

# AVA CHEN

www.avachen.in ◊ (502) 219-7332 ◊ ava.chen@columbia.edu

## EDUCATION

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### Columbia University

*Ph.D in Mechanical Engineering*  
*Advisor: Matei Ciocarlie*

**2019 – present**

*New York, NY*

### Columbia University

*M.S. in Mechanical Engineering*

**2019 – 2021**

*New York, NY*

### Massachusetts Institute of Technology (MIT)

*B.S. in Mechanical Engineering*  
*Thesis: “Effectiveness of Active Cooling on Torque Performance for Prosthetic Applications”*

**2013 – 2017**

*Cambridge, MA*

## HONORS

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### Columbia University Presidential Fellowship

**2019 – 2023**

## PUBLICATIONS

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### Peer-Reviewed Journal Articles

- [J.1] **Chen, A.**, Kim, K., & Shamble, P.S. “Rapid mid-jump production of high-performance silk by jumping spiders”. *Current Biology* (2021). In Press.

### Peer-Reviewed Conference Papers

- [C.4] **Chen, A.**, Winterbottom, L., Park, S., Xu, J., Nilsen, D.M., Stein, J., & Ciocarlie, M. “Thumb Assistance Via Active and Passive Exotendons in a Robotic Hand Orthosis for Stroke.” Submitted to *Robotics and Automation (ICRA), 2022 IEEE Intl. Conference on*. IEEE. (2022).
- [C.3] **Chen, A.**, Winterbottom, L., O’Reilly, K., Park, S., Nilsen, D.M., Stein, J., & Ciocarlie, M. “Design of Spiral-Cable Forearm Exoskeleton to Provide Supination Adjustment for Hemiparetic Stroke Subjects.” Submitted to *Robotics and Automation (ICRA), 2022 IEEE Intl. Conference on*. IEEE. (2022).
- [C.2] Xu, J., Meeker, C., **Chen, A.**, Winterbottom, L., Fraser, M., Park, S., Weber, L.M., Miya, M., Nilsen, D.M., Stein, J., & Ciocarlie, M. “Semi-Supervised Intent Inference to Control a Powered Hand Orthosis for Stroke.” Submitted to *Robotics and Automation (ICRA), 2022 IEEE Intl. Conference on*. IEEE. (2022).
- [C.1] Cervantes, T., Byun, W.E.\*, **Chen, A.\***, Kim, K.\*, Nealon, K.\*, Connor, J., & Slocum, A. “A Device for Quantitative Analysis of the Thumb Ulnar Collateral Ligament”. ASME. *Frontiers in Biomedical Devices, 2018 Design of Medical Devices Conference*. (2018).

## DEPARTMENTAL & COLLOQUIA TALKS

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“How jumping spiders use silk to orient themselves in midair.” Bauer Forum. Harvard, Cambridge MA.

**Oct 2018**

“How Jumping Spiders Jump.” CEE 35th Anniversary Celebration. Broad Institute, Cambridge MA.

**Oct 2018**

## TEACHING EXPERIENCE

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### Academic

Teaching Assistant, Columbia MECE E4602 – Introduction to Robotics

**Fall 2020**

Lab Assistant, Harvard LS50 – Integrated Science

**Spring 2018 – 2019**

### Extracurricular

Mentor, Women in Science at Columbia (WISC)

**2020 – 2021**

Mentor and Teaching Assistant, Research Science Institute (RSI at MIT)

**Summer 2014**

Teaching Assistant, Bellarmine University Summer Youth Camps

**Summers 2012 – 2013**

## SERVICE

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### External Paper Reviewer

IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE) 2020

### Extracurricular

Judge, MIT Mechanical Engineering Research Exhibition 2020

Volunteer, Adaptive Climbing Group NY 2019

Question Writer, USA Biolympiad (USABO) 2019

Judge, Sweden Research Academy for Young Scientists (RAYS) Summer 2015

**Professional Societies:** SWE; IEEE

## RESEARCH STUDENTS SUPERVISED

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### Masters Students

Preethika Chivukula 2021 – present

### Undergraduate Students (Columbia)

Katherine O'Reilly [C.3] 2020 – present

Ciara Little 2020 – 2021

Katelyn G. Mitchell 2020 – 2021

### Undergraduate Students (Harvard)

Frederick Horne 2019

Rowen VonPlagenhoef 2019

Eliot Burnes 2018 – 2019

Henry Burnes 2018 – 2019

Lincoln Sorscher 2018

## PREVIOUS EMPLOYMENT

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**Harvard Dept. of Organismic & Evolutionary Biology, Shamble Lab** 2017 – 2019

*Research Assistant with Dr. Paul Shamble*

### Dephy, Inc.

Summer 2017, 2018

*Mechanical Engineering Intern*

### MIT Media Lab, Biomechatronics Group

2013 – 2017

*Undergraduate Researcher with Dr. Hugh Herr, Arthur Petron, & Matt Carney*

### Apple Inc.

Summer 2016

*Product Design Validation Engineer Intern*

### Formlabs

Summer 2015

*Mechanical Engineering Intern*

### Brain Power, LLC

Winter 2015

*Hardware Intern*

### Cardiovascular Innovation Institute & Christine M. Kleinert Institute

2012 – 2013

*Research Intern with Dr. Nolan Boyd & Dr. Christina Kaufman*

### Research Science Institute (RSI) at MIT

Summer 2012

*Research Intern with Arthur Petron*

## SIDE PROJECTS

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### Untethered Gait Tracking for Rehabilitation

2018 – 2019

Collaboration with FIGUR8, Inc. to use their wearables platform for monitoring gait trends during self recovery & long-term effects of rehabilitation post knee-reconstruction surgery.

### MIT East Campus Roller Coaster

2015

Formed and led team of students to complete \$15,000 construction project in 8 days.

Unofficial Guinness World Record holder for Steepest Wooden Roller Coaster.