

Gabrielle D. Vukasin
Stanford, CA
gvukasin@stanford.edu, Gabriellvukasin.com
609-240-1174

Education

Stanford University, School of Engineering, Stanford, CA

Ph.D Candidate in Mechanical Engineering

2016 to Present

- GPA: 3.86
- EDGE Doctoral Fellowship Program (2016 to Present)
- Mentor for EDGE Doctoral Fellowship Program (2018 to Present)
- Lead of collaborative nanofabrication run with other universities and companies
- *Relevant Courses:* ME 218A,B,C,D: Smart Product Design (Mechatronics Series), Intro to MEMS (Microelectromechanical Systems), Commercial MEMS

Tufts University, School of Engineering, Medford, MA

Master of Science in Mechanical Engineering

2014 - 2016

- Space Grant Fellowship: Massachusetts Space Grant Consortium (Spring 2015)
- *Relevant Courses:* Intro to Robotics and Mechatronics, Solid Mechanics, Digital Control Systems, GPS and Navigation, Dynamics, Data Acquisition, Manufacturing Processes

Williams College, Williamstown, MA

Bachelor of Arts in Astrophysics (with honors) and Mathematics, Sigma Xi

2010 - 2014

- *Relevant Courses:* Linear Algebra, Applied Real Analysis, Applied Abstract Algebra, Mechanics, Foundation of Modern Physics, Electricity and Magnetism, Quantum Mechanics, Astrophysics, Intro to Computer Science

Research Experience

Micro Structures and Sensors Lab, Stanford University, *Research Assistant*

2016 to Present

- Designing and fabricating resonant Microelectro Mechanical Systems (MEMS)
- For application in timing references, accelerometers, and gyroscopes
- Research focus is the characterization of energy loss mechanisms in MEMS resonators
- Lots of nanofabrication experience: DRIE, lithography, LPCVD tools, various etchers

Medical Device Startup R&D, Stanford University, *Mechantronics Designer*

2019 to Present

- Working with two doctors from the Stanford Medical school to design a device to help diagnose lung diseases
- Designing, testing, and redesigning the device based on the needs of the doctors
- Affiliated with the Stanford Byers Center for Biodesign

Autonomous Systems and Robotics (ASAR) Lab, Tufts University, *Research Assistant*

2014 - 2016

- Simulated position/orientation estimation algorithms in MATLAB
- Built and programmed a multi-robotic system to test position estimation algorithms
- Presented and published a paper on relative position and attitude estimation for a group of collaborating unmanned aerial vehicles (UAVs) in the “Alternatives and Backups to GNSS for Navigation” session of the 2015 ION GNSS+ Conference

Dr. Chris Roger’s Lab, Tufts University, Mechanical Engineering Dept., *Researcher*

2014 - 2016

- Modified the control and design of a robotic arm with the purpose of testing the quality of manufactured cymbals
- Worked on a universal robotics programming language, called BotSpeak, for use in multiple platforms such as Arduino, LEGO EV3, Beaglebone, and Raspberry Pi (in LabVIEW and Python) to decrease the barrier to entry for grade school students to learn robotics

Dr. Tiku Majumder’s Lab, Williams College, Physics Dept., *Researcher*

2013 - 2014

- Experimentally measured hyperfine energy levels of thallium, statistically analyzed the spectra, and programmed simulations in MATLAB; resulted in a journal publication

Relevant Publications (9 of 18)

