

# Elyse D. Z. Chase

Candidate for Ph.D. in Mechanical Engineering at Stanford University  
[www.elysechase.com](http://www.elysechase.com)

## Education

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- 2017 B.S.E. in Mechanical Engineering and Applied Mechanics  
Minors in Fine Arts and Anthropology  
**University of Pennsylvania** - *Summa Cum Laude*
- 2020 M.S. in Mechanical Engineering  
**Stanford University** (*Degree requirements completed December 2019; degree expected Spring 2020*)
- 2018 - current Ph.D. Candidate in Mechanical Engineering, Qualification Examinations passed Spring 2019  
**Stanford University**

## Research Experiences

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- 2018 - current Research Assistant in Shape Lab at **Stanford University** supervised by Dr. Sean Follmer, research on human computer interaction with a focus on haptics and human perception for use with social robots ([www.shape.stanford.edu](http://www.shape.stanford.edu))
- Winter 2018 Research Lab Rotation with CHARM Lab at **Stanford University** supervised by Dr. Allison Okamura on human perception of skin stretch on the forearm
- Summer 2017 Researcher at the **Max Planck Institute for Intelligent Systems** in Stuttgart, Germany supervised by Dr. Katherine J. Kuchenbecker, worked on mechanical design for a pen with haptic feedback as well as documentation for a Baxter robot used for exercise with humans
- Spring 2015 - 2017 Undergraduate Research Assistant in the Haptics Group at the **University of Pennsylvania** supervised by Dr. Katherine J. Kuchenbecker, research focused on cutaneous haptic devices for use with the daVinci surgical robot
- Summer 2016 Drones and Autonomous Systems Lab at **University of Nevada, Las Vegas** (UNLV) supervised by Dr. Paul Oh, research on soft robots
- Fall 2014 ModLab at the **University of Pennsylvania** supervised by Dr. Mark Yim, research focused on lightweight flying robots
- Summer 2014 UCF REU on Hard and Soft Materials in Nanoscience Technology Driven Energy Applications supervised by Dr. Sudipta Seal at the **University of Central Florida**, work on detection of proteins through the use of magnetic nanoparticles and optics
- Annually-2014 **Caracol Archaeological Project** (Belize) served as lab assistant for 2 months annually ([www.caracol.org](http://www.caracol.org))

## Positions Held

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### University of Pennsylvania

- Mechanical Engineering and Applied Mechanics (MEAM), School of Engineering and Applied Science (SEAS)*
- 2016 - 2017 MEAM Labs Coordinator
- 2015 - 2016 Additive Manufacturing Lab Assistant
- 2014 - 2017 Research Lab Assistant
- 2014 - 2015 Rapid Prototyping Lab Assistant

## *Campus Life*

2013 - 2014 Quad Information Center

### **Teaching and Learning K-12**

2011 - 2013 Kumon Learning Center – Grader/Instructor (Winter Springs, FL)

2009 - 2013 Tutor – Physics, Algebra II, Geometry, Pre-Calculus, Calculus AB, Calculus BC (Winter Springs, FL)

### **Academic Honors and Achievements**

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2017 - current **NSF Graduate Research Fellowship** Program (GRFP)

2017 - current **Stanford Graduate Fellowship** (SGF)

2017 **Ralph Teetor Award**: Awarded annually to the senior who in the opinion of the department's faculty, has demonstrated the qualities of ingenuity, creativity, scholarship, and service

2017 **1<sup>st</sup> Prize SEAS Senior Design** for Backster: an accurate, affordable, and portable torso mapping system

2017 **Francis G. Tatnall Prize**: Awarded to the senior design project judged to be the most outstanding and which reflects the qualities of ingenuity, technical proficiency, and usefulness

2013 - 2017 **Dean's List**, University of Pennsylvania (all four years)

2016 **Goldwater Scholar**

2016 **Victor W. K. Ku Memorial Award**: Awarded annually to a student in who, at the end of their junior year, best exemplify the ideals of high scholarship, personal discipline, and service to others

2015 **Abraham Research Award**: Awarded annually to support an undergraduate student conducting summer research at the University of Pennsylvania School of Engineering and Applied Science

2015, 2014 MEAM Summer Showcase Presenter (**3<sup>rd</sup> Place Award 2014**): Presenters were selected by a panel of Mechanical Engineering Faculty, and winners were chosen by a panel of faculty and industry professionals

2013 **National Merit Finalist Scholarship** sponsored by the National Distiller's Distributors Foundation

2013 **National Honor Society Scholarship**

2013 **National AP Scholar**

### **Activities and Service**

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#### **Honor Society Memberships**

Tau Beta Pi, SWE, ASME, Sigma Xi

#### **Service**

2018 - current Shape Lab Outreach Coordinator (creation of programming for outreach activities centered around prototyping and design for middle and high school students, organization of lab tours)

2017 - 2014 PennApps Volunteer, Rapid Prototyping Staff

2016 Stouffer College House Steering President (Fall)

2014 SWE Mentor for Incoming Freshmen

2014 AWE Pre-Orientation Mentor (August)

## Engineering Student Activities Council (ESAC)

2016 President  
2015 Corporate Sponsorship Chair  
2014 Board Member (Fall)

## Publications (peer-reviewed)

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**Chase E.D.Z.**, Follmer S. (2019) Differences in Haptic and Visual Perception of Expressive 1DoF Motion. In *ACM Symposium on Applied Perception*, pages 1-9, Barcelona, Spain, September 2019. (Oral presentation by **Chase E.D.Z.**)

Murdock R.J., Putnam S.A., Das S., Gupta A., **Chase E.D.Z.**, Seal S. (2017) High-Throughput, Protein-Targeted Biomolecular Detection Using Frequency-Domain Faraday Rotation Spectroscopy. *Small*, 13(12):1613-6829, 2017.

Brown J.D., Ibrahim M., **Chase E.D.Z.**, Pacchierotti C., Kuchenbecker K.J. (2016) Data-Driven Comparison of Four Cutaneous Displays for Pinching Palpation in Robotic Surgery. In *Proc. IEEE Haptics Symposium*, pages 147-154, Philadelphia, PA, USA, April 2016. (Oral presentation by Brown J.D.)

## Demonstrations

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2016 “One sensor, three displays: A comparison of tactile rendering from a BioTac sensor.” IEEE Haptics Symposium in Philadelphia, PA, USA. Hands-on demonstration presented presented by **Chase E.D.Z.** and Ibrahim M.. (with Brown J.D., Pacchierotti C., Kuchenbecker K.J)

## Patents

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**Chase E.D.Z.**, Fang L.N., Crossley K.A., Graham S., Pritt M.E., Singh A. (2017) Backster. United States Provisional Patent under application #62/539991, filed August 1, 2017.

## Mentoring

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Summer 2018 Abena Boadi-Agyemang, Undergraduate Student, Stanford University  
Summer 2017 Julea Chin, Undergraduate Student, Stanford University

## Skills

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**Programming Experience:** Javascript, MATLAB, C, C++, R, Embedded Hardware

**Design and Fabrication:** SolidWorks, laser cutting, 3D printing, mechatronic design, precision machining, CNC machining, silicone molding, photoshop, illustrator

**Printmaking:** Apprentice at Flying Horse Press, UCF, with Professor Ke Francis, worked learning how to use different printmaking techniques on my own pieces as well as printing pages for books created by Ke Francis (Summer 2013)

**Fine Arts:** watercolor, acrylic, oil, pencil, charcoal, pastels, mixed media, print making (silk screen, etching, letterpress, woodcut, linocut, monotype), photography