

Name Last Name

Address • Phone: ###-###-### • Email: address@brown.edu

Education

Brown University, Providence, RI

- **PhD** in Neuroscience - Expected 2018
 - Relevant Coursework: Molecular and Cellular Neurobiology, Cognitive Neuroscience, Systems Neuroscience
- **Sc.M** in Innovation Management and Entrepreneurship (PRIME) -Awarded 2017
 - Relevant Coursework: Business Engineering Fundamentals, Technology Entrepreneurship, Innovation and Technology Management, Globalization Immersion
- Honors: PRIME Achievement Award, Sigma Xi Scientific Research Honor Society Full Member

Tufts University, Medford, MA

- BS in Biopsychology and Classical Studies - Awarded May 2010
- Honors: Summa Cum Laude, Phi Beta Kappa, Psi Chi, Senior Thesis with High Honors

Eberhard Karls Universität Tübingen, Germany

- Study Abroad Program - Spring 2009

Professional Experience

Business Development Intern, Neurotecnix Inc., Providence RI

January 2016 - Present

- Contributed to strategic planning and positioning of a medical diagnostics start-up venture.
- Organized product trials, performed market research, and assisted in government and private sector fundraising.
- Awarded as Finalist in the 2016 Rhode Island Business Plan Competition.

Graduate Intern, Technology Ventures Office, Brown University

Summer 2015 - Present

- Identified, evaluated, and promoted new technologies and IP from university faculty
- Conducted market and patentability analyses, and served as liaison between inventors, investors, and the university.

PhD Candidate, Brown University

Fall 2012 - Present

Laboratory of Affective Neuroscience: Dr. Name

- Investigated the relationships between personality, genetics, brain activity, and response to stimulants and alcohol.
- Employed techniques including neuroimaging (fMRI), cognitive testing, anatomical and functional brain analysis, statistics (SPSS), scientific writing, and participant recruitment and interview.
- National Science Foundation Graduate Research Fellow

Clinical Research Assistant, Massachusetts General Hospital

June 2010 - July 2012

Martinas Center for Biomedical Imaging: Dr. Name

- Studied relationship between genetics, nutritional folate, brain activity, and working memory in schizophrenia.
- Gained experience in fMRI image acquisition and data processing (Freesurfer, SPM), genetic data collection and processing, participant recruitment, coordinating with IRB, and Linux interface.
- Contributed to lab manuscripts and presentations.

Publications

- Names, et al. (2017). Biological Psychiatry. Under Review.
- Names, et al. (2016). Science Advances.
- Names, et al. (2016). Neuropsychopharmacology.
- Names, et al. (2011). PLoS ONE.
- Names, et al. (2011). Schizophrenia Bulletin.

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Brown University, Providence, RI
Ph.D. Electrical Engineering
Coline M. Makepeace Fellowship (AY 2015-2016)

Providence, RI
August 2015 -
present

Texas Tech University, Lubbock
M.S. Electrical Engineering
2003 Electrical Engineering Graduate Student of the Year (Texas Tech University)

Lubbock,
TX August
2003

B.S. Electrical Engineering
2002 IEEE Region 5 Outstanding Student Award

August 2002

Research Experience

Graduate Student and Research Assistant, Neuroengineering (9/2015 - Present):

- Led sensorimotor project examining methods to bias the perception of object compliance and pressure during active touch in a normally behaving non-human primate animal model. Knowledge of Python, MATLAB, LabVIEW, and C/C++ computer languages. Experienced with Cadence, COMSOL, and Qt.
- Designed and oversaw construction of experimental room, experimental task, to include planning, preparing, and performing of surgical implant procedures related to sensorimotor experiments
- Developed real time control of sensorimotor experimental task for animal training and preliminary data collection in LabVIEW
- Organized and participated in two experimental neural surgeries to evaluate dispersion and transduction of channelrhodopsin proteins in the somatosensory cortex of non-human primate animal model implementing a convection enhanced delivery method
- Programmed automated control and data collection software in MATLAB used for impedance measurements of novel carbon nanotube electrode prototypes
- Relevant classes: Mixed-Signal Electronic Design, Mathematical Methods for Scientists and Engineers I/II, Implantable Devices, Scientific Programming in C++, Advanced Systems Neuroscience, Neural Dynamics: Theory and Modelling, Statistical Neuroscience

Professional Experience

U.S. Air Force Explosive Ordnance Disposal (EOD) Officer (06/2007 - 8/2014):

Provided EOD subject matter expertise on foreign and domestic chemical, biological, radiological, and nuclear weapons and terrorist devices for tactical, operational, and strategic level policy, directives, and operations. Coordinated with various entities within Department of Defense and other federal agencies to accomplish National Security objectives.

