

## contact

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(240) 449 5602

## languages

English fluency

Russian fluency

## programming

Java, Python, C, HTML,  
CSS, Android

## software

Matlab, LabVIEW,  
Autodesk Inventor,  
Cadence/PSPICE

## coursework

Machine Learning,  
Advanced Robotics,  
Learning in Robotics,  
Convex Optimization,  
Probability Theory

## education

- 2016– **Ph.D.** in Electrical and Systems Engineering: 3.83/4.0 University of Pennsylvania
- Advised by Dr. Alejandro Ribeiro, Dr. Vijay Kumar
  - National Science Foundation Graduate Research Fellow
- 2012–2016 **B.Sc.** in Electrical Engineering: 3.94/4.0 University of Maryland
- B.Sc.** in Computer Science
- Banneker/Key Full Academic Scholarship
  - Research, Instruction, Service and Entrepreneurship Honors Program
  - Electrical and Computer Engineering Departmental Honors Program
  - Flexus Women in Engineering Program

## research experience

- 2016– **GRASP Laboratory at the University of Pennsylvania** Dr. Alejandro Ribeiro, Dr. Vijay Kumar  
*Research Assistant*  
Reinforcement learning for aerial robotics using kernel function approximation
- Integrated OpenAI Gym with the ROS, Gazebo and MAVROS-based OpenUAV simulation stack for modular reinforcement learning experiments
  - Formulated and implemented state-action value function approximation methods for problems with continuous state and action spaces
- 2015–2016 **Intelligent Servosystems Laboratory** Dr. P.S. Krishnaprasad, University of Maryland  
*Women in Engineering Research Fellow*  
Mobile robot navigation using sound source localization and human body tracking
- Effectively integrated dead reckoning using sound source localization and beacon following using human body tracking
  - Implemented network algorithms for quickly and effectively transmitting a rich data set from a laptop connected to the Kinect to a computer running ROS
- 2013–2015 **MEMS, Sensors and Actuators Laboratory** Dr. Reza Ghodssi, University of Maryland  
*Women in Engineering Research Fellow, RISE Honors Program Fellow*  
Real time biofilm sensing using electrochemical methods
- Designed and simulated an inductive-capacitive sensor for real-time biofilm growth monitoring
  - Learned and utilized microfabrication techniques, such as photolithography, in order to construct the sensor
  - Developed a modular experimental setup and demonstrated the high sensitivity of the sensor in static biofilm growth conditions
- Development of testing methods for biotemplate enhanced supercapacitors
- Designed and constructed a modular experimental setup for testing four supercapacitor devices in parallel
  - Developed a LabVIEW interface to monitor test chamber conditions
  - Fabricated supercapacitor devices using self-assembling biotemplates
- 2013 **National Institutes for Standards and Technology** Dr. Veronika Szalai, CNST  
*Summer Undergraduate Research Fellow*  
Characterizing a solar fuels catalyst
- Characterized and tested a copper-polypeptide solar fuels catalyst using spectroelectrochemical techniques
  - Designed and constructed cells for cyclic voltammetry, electron paramagnetic resonance, and absorbance spectroelectrochemistry

## industry experience

- 2016 **Microsoft** Mountain View, CA  
*Electrical Engineering Intern*  
Hololens Hardware
- Designed test tools for signal integrity and DC resistance measurements
  - Implemented a software-defined power supply, including a DC/DC converter, embedded system design, and software implementation
- 2015 **Microsoft** Redmond, WA  
*Electrical Engineering Intern*  
New Product Introduction
- Conducted failure analysis on next-generation hardware
  - Performed statistical analysis of the data from the hardware assembly line to support a factory process change and increase the return on investment
  - Characterized components for next generation hardware
- 2014 **Texas Instruments** Richardson, TX  
*Semiconductor Engineering Intern*  
Process Integration and Parametric Test
- Developed an online system for notifying engineers about trends in the factory's parametric test results
  - Analyzed data from passive and active experiments to support a test process change and reduce factory costs

## teaching

- 2016 **Introduction to Electrical and Computer Engineering** University of Maryland  
*Undergraduate Teaching Fellow*
- 2015 **Introduction to Electrical and Computer Engineering** University of Maryland  
*Undergraduate Teaching Fellow*
- 2014 **Introduction to Engineering Design** University of Maryland  
*Laboratory Teaching Fellow*

## publications and press

- 2016 *Co-author*  
S. Subramanian, E. I. Tolstaya, W. E. Bentley, and R. Ghodssi, "Real-time impedimetric sensing of bacterial biofilms in microfluidics", 26th Anniversary World Congress on Biosensors, Gothenburg, Sweden, May 25-27, 2016.
- 2014 *Presenter*  
E. Tolstaya, Y. Kim, S. Chu, K. Gerasopoulos, W. E. Bentley, and R. Ghodssi, "An Inductive-Capacitive Sensor for Real-time Biofilm Growth Monitoring," American Vacuum Society 61st International Symposium, Baltimore, MD, November 9-14, 2014.
- 2014 *Co-author*  
M. Gnerlich, E. Tolstaya, J. N. Culver, D. Ketchum, and R. Ghodssi, "Solid Micro-supercapacitor using Directed Self-Assembly of Tobacco Mosaic Virus and RuO<sub>2</sub>," American Vacuum Society 61st International Symposium, Baltimore, MD, November 9-14, 2014.
- 2015 *Author*  
B. Schlotfeldt, E. Tolstaya, L. Xu, "ALIS: Augmented Language Immersion System," Metamind.io, June 6, 2015.  
Android application utilizing Google Cardboard, Microsoft Translator, and MetaMind API, Microsoft Best Hack at Bitcamp 2015