

Junyi Zhu - CV

Ph.D. Candidate
MIT Electrical Engineering & Computer Science Department
MIT Computer Science and Artificial Intelligence Lab
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Education

- Massachusetts Institute of Technology, USA** 2017 - now
Ph.D. in Computer Science
MIT EECS Department, MIT Computer Science and Artificial Intelligence Lab
Advisor: Professor Stefanie Mueller
- Massachusetts Institute of Technology, USA** 2017 - 2019
Master of Science in Computer Science
MIT EECS Department, MIT Computer Science and Artificial Intelligence Lab
Advisor: Professor Stefanie Mueller
- University of Washington, USA** 2013 - 2017
Bachelor of Science in Electrical Engineering
Department of Electrical & Computer Engineering
Advisor: Professor Joshua R. Smith, Professor Shwetak N. Patel

Full Paper Publications

- [9] **Junyi Zhu**, Yuxuan Lei, Aashini Shah, Gila R. Schein, Hamid Ghaednia, Joseph H. Schwab, Casper Harteveld and Stefanie Mueller. 2022. MuscleRehab: Improving Unsupervised Physical Rehabilitation by Monitoring and Visualizing Muscle Engagement. In *Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22)*. ACM.
- [8] Yoonji Kim, **Junyi Zhu**, Mihir Trivedi, Dishita G. Turakhia, Ngai Hang Wu, Donghyeon Ko, Michael Wessely and Stefanie Mueller. 2022. SensorViz: Visualizing Sensor Data Across Different Stages of Prototyping Interactive Objects. In *Proceedings of the 2022 ACM Designing Interactive Systems Conference (DIS '22)*. ACM.
- [7] **Junyi Zhu**, Jackson Snowden, Joshua Verdejo, Emily Chen, Hamid Ghaednia, Joseph H. Schwab, and Stefanie Mueller. 2021. EIT-kit: An Electrical Impedance Tomography Toolkit for Health and Motion Sensing. In *Proceedings of the 34th Annual ACM Symposium on User Interface Software and Technology (UIST '21)*. ACM.
- [6] **Junyi Zhu**, Yunyi Zhu, Jiaming Cui, Leon Cheng, Jackson Snowden, Mark Chounlakone, Michael Wessely and Stefanie Mueller. 2020. MorphSensor: A 3D Electronic Design Tool for Reforming Sensor Modules. In *Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology (UIST '20)*. ACM.
- [5] **Junyi Zhu**, Lotta-Gili Blumberg, Yunyi Zhu, Martin Nisser, Ethan Levi Carlson, Xin Wen, Kevin Shum, Jessica Ayeley Quaye, and Stefanie Mueller. 2020. CurveBoards: Integrating Breadboards into Physical Objects to Prototype Function in the Context of Form. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20)*. ACM.

- [4] Martin Nisser, **Junyi Zhu**, Tianye Chen, Katarina Bulovic, Parinya Punpongsonan, Stefanie Mueller. Sequential Support: 3D Printing Dissolvable Support Material for Time-Dependent Mechanisms. In *Proceedings of the Thirteenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI '19)*. ACM.
- [3]  Edward Wang, **Junyi Zhu**, Mohit Jain, Tien-Jui Lee, Elliot Saba, Lama Nachman, and Shwetak N. Patel. 2018. Seismo: Blood Pressure Monitoring using Built-in Smartphone Accelerometer and Camera. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM. **[BEST PAPER NOMINEE]**
- [2] Edward Wang, William Li, **Junyi Zhu**, Rajneil Rana and Shwetak N. Patel. Noninvasive hemoglobin measurement using unmodified smartphone camera and white flash. *2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Seogwipo, 2017.
- [1] Edward Wang, **Junyi Zhu**, William Li, Rajneil Rana, and Shwetak Patel. 2017. HemaApp IR: noninvasive hemoglobin measurement using unmodified smartphone cameras and built-in LEDs. In *Proceedings of the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2017 ACM International Symposium on Wearable Computers (UbiComp '17)*. ACM.

