

- **IMPACT Award for Winning a Strategic Contract (2017)**
- **Placed in the Top 10 and Runner-Up to Top 4 in the UK IET Global Challenge in Association with RedR (2017)**
- **IMPACT Awards at BAE Systems for Successful Test Event (2017)**
- **Selected to Attend BAE Systems Graduate Conference at BAE Systems, PLC. (2016)**
- **Graduated from Engineering Leadership Development Program (2016)**
- **IMPACT Award at BAE Systems for Contributing to the Innovation Expo (2015)**
- **IMPACT Award at BAE Systems for Contributing to the FIRST Robotics Outreach Initiative (2014)**
- Boston University Scarlet Key Award, Most Prestigious Non-Academic Award (2013)
- Michael F. Ruane Award for Excellence in Senior Capstone (2013)
- P. T. Hsu Memorial for the Outstanding Senior Design Project (2013)
- Resident Assistant Community Development and Leadership Award (2013)
- Engineering Student Advisor Award (2013)
- Engineering Alumni Student Leader Award for Contributions to the College of Engineering (2013)
- Tau Beta Pi Engineering Honor Society (2012-2013)
- Order of the Engineer (2013)
- Engineering Dean's List Every Semester in Undergraduate Studies (2011-2013)
- Resident Assistant of the Month (2012)
- Resident Assistant Programming Award (2012)
- West's Best: Residence Award (2011)
- Clean Technology Award (2008 and 2009)
- Clean Technology Seminar at Genzyme (2008)
- 2<sup>nd</sup>, 3<sup>rd</sup> and Honorable Mention Award at the State Science Fair at Massachusetts Institute of Technology (2007-2009)

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## EXTRACURRICULAR ACTIVITIES

- **Steering Committee Member for the 2019 IEEE International Microwave Symposium (2017-Present)**
- **Boston University Senior Project Customer/Mentor (2017/2016)**
- **Boston University ECE Day Alumni Judge (2014-Present)**
- BAE Systems Wellness Day Lead and Wellness Committee Member (2014)
- Volunteer Coordinator for FIRST LEGO League NH/VT Championship (2014)
- Engineering Mentor for FIRST Robotics Competition (FRC) Team 246, Overclocked (2014)
- Co-Founder and Vice Chair of Nuclear and Plasma Sciences in IEEE BU Chapter (2013)
- Founder and Vice Chair of Students United for Rehabilitation of Foreshores Club (2013)
- Engineering Delegate of Provost's Undergraduate Student Advisory Board (2013)
- E-Host for Prospective Boston University Engineering Students (2013)
- Engineering Student Advisor for Freshmen (2011 and 2012)
- Brother of Lambda Chi Alpha, Alpha Zeta, Alpha 1327
  - High Tau, Treasurer (2012)
  - High Gamma, Secretary (2011)

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## SKILLS AND CERTIFICATIONS

- Operating Systems
  - Mac OSX
  - Windows
  - Linux
  - Unix
- Programming Languages
  - Scripting: MATLAB, Python, Javascript, PHP
  - Markup: HTML, CSS
  - Code: C/C++/C#, LabVIEW 2007, LabWindows CVI, NI TestStand;
  - Mathematics: Mathematica
- Version Control
  - Git
  - Subversion
- Engineering Software Packages
  - Electromagnetics: ANSYS High Frequency Structure Simulator (HFSS), FEKO EM Simulation Software, Cadence, SPICE
  - Programming: Microsoft Visual Studio Professional, Dashcode, PLT DrScheme
  - Mechanical: PTC Creo, SolidWorks
  - General: Adobe (Photoshop, Reader), Microsoft Office Applications (Word, Excel, PowerPoint, Visio, Project, Outlook)
- Building Things, Kiteboarding, Surfing, Skiing and Sailing