AVA CHEN

ava.chen@columbia.edu \(\phi \) www.avachen.net \(\phi \) linkedin.com/in/avaechen

EDUCATION

Columbia University **2019** – **present** Ph.D in Mechanical Engineering New York, NY

Advisor: Matei Ciocarlie

Columbia University 2019 - 2021M.S. in Mechanical Engineering New York, NY

Massachusetts Institute of Technology (MIT)

2013 - 2017

B.S. in Mechanical Engineering

Cambridge, MA

Thesis: "Effectiveness of Active Cooling on Torque Performance for Prosthetic Applications"

PUBLICATIONS

Peer-Reviewed Journal Articles

- [J.2] A. Chen, L. Winterbottom, S. Park, J. Xu, D.M. Nilsen, J. Stein, and M. Ciocarlie. "Thumb Stabilization and Assistance in a Robotic Hand Orthosis for Post-Stroke Hemiparesis." IEEE Robotics and Automation Letters, vol. 7, no. 3, pp. 8276-8282 (2022)
 - Presented in Biomedical Robotics and Biomechatronics (BioRob), 2022 IEEE RAS/EMBS Intl. Conference on. Finalist, BioRob2022 Best Paper Award
- [J.1] A. Chen, K. Kim, and P.S. Shamble. "Rapid mid-jump production of high-performance silk by jumping spiders." Current Biology, 31, R1422-R1423 (2021)

Peer-Reviewed Conference Papers

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

Submitted for Publication

[S.1] L. Winterbottom*, A. Chen*, R. Mendonca, D.M. Nilsen, M. Ciocarlie, and J. Stein. "Practitioner Perspectives on Rehabilitative and Assistive Utility of a Novel Robotic Orthosis for Hemiparesis Post-Stroke." (2022)

Patents

[P.1] M. Ciocarlie, J. Stein, A. Chen, S. Park, and D.M. Nilsen. "Robotic Hand Orthosis For Stroke", Application #: US 63/249,456

Workshop Contributions

[W.1] A. Chen*, J. Xu*, and M. Ciocarlie. "MyHand: a Wearable Hand Orthosis for Stroke." Workshop presentation in Intelligent Robots and Systems (IROS), 2021 Intl. Conference on. Challenges and Opportunities of Human-Robot Symbiosis: from Wearable Robots to Neurorobotics. (2021)

[* indicates equal contribution]

HONORS

Columbia University Presidential Fellowship			
Participant, Rising Stars in Mechanical Engineering Workshop			
Honorable Mention, MIT MechE deFlorez Design Competition			
Research Science Institute (RSI)			

2019 - 2023

2022 2016

2012

DEPARTMENTAL & COLLOQUIA TALKS

Academic Peaching Assistant, Columbia MECE E4602 - Introduction to Robotics 2018 - 2018			
Academic Carching Assistant, Columbia MECE E4602 - Introduction to Robotics 2018 - 2018 2018 - 2018 2018	"How jumping spiders use silk to orient themselves in midair." Bauer Forum. Harvard, Cambridge MA. "How Jumping Spiders Jump." CEE 35th Anniversary Celebration. Broad Institute, Cambridge MA.		
Teaching Assistant, Columbia MFCC F-4602 — Introduction to Robotics 2018 - 2018 2018	TEACHING EXPERIENCE		
Lab Assistant, Harvard LS50 - Integrated Science 2018 - 2018	Academic		2020
Mentor, Columbia University Engineering the Next Generation (ENG) 2012 2013 Mentor and Teaching Assistant, Research Science Institute (RSI at MIT) 2011 Peaching Assistant, Bellarmine University Summer Youth Camps 2012 2013 SERVICE	Lab Assistant, Harvard LS50 – Integrated Science	2018 -	
Mentor and Teaching Assistant, Research Science Institute (RSI at MTT) 2011 - 2012 - 2013	Extracurricular		
Eaching Assistant, Bellarmine University Summer Youth Camps 2012 - 2013			2022
External Paper Reviewer IEEE Intl. Conference on Robotics and Automation (ICRA) 2021, 2022 2021, 2022 2021, 2022 2022 2021, 2022 2021 2022	Teaching Assistant, Research Science Institute (RSI at MIT) Teaching Assistant, Bellarmine University Summer Youth Camps	2012 -	
IEEE Intl. Conference on Robotics and Automation (ICRA) 2021, 202: IEEE Robotics and Automation Letters (RA-L) 2021, 202: IEEE Intl. Conference on Rehabilitation Robotics (ICORR) 202: IEEE FAS/EMBS Intl. Conference on Biomedical Robotics & Biomechatronics (BioRob) 202: IEEE Intl. Conference on Robot and Human Interactive Communication (RO-MAN) 202: IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE) 202: University Service Volunteer, Robotics: Society and Systems Conference (RSS) 202: Univerd Panelist, WISC STEM Field Exploration Fair, Columbia University — "Behind the Lab Scenes" 202: Extracurricular 202: 202: Question Reviewer, U.S. DOE National Science Bowl 202: Mentor, Women in Science at Columbia (WISC) 202: Mentor, Women in Science at Columbia (WISC) 202: Question Writer, USA Biolympiad (USABO) 201: Volunteer, Adaptive Climbing Group NY 201: Question Writer, USA Biolympiad (USABO) 201: Volunteer, Research Academy for Young Scientists (RAYS) 201: Professional Societies: IEEE, ICORR, SWE 201: RESEARCH STUDENTS SUPERVISED 202: <td>SERVICE</td> <td></td> <td></td>	SERVICE		
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PREVIOUS POSITIONS	Lincoln Sorscher		2018
	PREVIOUS POSITIONS		

2017 - 2019

Harvard Dept. of Organismic & Evolutionary Biology, Shamble Lab Research Assistant with Dr. Paul Shamble

Dephy, Inc. Mechanical Engineering Intern	Summer 2017, Fall 2018
MIT Media Lab, Biomechatronics Group Undergraduate Researcher with Dr. Hugh Herr, Arthur Petron, and Matt Carney	2013 - 2017
Apple Inc. Product Design Validation Engineer Intern	Summer 2016
Formlabs Mechanical Engineering Intern	Summer 2015
Brain Power, LLC Hardware Intern	Winter 2015
Cardiovascular Innovation Institute & Christine M. Kleinert Institute Research Intern with Dr. Nolan Boyd and Dr. Christina Kaufman	2012 - 2013
SIDE PROJECTS	
Unterhered Gait Tracking for Rehabilitation Collaboration with FIGUR8, Inc. to use their wearables platform for monitoring gait trenduring self recovery & long-term effects of rehabilitation post knee-reconstruction surgery.	2018 – 2019
MIT East Campus Roller Coaster 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.	2015

More documentation on side projects at https://www.avamakesthings.com