Demonstrations & Extended Abstracts

- [8] Xinyi Yang, Katarina Bulovic, Susanna Chen, **Junyi Zhu** and Stefanie Mueller. 2023. Azimuth Calculation and Telecommunication between VR Headset and Smartphones for Nearby Interaction. In *Proceedings of the Seventeenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI '23 Work in Progress)*. ACM.
- [7] **Junyi Zhu**. 2022. Design and Fabricate Personal Health Sensing Devices. In *The Adjunct Publication of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22 Adjunct)*. ACM.
- [6] **Junyi Zhu**, Yuxuan Lei, Aashini Shah, Gila R. Schein, Hamid Ghaednia, Joseph H. Schwab, Casper Harteveld and Stefanie Mueller. 2022. Monitoring Muscle Engagement via Electrical Impedance Tomography for Unsupervised Physical Rehabilitation. In *Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22)*. ACM.
- [5] **Junyi Zhu**, Liang He, Jun Nishida, Hamid Ghaednia, Hsin-Liu (Cindy) Kao, Jon E. Froehlich, Edward Wang, and Stefanie Mueller. 2022. SIG: Towards More Personal Health Sensing. In *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI '22 Extended Abstracts)*. ACM.
- [4] Cedric Honnet, Yunyi Zhu, **Junyi Zhu**, Michael Wessely and Stefanie Mueller. 2022. WearaFab: Digital Fabrication for Wearables Toolkits. In *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI '22 Extended Abstracts)*. ACM.
- [3] **Junyi Zhu**, Jackson Snowden, Joshua Verdejo, Emily Chen, Hamid Ghaednia, Joseph H. Schwab, and Stefanie Mueller. 2021. EIT-kit Demo: An Electrical Impedance Tomography Toolkit for Health and Motion Sensing. In *Adjunct Publication of the 34th Annual ACM Symposium on User Interface Software and Technology (UIST '21)*. ACM.
- [2] **Junyi Zhu**, Yunyi Zhu, Jiaming Cui, Leon Cheng, Jackson Snowden, Mark Chounlakone,

Michael Wessely and Stefanie Mueller. 2020. Demonstration of MorphSensor: A 3D Electronic Design Tool for Reforming Sensor Modules. In *Adjunct Publication of the 33rd Annual ACM Symposium on User Interface Software and Technology (UIST '20)*. ACM.

- [1] **Junyi Zhu**, Lotta-Gili Blumberg, Yunyi Zhu, Martin Nisser, Ethan Levi Carlson, Xin Wen, Kevin Shum, Jessica Ayeley Quaye, and Stefanie Mueller. 2020. CurveBoards Demo: Integrating Breadboards into Physical Objects to Prototype Function in the Context of Form. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '20)*. ACM.

Conference Service

Organizing Committee

ACM UIST, Video Previews Chair 2022

Associate Chair

ACM CHI Workshops 2023

ACM TEI 2023

ACM CHI Late Breaking Work 2021

Reviewer

ACM CHI 2020 - 2023

ACM UIST 2020 - 2022

ACM UbiComp 2020 - 2022

ACM TEI 2020 - 2021

ACM ISS 2020

Volunteering

ACM CHI Student Volunteer 2020

ACM CHI Program Committee Meeting, Subcommittee Chair Assistant 2019

Research Internships

Google AR Team, Google LLC 2022

Research Intern, Mountain View, CA Office

Advisor: Dr. Andrea Colaco

UW Ubicomp Lab, University of Washington 2016 - 2017

Research Assistant, Paul G. Allen School of Computer Science & Engineering

Advisor: Professor Shwetak Patel

UW SEAL Lab, University of Washington 2016

Research Assistant, Department of Electrical & Computer Engineering

Advisor: Professor Alexander V. Mamishev

Exposure Sciences Group, University of Washington 2016

Research Assistant, School of Public Health

Advisor: Professor Edmund Seto

Work Experience

Senosis Health, Seattle, USA 2016 - 2017

Software Engineer, supervisor: Mike Clarke

Jiangsu SEUIC Technology Co., Ltd, China 2015

Software Engineer, supervisor: Prof. Chen Hu (Southeast University, China)

Invited Talks

International Youth Festival on Design Futures, Smart & Digital Futures. *Digital Healthcare: Future Personal Health Sensing Devices*, hosted by Dr. Yuqi Liu, Tsinghua University 2022

Google LLC, AR Perception Team. <i>Electrical Impedance Tomography: Introduction, Implementation, and Intuitions</i> , hosted by Dr. D. Shin	2022
University of Illinois at Urbana-Champaign, Coordinated Science Laboratory. <i>Building Personal Physical Rehabilitation Monitoring Devices</i> , hosted by CSLSC	2022
University of Chicago, Human Computer Integration Lab. <i>Towards More Personal Health Sensing Devices</i> , hosted by Prof. Pedro Lopes	2021
MIT, MIT Nano Explorations. <i>Integrating Object Form and Electronic Function in Rapid Prototyping and Personal Fabrication</i> , hosted by Prof. Vladimir Bulović	2020
Harvard University, Graduate School of Design , hosted by Prof. Krzysztof Wodiczko	2018

