Michael L. Rivera

Carnegie Mellon University
Human-Computer Interaction Institute
5000 Forbes Avenue
Pittsburgh, PA 15213

Website: http://mikeriv.com
Google Scholar: http://bit.ly/mikerivGS
Email: mlrivera@cs.cmu.edu
Github: mriveralee

EDUCATION

Carnegie Mellon University, *School of Computer Science*
Fifth year Ph.D. in Human-Computer Interaction   Sep 2015 - Present
M.S.E. in Human-Computer Interaction   May 2019
Advisor: Scott E. Hudson

University of Pennsylvania, *School of Engineering & Applied Science*   May 2014
M.S.E. in Computer Graphics and Game Technology*, GPA: 3.94 / 4.00*
Thesis: From Image to Device – A Case Study on 3D Printing for Patient-Specific Care
B.S.E. in Digital Media Design, *GPA: 3.54 / 4.00, cum laude*
Advisor: Norman I. Badler

AWARDS AND HONORS

Snap Research Fellowship, *Semi-finalist*	2018
Bose Audio Augmented Reality Design Challenge, *Winner*	2018
Best Provocation Honorable Mention, *ACM DIS 2018*	2018
Adobe Research Fellowship, *Honorable Mention* ($2000)	2017
Xerox Technical Minority Scholarship, *Recipient* ($1000)	2017
Carnegie Mellon University Sansom Endowed Presidential Fellowship, *Recipient* ($60,000)	2017
DreamIt Health Open Canvas Accelerator, *Finalist*	2014
Society for Technology in Anesthesia 2014 Engineering Challenge, *1st Place*	2014
Penn Interdisciplinary Talks, *Finalist*	2014
PennHacks Hardware Hackathon, *3rd Place (of 40 teams)*	2013
LinkedIn Company Hackday, *1st Place*	2012
University College London, *Affiliate Computer Science Student*	2012
PennApps Hackathon 2012, *Best Use of the Tumblr API sponsored by Tumblr*	2012

PEER-REVIEWED PUBLICATIONS

[C7]   **Rivera, M.L.**, Forman, J., Hudson, S.E., Yao, L. 2020. Hydrogel-Textile Composites: Actuators for Shape-changing Interfaces. *In Proceedings of the 38th Annual ACM SIGCHI Extended Abstracts on Human Factors in Computing Systems* (Honolulu, HI, April 25 - 30, 2020). CHI EA '20. ACM, New York, NY. DOI: https://doi.org/10.1145/3334480.3382788

[C6]   Guo, A., Kong, J., **Rivera, M.L.**, Xu, F., Bigham, J.P. 2019. StateLens: A Reverse Engineering Solution to Making Existing Dynamic Touchscreens Accessible. *In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology* (New Orleans, LA, October 21 - 24, 2019). UIST '19. ACM, New York, NY. DOI: https://doi.org/10.1145/3332165.3347873

[C5]   **Rivera, M.L.**, Hudson, S.E. 2019. Desktop Electrospinning: A Single Extruder 3D Printer for Producing Rigid Plastic and Electrospun Textiles. *In Proceedings of the 37th Annual SIGCHI Conference on Human Factors in Computing Systems* (Glasgow, UK, May 4 - 9, 2019). CHI '19. ACM, New York, NY.
DOI: https://doi.org/10.1145/3290605.3300434

[C4]   Swaminathan, S., **Rivera, M.L.,** Kang, R., Luo, Z., Ozutemiz, K.B., and Hudson, S.E. 2018**.** Input, Output and Construction Methods for Custom Fabrication of Room-Scale Deployable Pneumatic Structures. *In Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 3, 2, Article 62 (June 2019), 17 pages. DOI: https://doi.org/10.1145/3328933

[C3]   McDonald, J., Zhao, S., Liu, J. **Rivera, M.L.** 2018. MaxiFab: Applied Fabrication to Advance Period Technologies. In *Proceedings of the 2018 Conference on Designing Interactive Systems* (Hong Kong, June 9 - 13, 2018). DIS '18. ACM, New York, NY. 13-19. DOI: https://doi.org/10.1145/3197391.3205405

  ★ **Best Provocation Honorable Mention Award**

[C2]   **Rivera, M.L.**, Moukperian, M., Ashbrook, D., Mankoff, J., Hudson, S.E. 2017. Stretching the Bounds of 3D Printing with Embedded Textiles. In *Proceedings of the 35th Annual SIGCHI Conference on Human Factors in Computing Systems* (Denver, Colorado, USA, May 6 - 11, 2017). CHI '17. ACM, New York, NY. 497-508. DOI: https://doi.org/10.1145/3025453.3025460

