

# Michael L. Rivera

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

**Website:** <http://mikeriv.com>  
**Email:** [mlrivera@cs.cmu.edu](mailto:mlrivera@cs.cmu.edu)  
**Github:** [mriveralee](#)

---

## EDUCATION

**Carnegie Mellon University**, *School of Computer Science*  
Fourth year Ph.D. in Human-Computer Interaction  
Advisor: Scott E. Hudson

Sep 2015 - Present

**University of Pennsylvania**, *School of Engineering & Applied Science*  
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

May 2014

## AWARDS AND HONORS

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

## PEER-REVIEWED PUBLICATIONS

- [P5] **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. XXX-XXX. <https://doi.org/10.1145/3290605.3300434>
- [P4] 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. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 3, 1, Article XXX (May 2019), XX pages. DOI: <https://doi.org/10.1145/XXXXXX>
- [P3] 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>

- [P2] **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>
- [P1] Galvez, J.A., Simpaio, 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.

## INVITED TALKS

- |  |           |
|--|-----------|
| <b>University of Pennsylvania</b> , Penn-Interdisciplinary Talks, Philadelphia, PA<br><i>Tracheal Aire – a step towards patient-specific medical instruments</i>                       | Apr 2014  |
| <b>Society for Technology in Anesthesia</b> , Engineering Challenge 2014, Orlando, FL<br><i>Tracheal Aire: Patient-specific 3D Printable Williams Airway Intubators</i>                | Jan 2014  |
| <b>University of Maryland, Baltimore County</b> , McNair Scholars Conference, Baltimore, MD<br><i>Project PAALM: Phalangeal Angle Approximation through the Leap Motion Controller</i> | Sept 2013 |
| <b>University of Pennsylvania</b> , Big Think Innovation Conference, Philadelphia, PA<br><i>Hacking New Frontiers: 3D Gesture Recognition</i>  | Mar 2013  |

## EMPLOYMENT EXPERIENCE

- |   |                     |
|---|---------------------|
| <b>Carnegie Mellon University</b> , Graduate Student Researcher, Pittsburgh, PA<br>Human-Computer Interaction Institute. Exploring novel fabrication methods for rapid prototyping, sensor development and interaction techniques.  | Aug 2014 - Present  |
| <b>HP Labs</b> , Research Intern, Palo Alto, CA<br>Immersive Experiences Lab. Research 3D printing with piezoresistive materials to create interactive devices.   | May 2017 - Aug 2017 |
| <b>Facebook</b> , Software Engineer, New York, NY<br>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. | Jul 2014 - Aug 2015 |

<b>Facebook</b> , Software Engineer Intern, Menlo Park, CA Android Engineer on the Facebook Home Team. Built a scalable viewpager with spring animations for the application launcher of Facebook Home on Android.	May 2013 - Aug 2013
<b>LinkedIn</b> , Software Engineer Intern, Mountain View, CA iOS and Mobile Web Engineer for the Mobile Team. Developed event bubble display items and a internal settings module for an iOS calendar widget library. Implemented the 'Send Congrats' feature for the LinkedIn mobile web application.	May 2012 - Aug 2012

## TEACHING EXPERIENCE

<b>Teaching Assistant</b> , Carnegie Mellon University, Pittsburgh, PA User-centered Research and Evaluation (05-610) Software Systems for User Interfaces (05-631)	Fall 2018 Fall 2016
<b>Teaching Assistant</b> , University of Pennsylvania, Philadelphia, PA Digital Media Design Capstone Project Course (CIS-497) Introduction to Java Programming (CIS-110) Software Design and Engineering (CIS-350)	Fall 2013, Spring 2014 Fall 2013 Spring 2013
<b>Invited Guest Lectures</b> <i>3D Modeling for 3D Printing</i> , Building User-Focused Sensing Systems, Carnegie Mellon University	Spring 2017
<b>Research Mentoring</b> Yiyuan Wang, <i>Mechanical Design of a 4D Hydrogel Printer</i> Nachiket Parulekar, <i>Mechanical Design of a 4D Hydrogel Printer</i> Yunzhi Li, <i>Understanding Human Relationships with Mobile Phone Sensing</i> Kayla Yew, <i>Sensing 3D Printed Mechanisms with Conductive Textiles</i> Shreya Bali, <i>Understanding Human Relationships with Mobile Phone Sensing</i>	Fall 2018 - Spring 2019 Fall 2018 - Spring 2019 Fall 2018 Fall 2017 - Spring 2018 Spring 2017

## ACADEMIC SERVICE

<b>Proceedings Chair</b> , ACM UIST 2019	Nov 2018 - Oct 2019
<b>Local Chair</b> , Symposium on Computational Fabrication (SCF) 2019	Nov 2018 - June 2019
<b>Session Chair</b> , ACM CHI 2019 - Fabricating Electronics	May 2019
<b>Hiring Committee Student Representative</b> , HCII, Carnegie Mellon University	Nov 2018 - May 2019
<b>Dean's Student Advisory Council</b> , HCII, Carnegie Mellon University	Oct 2017 - Dec 2018
<b>Department Ombudsman</b> , HCII, Carnegie Mellon University	May 2016 - Sept 2017
<b>PhD Open House Organizer</b> , HCII, Carnegie Mellon University	April 2017
<b>Student Volunteer</b> , ACM Human Factors in Computing Systems (CHI)	May 2017
<b>Student Volunteer</b> , 3D Printing Summit, Carnegie Mellon University	Jan 2017
<b>Student Volunteer</b> , DIY Assistive Tech. Summit, Carnegie Mellon University	April 2016
<b>Academic Paper Reviewer</b>	
ACM CHI      2018, 2019	
ACM TEI      2018, 2019	
ACM DIS      2018	

ACM UIST 2018  
ACM SCF 2018  
NIME 2018, 2019

## SELECTED PRESS COVERAGE

<b>Carnegie Mellon</b> , " <a href="#">HCI students win Bose Challenge, Designing for Augmented Reality with Sound</a> "	Dec 2018
<b>Real Industry</b> , " <a href="#">Bose Challenge: Carnegie Mellon University</a> "	Oct 2018
<b>3Ders</b> , " <a href="#">Carnegie Mellon research project combines 3D printing with embedded textiles</a> "	July 2017
<b>3D Printing Industry</b> , " <a href="#">Research embeds textiles in 3D printing for functional, flexible parts</a> "	July 2017
<b>3DPrinting.com</b> , " <a href="#">Researchers 3D Print Flexible Textiles For Development of Functional Objects</a> "	July 2017
<b>3D Shoes</b> , " <a href="#">3D Printing Combined with Textile Manufacturing</a> "	June 2017
<b>IEEE Spectrum</b> , " <a href="#">Mechanical Metamaterials and Other 3D Printing Tech from CHI 2017</a> "	May 2017
<b>MedCity News</b> , " <a href="#">Pediatric hospital physicians form 3D printing 'think tank'</a> "	Feb 2014
<b>MAKE Magazine</b> , " <a href="#">Hacking on the Frontier of Gestural Input</a> "	Feb 2013

## TECHNICAL SKILLS

**Fabrication:** 3D Modeling, 3D Printing, Laser Cutting, Metalsmithing, Paper Prototyping  
**Hardware Development:** 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, Django, 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  
**Lining Yao**, Professor, Human-Computer Interaction Institute, Carnegie Mellon University  
**Rafael 'Tico' Ballagas**, Senior Manager, Immersive Experiences Lab, HP Labs  
**Norman I. Badler**, Professor, Computer Science and Information Science, University of Pennsylvania  
**Justin Moore**, Engineering Manager, Facebook