Awards and Honors

Seibel Scholars (\$35000), Thomas and Stacey Siebel Foundation, 2022 - 2023
 Thomas Stockham Jr. Fellowship (\$90000), MIT, 2021 - 2022
 Frederick C. Hennie III Teaching Award (\$2200), MIT EECS Department, 2021
 Best Paper Nominee, ACM CHI 2018
 Seneff-Zue Computer Science Fellowship Award (\$42000), MIT, 2017 - 2018
 Dean's List, University of Washington, 2013 - 2017

Selected Press

MIT News. Making health and motion sensing devices more personal.	2021
Yahoo Finance. MIT's toolkit lets anyone design their own muscle-sensing wearables.	2021
Hackster.io. It's What's on the Inside That Counts.	2021
Espressif Systems. ESP32-powered Electrical Impedance Tomography Toolkit by MIT.	2021
MIT News. A hands-on class responds to Covid.	2021
MIT News. Electronic design tool morphs interactive objects.	2020
MIT News. Integrating Electronics onto Physical Prototypes.	2020
Hackster.io. Prototype Like a Pro.	2020
3D Printing Industry. MIT RESEARCHERS DEVELOP NOVEL 3D DESIGN SOFTWARE FOR EMBEDDED ELECTRONICS.	2020
UW ECE Spotlight. ECE alum Junyi Zhu integrates electronics onto physical prototypes at MIT with "CurveBoards".	2020
ACM TechNews. 3D-printed CurveBoards enable easier testing of circuit design on products.	2020
Inverse. TIRED: BREADBOARDS. WIRED: CURVEBOARDS.	2020
GeekWire. Google buys Seattle health monitoring startup Senosis, bolstering digital health push	2017
MIT Technology Review. How to make a smart phone detect anemia.	2016

Mentoring

All students are co-advised with Prof. Stefanie Mueller.

Master thesis

[4]	Gila R Schein	2021 - 2022
[3]	Yuxuan Lei	2021 - 2022
[2]	Joshua Verdejo	2020 - 2021
[1]	Lotta G. Blumberg	2018 - 2019

Research project students (SuperUROPs, UROPs)

[17]	Aashini Shah	2022	[8]	Jessica Ayeley Quaye	2019
[16]	Zipei Tan	2021	[7]	Ethan Levi Carlson	2019
[15]	Sloke Shrestha	2021	[6]	Xin Wen	2019
[14]	Emily Chen	2021	[5]	Kevin Shum	2019
[13]	Gila R Schein	2020	[4]	Leon Cheng	2019-2020
[12]	Jenny Chen	2020	[3]	Yunyi Zhu	2018-2020
[11]	Jackson Snowden	2020	[2]	Katharina Bulovic	2018
[10]	Jiaming Cui	2019-2020	[1]	Tianye Chen	2018
[9]	Mark Chounlakone	2019			

Teaching

Co-Instructor

[1]	6.810	Engineering Interactive Technologies, MIT	Autumn 2021
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Teaching Assistant

[5]	6.810	Engineering Interactive Technologies, MIT	Autumn 2020
[4]	6.810	Engineering Interactive Technologies, MIT	Autumn 2018
[3]	CSE/EE 474	Introduction to Embedded Systems, UW	Autumn 2016
[2]	CSE/EE 472	Introduction to Embedded Systems, UW	Summer 2016
[1]	CSE/EE 371	Design of Digital Circuits and Systems, UW	Spring 2016

Lectures

6.810	Engineering Interactive Technologies, Health Sensing, MIT	Autumn 2020
6.810	Engineering Interactive Technologies, Computer Vision Workshop, MIT	Autumn 2018

References

Stefanie Mueller

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Cambridge, MA 02139, USA

Shwetak N. Patel

Professor, University of Washington
Paul G. Allen School and ECE Department
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Seattle, WA 98195-2350, USA

Joseph H. Schwab, M.D.

Associate Professor, Harvard Medical School
Department of Orthopaedic Surgery, MGH
jhschwab@mgh.harvard.edu
55 Fruit St, Yawkey 3A
Boston, MA 02114, USA

Edward Jay Wang

Assistant Professor, UC San Diego
Electrical and Computer Engineering department
ejaywang@eng.ucsd.edu
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La Jolla, CA 92039, USA