- **G.D. Vukasin**, V.K. Sanchez, C.P. Cameron, H.-K. Kwon, J. Rodriguez, I.B. Flader, Y. Chen, T.W. Kenny, “Effect of substrate thickness on anchor damping in MEMS devices,” 2019 20th International Conference on Solid-State Sensors, Actuators and Microsystems & Eurosensors XXXIII, June 2019.
- A.L. Alter, **G.D. Vukasin**, I.B. Flader, H.J. Kim, Y. Chen, D.D. Shin, and T.W. Kenny, “Experimentally observed nonlinear dissipation linked to contributions from gas damping and TED in MEMS flexural mode resonators,” 2019 20th International Conference on Solid-State Sensors, Actuators and Microsystems & Eurosensors XXXIII, June 2019.
- **G.D. Vukasin**, J. Rodriguez, L. Comenencia Ortiz, G.M. Glaze, D.D. Gerrard, C.H. Ahn, Y. Yang, J. Lake, R.N. Candler, and T.W. Kenny, “First anchor damping measurements of pressure-limited ring resonators,” Solid-State Sensors, Actuators, and Microsystems Workshop, Hilton Head 2018, June 2018.
- J. Rodriguez, **G.D. Vukasin**, G. M. Glaze, M. A. Hopcroft, L. Comenencia Ortiz, C. H. Ahn, E. Ng, W. Park, T. W. Kenny, and C. A. Watson. “Investigation of Orientation Dependence of the Thermal Expansion Coefficient in Silicon MEMS Resonators.” In 2018 IEEE International Frequency Control Symposium (IFCS), 1–4, 2018.
- W. Crooks, **G. Vukasin**, M. O’Sullivan, W. Messner, and C. Rogers, “Fin Ray® Effect Inspired Soft Robotic Gripper: From the RoboSoft Grand Challenge toward Optimization.” *Front. Robot. AI* 3 (2016): 70.
- **Gabrielle D. Vukasin**, “Modeling Error in Optical Angle Measurements for Position and Orientation Estimation in Sensor Networks” Master’s Thesis, Tufts University, August 2016.
- **G.D. Vukasin** and J.H. Rife, “Decentralized Position and Attitude Estimation Using Angle-of-Arrival Measurements,” *Proceedings of the 28th International Technical Meeting of The Satellite Division of the Institute of Navigation (ION GNSS+ 2015)*, Tampa, Florida, September 2015, pp. 1436-1445.
- **Gabrielle D. Vukasin**, “Measurement of the Hyperfine Structure of the $7p_{1/2}$ state and $8p_{1/2}$ state in ^{203}Tl and ^{205}Tl ” Bachelor’s Thesis, Williams College, May 2014.
- G. Ranjit, D. Kealhofer, **G.D. Vukasin**, and P. K. Majumder, “Measurement of hyperfine structure and isotope shift within the $7s_{1/2}$ - $7p_{1/2}$ transition in ^{203}Tl and ^{205}Tl .” *Phys. Rev. A* 89.1 (2014): 12511-12520.

Additional Teaching and Leadership

Stanford University , <i>Women in STEM Pilot Mentoring Program Mentor</i>	2019 to Present
Stanford University , <i>Mechanical Engineering PhD Mentorship Program Mentor</i>	2019 to Present
Stanford University , <i>EDGE Doctoral Fellowship Mentor</i>	2018 to Present
○ The EDGE (Enhancing Diversity in Graduate Education) Doctoral Fellowship Program provides support and resources to doctoral students from underrepresented groups	
○ Mentorship includes meals and check-ins to create a supportive resource for each of three mentees	
Stanford University , <i>Teaching Assistant</i>	2018 - 2019
○ Introduction to mechatronics, the practice of combining microcontrollers with mechanical elements and sensors, for graduate and undergraduate students	
○ Held office hours, taught labs, and helped design final project	
Tufts University , <i>Teaching Assistant</i>	2016
Tufts University , <i>Physics Tutor</i>	2014 - 2015
Williams College , <i>Captain</i>	2014
○ Varsity ice hockey all four years; led team, as captain, to victory as NESCAC Champions and to the Elite Eight in NAAs	

Skills

- Computer Programming: embedded C, LabVIEW, MATLAB
- PCB Board Editor Programs: Eagle, Altium, KiCad
- Graphic Design/CAD: LEdit, AutoCAD, Illustrator, SolidWorks, COMSOL, LaTeX
- Machining: 3D printer, drill press, mill, lathe, hand tools, laser cutter, and scientific glassblowing