

Alexa F. Siu

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EDUCATION

- Stanford University, Stanford, CA** June 2017 - Present
PhD Candidate in Mechanical Engineering
- Stanford University, Stanford, CA** September 2015 - June 2017
M.S. in Mechanical Engineering | GPA: 3.789
- Georgia Institute of Technology, Atlanta, GA** August 2011 - May 2015
B.S. in Biomedical Engineering
Minor in Computer Science - Artificial Intelligence
Highest Honors | GPA: 3.86

RESEARCH EXPERIENCE

- SHAPE Lab, Stanford University** September 2015 - Present
Research Assistant — PI: Sean Follmer, Ph.D. *Stanford, CA*
- Design and development of hardware and software for a novel open-source mobile tabletop shape display. Involved in PCB design, mechanical design, firmware development, communication protocols, coordination with vendors and manufacturers, and integration to virtual reality applications (in Unity) using the HTC Vive and OptiTrack.
 - User evaluation of egocentric exploration of spatial data using a mobile tabletop shape display.
 - Investigating use of tangibles for remote design collaboration. Carried out a formative user study to inform the design of a tangible UI.
- CHARM Lab, Stanford University** June 2014 - August 2014
Research Assistant — PI: Allison Okamura, Ph.D. *Stanford, CA*
- Designed and programmed a user study to characterize the effect of time delay and low-pass filtering on human perception of stiffness and damping in haptic displays.
 - Designed a physical variable stiffness and damping environment to interact with the Phantom Premium haptic device to analyze the performance of a bilateral teleoperator.
- Lam Lab, Georgia Institute of Technology** October 2012 - May 2015
Research Assistant — PI: Wilbur Lam, M.D., Ph.D. *Atlanta, GA*
- Investigated the interaction of neutrophil extracellular traps (NETs) and whole blood in relation to thrombosis.
 - Developed a children's educational outreach program (BME HealthReach) to implement at hospitals using the patient's disease as a leverage to teach concepts in STEM.
 - Assisted in validation through clinical trials and prototyping of an anemia diagnostic device (AnemoCheck) at Children's Healthcare of Atlanta.

PUBLICATIONS

A. F. Siu, J. Miele, S. Follmer. 2018. An Accessible CAD Workflow Using Programming of 3D Models and Preview Rendering in A 2.5D Shape Display. In Proceedings of the 20th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '18). ACM, Galway, Ireland. DOI: <https://doi.org/10.1145/3234695.3240996>

M. A. Lin, **A. F. Siu**, J-H. Bae, M. R. Cutkosky and B. L. Daniel (2018). HoloNeedle: Augmented-reality Guidance System for Needle Placement Investigating the Advantages of 3D Needle Shape Reconstruction. IEEE Robotics and Automation Letters

A. F. Siu, E. J. Gonzalez, S. Yuan, J. Ginsberg, and S. Follmer. 2018. shapeShift: 2D Spatial Manipulation and Self-Actuation of Tabletop Shape Displays for Tangible and Haptic Interaction. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). ACM, New York, NY, USA. DOI: <http://dx.doi.org/10.475/123.4>.

A. F. Siu, E. J. Gonzalez, S. Yuan, J. Ginsberg, A. Zhao, and S. Follmer. 2017. shapeShift: A Mobile Tabletop Shape Display for Tangible and Haptic Interaction. In Adjunct Publication of the 30th Annual ACM Symposium on User Interface Software and Technology (UIST '17). ACM, New York, NY, USA, 77-79. DOI: <https://doi.org/10.1145/3131785.3131792>. **Best Demo Award Honorable Mention**

A. F. Siu, S. Yuan, H. Pham, E. J. Gonzalez, L. H. Kim, M. Le Goc, S. Follmer (2018). Investigating Tangible Collaboration for Design Towards Augmented Physical Telepresence. In: Plattner H., Meinel C., Leifer L. (eds) Design Thinking Research. Understanding Innovation. Springer, Cham

N. Colonnese, **A. F. Siu**, C. M. Abbott and A. M. Okamura (2015) Rendered and Characterized Closed-loop Accuracy of Impedance-type Haptic Displays. IEEE Transactions on Haptics, 8(4):434-446.

E. A. Tyburski, ..., **A. F. Siu**, et. al. (2014). Disposable platform provides visual and color-based point-of-care anemia self-testing. The Journal of Clinical Investigation, 124(10), 43874394. <http://doi.org/10.1172/JCI76666>

TECHNICAL STRENGTHS

Mechatronics Circuits & PCB Design, embedded programming.

Programming C Language, C++, C#, Python, Java, LaTeX.

Software Unity, CircuitMaker (PCB Design), SolidWorks, Illustrator, Photoshop, Premiere, Animate, MATLAB.

Languages Spanish (native), French (proficient) and Mandarin (elementary proficiency).

AWARDS & HONORS

2018 Bill Moggridge Design Award

2015 National Science Foundation Graduate Research Fellowship (NSF GRFP)

2015 Stanford School of Engineering Fellowship

2014 Stanford University Amgen Scholar

2012 The Coca-Cola Foundation: "100,000 Strong Initiative" Scholarship

2012 Women in Engineering Corporate Award sponsored by Kimberly-Clark

2012 Panama Science, Technology, and Innovation National Undergraduate Scholarship

TEACHING EXPERIENCE

- Spring 2018** Teaching Assistant, Stanford University: Introduction to the Design of Smart Products (ME 216M) with Sean Follmer - Graduate Level
- Spring 2015** Teaching Assistant, Georgia Institute of Technology: Introduction to Artificial Intelligence (CS 3600) with Prof. Jim Rehg - Undergraduate Level
- Fall 2014** Teaching Assistant, Georgia Institute of Technology: Introduction to Biostatistics (BMED 2400) with Prof. Brani Vidakovic - Undergraduate Level

WORK EXPERIENCE

HP Inc - Immersive Experiences Lab (IXL) June 2018 - September 2018
Research Intern Palo Alto, CA

- Research on the design space of 3D printed auxeteics

National Secretariat for Science, Technology and Innovation May 2015 - August 2015
Technology Intern Panama City, Rep. of Panama

- Worked on the development of an online electronics and robotics open course in Spanish for Panamanian school teachers.