

# Name Last Name

Address (if pertinent) • Phone: ###-###-### • Email: address@brown.edu

## Summary of Qualifications

- Graduate education in Neuroscience and Innovation Management & Entrepreneurship
- Funding award recipient in both science and business sectors
- Experienced in technology transfer and medical technology start-up environments
- Skilled in scientific research and writing, market analysis, strategic planning, and communication.
- Detail-oriented with strong time management and multitasking capabilities.

## 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, Neurotecnic 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. Advisor**

- 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**  
**Ph.D.** Electrical Engineering  
Coline M. Makepeace Fellowship (AY 2015-2016)

Providence, RI  
August 2015 - present

**Texas Tech University**  
**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

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## 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



## Name Last name

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### **EDUCATION**

#### **Brown University, Providence RI**

*Doctor of Philosophy Biomedical Engineering*

Expected May 2019

*Master of Public Health*

Expected May 2019

#### **Boston University, Boston, MA**

*Bachelor of Science Biomedical Engineering*

May 2012

#### **Technische Universität Dresden, Germany**

*Spring Semester Study Abroad*

July 2011

### **RESEARCH EXPERIENCE**

#### **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.

#### **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.

#### **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.

*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.

#### **The Klapperich Laboratory for Appropriate Healthcare Technologies, Boston University**

Boston, MA

*Senior Project - System for Nucleic Acid Preparation for TB Diagnostics (SNAP-TB)*

September 2011-May 2012

- Extract Nucleic Acids from sputum and stabilize the sa-mple for transport without electricity.
- Alter lysis chemistry in attempt to increase smegmatis-specific DNA yield.

### **PUBLICATIONS**

Authors. "Effect of surfactants on carryover liquid volume in immiscible phase magnetic bead separation." *Colloids Surfaces A: Physicochemical and Engineering Aspects.*, 2016

Authors. "A multiplexed, patterned-paper immunoassay for detection of malaria and dengue fever." *Analytical Chemistry* 2016, 88 6161-6165.

Authors. "Adsorption and isolation of nucleic acids on cellulose magnetic beads using a three dimensional printed microfluidic chip." *Biomicrofluidics* **2015**, 9.

Authors. "A device architecture for three dimensional, patterned paper immunoassays." *Lab Chip* **2014**, 14, 4653-4658

Authors "Manufacturing prototypes for paper-based diagnostic devices." *Microfluid. Nanofluidics* **2014**, 16, 801-809.

### **PRESENTATIONS**

**Student Lecture** Biotechnology & Global Health Symposium. "A Multiplex Paper Immunoassay for Detection of Malaria and Dengue Fever in Resource Limited Areas" Brown University 2016

**Brown University Competition Team** International Global Health Case Competition, Emory University 2016

**Poster Presentation** Young Scholars Conference. "Sample Preparation for HIV Viral Load Monitoring in a Resource Limited Setting" Brown University 2016

### **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**

<b>Framework in Global Health Scholarship</b> , Brown University <i>Funding for Research at AMPATH Laboratory in Eldoret, Kenya</i>	March 2017
<b>Societal Impact Capstone Project Award</b> , Boston University <i>Third Place - SNAP (TB)</i>	May 2012
<b>Scarlet Key Recipient</b> , Boston University <i>Explain</i>	May 2012
<b>Student Advisor Award</b> , 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

# NAME LAST NAME

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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: Dr. Suess

- 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: Dr. Suess

- 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: Dr. Suess

- 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), 21154-21162

## AWARDS AND HONORS

Elaine Chase Award for Leadership and Service, Department of Chemistry, Brown University May 2017  
 Dissertation Fellowship, Department of Chemistry, Brown University January 1, 2017- Present  
 Graduate Ambassador Award, Department of Chemistry, Brown University April 2017  
 • Received funding to return to alma mater to present a research seminar  
 • Selected based on excellence in research, teaching, and service to the department  
 NASA Rhode Island Space Grant Consortium, Summer Research Fellowship June 2016-August 2016  
 • Awarded stipend for independently developed research proposal on DNA repair in tardigrades  
 Discussion Leader, Gordon Research Seminar on DNA Damage, Mutation, and Cancer March 2016  
 • Assisted in organizing session on Fragile and Repetitive DNA Sequences  
 Cane-Nambiar Graduate Student Travelship, Department of Chemistry, Brown University November 2015  
 • Awarded best poster in Organic Chemistry at annual department poster session  
 Phyllis R. Strauss Fund for Women in STEM, Department of Chemistry, Brown University June 2014  
 Littlefield and James Stacy Coles Research Fellowships, Bowdoin College June- August 2008 & 2009  
 • Selected for undergraduate summer research fellowships for work studying carotenoid analogs

## SERVICE AND LEADERSHIP

Diversity and Inclusion Action Committee, Department of Chemistry, Brown University September 2016- Present  
 • Partnered with faculty, staff, and students to establish a more inclusive department climate  
 • Invited seminar speakers, planned outreach efforts, and crafted actionable strategies for increasing diversity equity  
 Graduate Student Leadership Committee, Department of Chemistry, Brown University July 2016- Present  
 • Generated community among graduate students through advocacy within the department and monthly social events  
 • Launched, promoted, and secured funding for a weekly graduate student journal club  
 Graduate Student Council Representative, Brown University January 2016-Present  
 • Advocated for departmental interests during monthly meetings of the university-wide Graduate Student Council  
 Graduate Student Recruiting, Department of Chemistry, Brown University January 2013-Present  
 • Planned visitation program for prospective graduate students, including department tours, graduate student panel, and team-building exercises  
 • Organized current graduate student participation in events with prospective students

## TEACHING EXPERIENCE

Teaching Assistant, Brown University September 2012- May 2013, January 2016- December 2016  
 • Independently instructed weekly labs for Organic Chemistry I and II students and held office hours to assist students with writing lab reports, interpreting data, and connecting classroom concepts to experiments in the lab  
 Laboratory Assistant, Bowdoin College August 2008- December 2009  
 • Supervised students and prepared laboratory materials for Organic Chemistry I and II

## INVITED SEMINARS

**Bowdoin College Department of Chemistry** April 28, 2017  
*Base Excision Repair: Kinetics in Context*  
**DNA Repair and Mutagenesis Seminar Series, Massachusetts Institute of Technology** May 12, 2016  
*Activity of DNA Ligase 1 on Base Excision Repair Intermediates with Non-canonical Secondary Structure*

## CONFERENCES AND POSTER PRESENTATIONS

25<sup>th</sup> Enzyme Mechanisms Conference January 2017  
 Gordon Research Conference on DNA Damage, Mutation, and Cancer March 2016  
 19<sup>th</sup> Conversation of the Journal of Biomolecular Structure and Dynamics June 2015  
 International Workshop on Radiation Damage to DNA June 2014  
 247<sup>th</sup> American Chemical Society National Meeting March 2014  
 18<sup>th</sup> Conversation of the Journal of Biomolecular Structure and Dynamics June 2013  
 Gordon Research Conference on Mutagenesis August 2012  
 2011 Society for Neuroscience Annual Meeting November 2011

# NAME LAST NAME

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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

"Paper." *Nature*. 2016

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

## Leadership

Vice President, Spell out Organization Acronym, Place

Feb 2016 - Present

Vice President, Brown University Chinese Students and Scholars Association

June 2012 - Mar 2013