- Selected as #1/100 peers, top 1% of company grade officers in supervisor's 33-year career; hand-picked to serve as the Counter Improvised Explosive Device Advisor to United Nations Headquarters in New York City
- Coordinated and directed EOD support to 25% of U.S. Secret Service missions tasked to U.S. Air Force - safeguarded the President, Vice-President, First Lady and other dignitaries and foreign heads of state
- Commanded 120 personnel and managed \$100M of specialized equipment; orchestrated 724 combat missions removing insurgents and 65K of explosive hazards from battlefield across 3 Afghan provinces
- Created Explosive Ordnance Disposal (EOD) training and mentoring program for Afghan soldiers- generated 17 capable Afghan EOD operators establishing a legitimate capability for the Afghan National Security Forces
- Developed, resourced, executed counter improvised explosive device strategies for United Nations programs/personnel in Somalia, Kenya, Mali, South Sudan, and Golan Heights
- Selected to work on Special Forces Joint Task Force/NATO Special Operations Component Command-Afghanistan planning staff for 2014 Afghan presidential elections, forces/equipment retrograde, and OPERATION Resolute Support

U.S. Air Force Civil Engineer (CE) Officer (07/2005 - 06/2007):

Planned, maintained, repaired, constructed, and operated \$6.5B of infrastructure supporting depot operations at the Ogden Air Logistics Center and training missions for 84 F-16 aircraft. Sustained 1,600 facilities including dormitories and family housing.

- Led deployed Civil Engineer Operations flight comprised of 240 airmen with 10 various job specialties ensuring 99% power reliability and maintaining /repairing DoD's busiest airfield following multiple indirect fire attacks; enabled 12K air combat operations and logistical movements of 45K ton of equipment for OPERATION Iraqi Freedom
- Motivated 7 engineers to design and construct 10 projects valued at \$5.4M as Engineering Management Section Chief; negotiated and implemented \$2.3M substation repair project averting outages to a third of base, affecting 23K members
- Recognized as Utah Engineer Council "Fresh Faces of Engineering", ranked #1/10 peers; led Airfield Repair team to exceptional acknowledgment and garnered individual recognition as excellent performer during operational inspection

U.S. Air Force Developmental Engineer Officer (09/2003 - 06/2005):

Executed global logistics and engineering support, working capital funds, and item management of specialized combat and training Air Force equipment. Planned, coordinated, and implemented strategies for systems moving from development and production to sustainment and Ogden Air Logistics Center.

- Steered 20-person sustainment team for 9 Air Combat Training Systems (ACTS) worth \$775M at 16 locations and directed 13-person acquisition team for \$10M electronic warfare receiver effort; competed/won 3 ACTS sustainment programs generating \$4M of revenue and creating 15 man-years of new jobs, ranked #1/4 Lieutenants
- Provided engineering support for \$1B F-16 radar sustainment equipping 3,200 aircraft from USAF and 21 foreign nations; actions responsible for curtailing #1 and #2 F-16 mission capable failure drivers preventing 19K hours of aircraft groundings

Significant Honors and Awards

- Bronze Star (w/1 device) Meritorious Service Medal
- Joint Commendation Medal
- Air Force Commendation Medal (w/ 3 devices)
- Joint Service Achievement Medal
- Meritorious Unit Award
- AF Outstanding Unit Award
- AF Organizational Excellence Award (w/ 1 device)
- Minister of Defense Service Abroad Medal (Czech Republic)
- Command Commendation (Canada)
- 2009 Andrews Air Force Base Company Grade Officer of the Quarter
- 2006 Civil Engineering Group Company Grade Officer of the Year
- 2006 Utah Engineering Council's "Fresh Faces in Engineering"
- 2005 Inspector General Outstanding Team, Officer in Charge 2004 Honor Guard Officer of the Year