[C1]   Galvez, J.A., Simpao, A.F., Dori, Y., Gralewski, K., McGill, N.H., **Rivera M.L.**, Delsco, N., Khan, H., Rehman, M.A., Fiadjoe, J.E. 2016. Not Just a Pretty Face: Three-Dimensional Printed Custom Airway Management Devices. *3D Printing and Additive Manufacturing*. September 2016, 3(3): 160-165. DOI: https://doi.org/10.1089/3dp.2016.0025

BOOK CHAPTERS

[B1]   **Rivera, M.L.**, Mankoff, J., Hudson S.E. 2018. Embedded and Printed: Approaches to 3D Printing with Textiles. *Trendbook Technical Textiles / Technishce Textilien* (July 2018). 16-19.

POSTERS AND DEMONSTRATIONS

[D2]   **Rivera, M.L.**, Moukperian, M., Ashbrook, D., Mankoff, J., Hudson, S.E. 2017. Stretching the Bounds of 3D Printing with Embedded Textiles. Carnegie Mellon University's 3D Printing Summit. Pittsburgh, PA.

[D1]   **Rivera, M.L.**, Moukperian, M., Ashbrook, D., Mankoff, J., Hudson, S.E. 2016. Stretching the Bounds of 3D Printing with Embedded Textiles. Carnegie Mellon University's DIY Assistive Technology Summit. Pittsburgh, PA.

PATENTS

[P1]   Anhong Guo, Junhan Kong, **Michael Rivera**, Frank F. Xu, Jeffrey P. Bigham. StateLens: A Reverse Engineering Solution for Making Existing Dynamic Touchscreens Accessible. U.S. Patent Application 19/207. Filed June 6, 2019.

INVITED TALKS

University of Pennsylvania, Penn-Interdisciplinary Talks, Philadelphia, PA *Tracheal Aire – a step towards patient-specific medical instruments*	Apr 2014
Society for Technology in Anesthesia, Engineering Challenge 2014, Orlando, FL *Tracheal Aire: Patient-specific 3D Printable Williams Airway Intubators*	Jan 2014
University of Maryland, Baltimore County, McNair Scholars Conference, Baltimore, MD	Sept 2013

Project PAALM: Phalangeal Angle Approximation through the Leap Motion Controller

University of Pennsylvania, Big Think Innovation Conference, Philadelphia, PA   Mar 2013
Hacking New Frontiers: 3D Gesture Recognition

EMPLOYMENT EXPERIENCE

Carnegie Mellon University, Graduate Student Researcher, Pittsburgh, PA   Aug 2014 - Present
Human-Computer Interaction Institute. Exploring novel fabrication methods for rapid prototyping, sensor development and interaction techniques.

HP Labs, Research Intern, Palo Alto, CA   May 2017 - Aug 2017
Immersive Experiences Lab. Research 3D printing with piezoresistive materials to create interactive devices.

Facebook, Software Engineer, New York, NY   Jul 2014 - Aug 2015
iOS and Android Product Engineer on the Places Team. Implemented modular result cards for Nearby Places on Facebook for iOS. Built the redesigned Nearby Places for Facebook for Android. Developed an edit flow for Places Home Creation on Facebook for iOS.

Facebook, Software Engineer Intern, Menlo Park, CA   May 2013 - Aug 2013
Android Engineer on the Facebook Home Team. Built a scalable viewpager with spring animations for the application launcher of Facebook Home on Android.

LinkedIn, Software Engineer Intern, Mountain View, CA   May 2012 - Aug 2012
iOS and Mobile Web Engineer for the Mobile Team. Developed event bubble display items and an internal settings module for an iOS calendar widget library. Implemented the 'Send Congrats' feature for the LinkedIn mobile web application.