Organizations

- Texas Tech University Electrical and Computer Engineering (ECE) Academy Inductee
- Ambassador, Breakout Labs (BOL): *BOL is a funding and support mechanism for radical science companies.*
- Texas Tech University Electrical and Computer Engineering Industrial Advisory Board: *Ensures modern and relevant curriculum, identifies new research areas, Promotes communication between students, faculty, and staff*
- Institute of Electrical and Electronics Engineers, Student Member

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EDUCATION

Brown University, Providence RI Expected May 2019
Doctor of Philosophy Biomedical Engineering Master of Public Health

Boston University, Boston, MA May 2012
Bachelor of Science, Biomedical Engineering

RESEARCH EXPERIENCE

Tripathi Lab, Brown University, Providence, RI - PhD Candidate September 2014-Present

- Perform nucleic acid isolation using microfluidic diagnostics chips.
- Enhance current design to be used in resource limited settings.

AMPATH Reference Laboratory, Eldoret, Kenya - Visiting Student June-July 2017

- Compare RNA extraction efficiency of a microfluidic chip designed in the Tripathi lab with that of the gold standard M2000 system using plasma samples from HIV positive patients.

The Mace Lab, Tufts University, Medford, MA. Visiting Scientist August 2013 - May 2014

- Design and fabricate a paper based point-of-care microfluidic diagnostic devices
- Train undergraduate researchers in basic laboratory skills, experimental design and development of immunoassays.

Diagnostics For All, Cambridge, MA - Research Associate August 2012-June 2014

- Design and fabricate a small, easy-to-use, and portable device made of paper and adhesive to diagnose malaria and dengue fever in blood; measles and tetanus in oral fluid.
- Investigate stabilization to improve limit of detection, reduce run time and reduce cost.

Diagnostics For All, Cambridge, MA - Scientist Intern June 2012- August 2012

- Prepare and run LAMP DNA amplification to test for the presence of bacterial DNA.
- Modify sample preparation to optimize cell lysis prior to DNA amplification.

SKILLS

Lab: Bacterial Cell Culture, DNA Extraction and Amplification Protocols, Basic Microfluidic Design, Human Sample (blood, oral fluid) Preparation and Use, Immunoassay Development
Computer: Matlab, Sigma Plot, Microsoft Office programs, Adobe Illustrator, CAD

AWARDS

Framework in Global Health Scholarship, Brown University March 2017
Funding for Research at AMPATH Laboratory in Eldoret, Kenya

Societal Impact Capstone Project Award, Boston University May 2012
Third Place - SNAP (TB)

Scarlet Key Recipient, Boston University May 2012
Explain

Student Advisor Award, Boston University May 2012

ACTIVITIES

Vice-President of Graduate Biomedical Engineering Society, Brown University 2016-2017

Vice-President of Engineering Government Class of 2012, Boston University 2008-2012

Dean's Host of the College of Engineering, Boston University 2009-2012

Student Advisor for incoming freshman in the College of Engineering, Boston University 2010-2012

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EDUCATION

Brown University, Providence, RI
PhD in the Department of Chemistry

Expected Summer 2017

Bowdoin College, Brunswick, ME
B.A. in Biochemistry with Honors; **Minor** in Theater

May 2010

RESEARCH EXPERIENCE

Research Assistant, Department of Chemistry, Brown University

June 2012-Present

Advisor: Name

- Designed and performed kinetic assays, including rapid quench flow experiments, to study DNA repair enzymes
- Evaluated the substrate specificity and steady-state and transient-state kinetics of human DNA Ligase 1 and Flap Endonuclease 1 within the context of genomic instability
- Examined the activity of DNA glycosylase enzymes in the context of packaged DNA substrates using kinetic methods and chemical footprinting techniques in a nucleosome core particle model system
- Trained and mentored several undergraduate and graduate students through development and execution of research projects in the lab

Research Technician, Massachusetts General Hospital

June 2010- June 2012

Advisor: Name

- Studied gender-related disparities in the expression and aggregation of alpha-synuclein in Parkinson's Disease using Western blotting and antibody-based techniques for analysis of human and mouse brain tissue
- Promoted to Research Technician II in July 2011 as recognition for high-level, independent work in lab

Research Fellow and Honors Thesis, Department of Biochemistry, Bowdoin College

June 2008- May 2010

Advisor: Name

- Examined optical properties, electronic energies, and thermal and photochemical stabilities of carotenoid analogs using low temperature (77 K) UV-Vis and fluorescence spectroscopy