TEACHING EXPERIENCE

Teaching Assistant, Carnegie Mellon University, Pittsburgh, PA
User-centered Research and Evaluation (05-610)   Fall 2018
Software Systems for User Interfaces (05-631)   Fall 2016

Teaching Assistant, University of Pennsylvania, Philadelphia, PA
Digital Media Design Capstone Project Course (CIS-497)   Fall 2013, Spring 2014
Introduction to Java Programming (CIS-110)   Fall 2013
Software Design and Engineering (CIS-350)   Spring 2013

Invited Guest Lectures
3D Modeling for 3D Printing, Building User-Focused Sensing Systems,   Spring 2017
Carnegie Mellon University

Research Mentoring

Aditi Dhabalia, *Computational Fabrication of Interactive Moiré Patterns*	Fall 2019 - Spring 2020
Yiyuan Wang, *Mechanical Design of a 4D Hydrogel Printer*	Fall 2018 - Spring 2019
Nachiket Parulekar, *Mechanical Design of a 4D Hydrogel Printer*	Fall 2018
Yunzhi Li, *Understanding Human Relationships with Mobile Phone Sensing*	Fall 2018
Kayla Yew, *Sensing 3D Printed Mechanisms with Conductive Textiles*	Fall 2017 - Spring 2018
Shreya Bali, *Understanding Human Relationships with Mobile Phone Sensing*	Spring 2017

ACADEMIC SERVICE

Proceedings Chair, ACM UIST 2019	Nov 2018 - Oct 2019
Special Recognition for Outstanding Review, ACM CHI 2020	Oct 2019
Local Chair, ACM Symposium on Computational Fabrication (SCF) 2019	Nov 2018 - June 2019
Session Chair, ACM CHI 2019 - Fabricating Electronics	May 2019
Hiring Committee Student Representative, HCII, Carnegie Mellon University	Nov 2018 - May 2019
Dean's Student Advisory Council, HCII, Carnegie Mellon University	Oct 2017 - Dec 2018
Department Ombudsman, HCII, Carnegie Mellon University	May 2016 - Sept 2017
PhD Open House Organizer, HCII, Carnegie Mellon University	April 2017
Student Volunteer, ACM CHI 2020	May 2017
Student Volunteer, 3D Printing Summit, Carnegie Mellon University	Jan 2017
Student Volunteer, DIY Assistive Tech. Summit, Carnegie Mellon University	April 2016

Academic Paper Reviewer

ACM CHI	2018, 2019, 2020
ACM TEI	2018, 2019, 2020
ACM DIS	2018
ACM UIST	2018, 2019
ACM SCF	2018
NIME	2018, 2019

SELECTED PRESS COVERAGE

Hackaday, "Use A 3D Printer To Electrospin Textiles"	April 2019
3D Printing Industry, "CMU researchers on the desktop 3D printer turning rigid plastics to fabrics"	April 2019
Carnegie Mellon, "HCI students win Bose Challenge, Designing for Augmented Reality with Sound"	Dec 2018
Real Industry, "Bose Challenge: Carnegie Mellon University"	Oct 2018
3Ders, "Carnegie Mellon research project combines 3D printing with embedded textiles"	July 2017
3D Printing Industry, "Research embeds textiles in 3D printing for functional, flexible parts"	July 2017
3DPrinting.com, "Researchers 3D Print Flexible Textiles For Development of Functional Objects"	July 2017
3D Shoes, "3D Printing Combined with Textile Manufacturing"	June 2017
IEEE Spectrum, "Mechanical Metamaterials and Other 3D Printing Tech from CHI 2017"	May 2017
MedCity News, "Pediatric hospital physicians form 3D printing 'think tank'"	Feb 2014
MAKE Magazine, "Hacking on the Frontier of Gestural Input"	Feb 2013

TECHNICAL SKILLS

Fabrication: 3D Modeling, 3D Printing, Laser Cutting, Metalsmithing, Woodworking, Paper Prototyping
Hardware Development: Mechanical Design, PCB Design, Hardware I/O
Programming Languages: Java, Javascript, Python, Objective-C, C++, C, Swift, Kotlin
Software Development: Android, iOS, Arduino, OpenCV, OpenGL, WebGL, Node.js, Flask, React, JQuery

MISCELLANEOUS

Co-Captain, Intramural Flag Football, Carnegie Mellon University   Sept 2015 - Present

REFERENCES

Scott E. Hudson
Professor
Human-Computer Interaction Institute
Carnegie Mellon University
scott.hudson@cs.cmu.edu

Lining Yao
Professor
Human-Computer Interaction Institute
Carnegie Mellon University
liningy@cs.cmu.edu

Rafael 'Tico' Ballagas
Senior Manager
Immersive Experiences Lab
HP Labs
tico.ballagas@hp.com

Norman I. Badler
Rachleff Family Professor
Computer Science and Information Science Department
University of Pennsylvania
badler@seas.upenn.edu