SKILLS AND TRAINING

New Enzymology Kinetics Workshop

January 2014, January 2016

- Participated in week-long workshop hosted by Dr. Suess at UT Austin
- Learned to design kinetics experiments to provide desired mechanistic information
- Trained to use KinTek Explorer software to simulate kinetic data and perform global fitting analysis

Laboratory Skills

- Design and execution of enzymatic assays, including rapid quench flow kinetics (**4+** years)
- Enzyme expression and purification, including affinity, size exclusion, and ion exchange chromatography (**4+** years)
- DNA synthesis (phosphoramidite chemistry) and purification (**4+** years)
- DNA footprinting techniques, including hydroxyl radical footprinting (**4+** years)
- UV-Vis and fluorescence spectroscopy, including low temperature spectroscopy (**7+** years)
- HPLC, including method development and basic instrument maintenance (**7+** years)
- Basic biochemistry techniques: Western blotting, antibody-based techniques, subcellular fractionation, gel electrophoresis, and PCR (**7+** years)
- Cryosectioning and laser capture microdissection
- Laboratory safety officer and radiation safety officer

PUBLICATIONS

- **Bilotti, K.**, Kennedy, E., and Delaney, S. Glycosylase Activity on Nucleosome Core Particle Substrates with Varied Rotational and Translational Lesion Positioning (*in preparation*)
- Tarantino, M.E., **Bilotti, K.**, Huang, J., Delaney, S. Rate-determining Step of Flap Endonuclease 1 (FEN1) Reflects a Kinetic Bias against Long Flaps and Trinucleotide Repeat Sequences. *Journal of Biological Chemistry* (2015), 290 (34), 21154-211

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Education

Ph.D. Department of Physics, Brown University, Providence RI Sept 2011- May 2017

Thesis Title; Advisor

Doctoral Research, Memorial Sloan Kettering Cancer Center, New York NY Mar 2013- May 2017

Structural Biology, Name of Project

B.S. Physics, University of Science and Technology of China, Hefei China Sept 2007- June 2011

Skills & Knowledge

Programming: C++/C, FORTRAN, Matlab, Labview, Mathematica, Linux/Unix

Math: Probability and Statistics, Stochastic Calculus, Finite Difference, Monte Carlo, Numerical Analysis

Finance: Black-Scholes Model, Derivatives Pricing

Relevant Research & Experience

Intermediate Complex Viewer Application, Programming in C++ Sept 2012- Dec 2012 Brown University

- Implemented tree-like scene-graph data structure for VRML file and data types to represent vectors and matrices
- Implemented factory frameworks to load and save scene-graph data using depth-first traversal
- Coded different methods to represent surface and vertex normal vectors for the rendering engine
- Coded various surface reconstruction algorithms to reconstruct the surface for the points cloud

Numerical Simulation of Single Molecule Detection using 3D Stimulated Emission Depletion (STED)

Memorial Sloan Kettering Cancer Center Mar 2013 - Apr 2013

- Numerically computed the vectorial electric field of all the focus beams according to Wolf and Richards' theory
- Numerically investigated the emission of a molecule as a dipole at different places near focus
- Monte Carlo simulated the emitted signal from the molecule in the central focal volume and background from the periphery
- Calculated the signal to noise ratio with and without STED to demonstrate STED enabled single molecule detection

Single-molecule Fluorescent Nanoscopy of RNA Polymerase II Transcription at a Single Gene in Live Cells

Ph.D. Thesis Topic, Memorial Sloan Kettering Cancer Center May 2013 - Present

- Built 3 color STED nanoscopy with super resolution and high sensitivity enabling single molecules detection at high concentrations
- Programmed the Labview software with Matlab scripts for real time imaging and particle tracking
- Observed and quantified the accumulated Polymerase II at transcription sites in live cells at single molecule level
- Investigated the dynamics of the Pol II transcription cycle at the CMV mini-gene with single molecule nanoscopy

Honors and Achievements

"Title." *Nature*. 2016

Organic & Biomolecular Chemistry Poster Prize it Conference Name and Place. 2016

Leadership

Vice President, Spell out Organization Acronym, Place Feb 2016 - Present
Present Vice President, Brown University Chinese Students and Scholars Association June 2012 - Mar 2013