

# Jasper Tran O’Leary

Paul G. Allen School of Computer Science & Engineering  
University of Washington  
Seattle, WA, USA

jaspero@cs.washington.edu  
jaspertranoleary.com

## EDUCATION

- Ph.D. Computer Science and Engineering, University of Washington, *expected* 2023  
M.S. Computer Science and Engineering, University of Washington, 2020  
B.A. Computer Science, University of California, Berkeley, 2016

## RESEARCH MISSION

To enable safe, programmatic control of digital fabrication technology for people across diverse domains.

Specialization: Human-computer interaction

Other interests: Digital fabrication, programming languages, computer graphics

Current topics: Computational notebooks, domain-specific languages, end-user programming

## PUBLICATIONS

### Peer-Reviewed Conference Articles

- 2023 **J. Tran O’Leary**, G. Benabdallah, and N. Peek. “Imprimer: Computational Notebooks for CNC Milling.” *To appear in Proceedings of the 2023 ACM Conference on Human Factors in Computing Systems*. doi:10.1145/3544548.3581334
- 2022 **J. Tran O’Leary**, E. Jun, and N. Peek. “Improving Programming for Exploratory Digital Fabrication with Inline Machine Control and Styled Toolpath Visualizations.” *Proceedings of the 7th Annual ACM Symposium on Computational Fabrication*. doi:10.1145/3559400.3561998
- 2021 **J. Tran O’Leary**, C. Nandi, K. Lee, and N. Peek. “Taxon: a Language for Formal Reasoning with Digital Fabrication Machines.” *Proceedings of the 34th Annual ACM Symposium on User Interface Software and Technology*. doi:10.1145/3472749.3474779
- 2021 H. Twigg-Smith, **J. Tran O’Leary**, and N. Peek. “Tools, Tricks, and Hacks: Exploring Novel Digital Fabrication Workflows on #PlotterTwitter.” *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. doi:10.1145/3411764.3445653
- 2020 J. Vasquez, H. Twigg-Smith, **J. Tran O’Leary**, and N. Peek. “Jubilee: an Extensible Machine for Multi-Tool Fabrication.” *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. doi:10.1145/3313831.3376425
- 2019 **J. Tran O’Leary**, S. Zewde, J. Mankoff, and D. Rosner. “Who Gets to Future? Design Methods, Race, and Representation in Africatown.” *Proceedings of the 7th Annual ACM Symposium on Computational Fabrication*. doi:10.1145/3290605.3300791

- 2018 **J. Tran O’Leary**, H. Winnemöller, W. Li, M. Dontcheva, and M. Dixon. “Charrette: Supporting In-Person Discussions around Iterations in User Interface Design.” *Proceedings of the 7th Annual ACM Symposium on Computational Fabrication*. doi:10.1145/3173574.3174109
- 2017 C. Torres, **J. Tran O’Leary**, M. Nicholas, and E. Paulos. “Illumination Aesthetics: Light as a Creative Material within Computational Design.” *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. doi:10.1145/3025453.3025466 **Best Paper Award: Top 1% of Papers.**
- 2016 J. Lo, C. Torres, I. Yang, **J. Tran O’Leary**, D. Kaufman, W. Li, M. Dontcheva, and E. Paulos. “Aesthetic Electronics: Designing, Sketching, and Fabricating Circuits through Digital Exploration” *Proceedings of the 29th Annual Symposium on User Interface Software and Technology*. doi:10.1145/2984511.2984579

#### Extended Abstracts and Demonstrations

- 2021 **J. Tran O’Leary**, C. Nandi, K. Lee, and N. Peek. “Taxon: a Language for Formal Reasoning with Digital Fabrication Machines.” *Demonstration at the 6th Annual ACM Symposium on Computational Fabrication*.
- 2021 **J. Tran O’Leary**, C. Nandi, K. Lee, and N. Peek. “A Grammar of Digital Fabrication Machines.” *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems*. doi:10.1145/3411763.3451829
- 2020 J. Vasquez, H. Twigg-Smith, **J. Tran O’Leary**, and N. Peek. “Jubilee Demo: An Extensible Machine for Multi-Tool Fabrication.” 2020. *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*. doi:10.1145/3334480.3383179
- 2019 **J. Tran O’Leary** and N. Peek. “Machine-o-Matic: a Programming Environment for Prototyping Digital Fabrication Workflows.” *Presented at 10th Annual Workshop on Human-Computer Interaction and Programming Languages*.
- 2019 **J. Tran O’Leary** and N. Peek. “Machine-o-Matic: a Programming Environment for Prototyping Digital Fabrication Workflows.” *Adjunct Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology*. doi:10.1145/3332167.3356897
- 2018 **J. Tran O’Leary** and N. Peek. “Material Flow in Makerspaces.” *International Symposium on Academic Makerspaces*. <https://ijamm.pubpub.org/pub/d42sj8vn>
- 2018 **J. Tran O’Leary**. “3D Printing Self-Unmaking Objects.” *Workshop on Making Use of Non-Deterministic Art Practices in HCI*.
- 2016 C. Torres, **J. Tran O’Leary**, and E. Paulos. “Leveraging Theatricality for an Expressive Internet of Things.” *Proceedings of the 2016 ACM Conference Companion Publication on Designing Interactive Systems*. doi:10.1145/2908805.2908807

#### Patents

- 2018 L. Dontcheva, W. Li, M. Dixon, **J. Tran O’Leary**, H. Winnemöller. “Integrated Computing Environment for Managing and Presenting Design Iterations.” US1089616B2.

#### AWARDS

- 2022 Research Exchange Award, Research University Alliance
- 2017 Top Scholars First Year Scholarship, UW HCDE and UW Graduate School

- 2017 Best Paper Award (Top 1% of Papers), ACM Conference on Human Factors in Computing
- 2015 Summer Undergraduate Research Fellowship, UC Berkeley

## INVITED TALKS

- 2023 University of Pennsylvania HCI Group (scheduled). *Host: Andrew Head.*
- 2023 Boston University Graphics Group (scheduled). *Host: Edward Chiang.*
- 2021 Allen School Colloquium, University of Washington. *Host: Zachary Tatlock.*

## RESEARCH EXPERIENCE

- 2017– Graduate Research Assistant  
*Advisor: Nadya Peek*  
University of Washington
- 2017 Research Intern  
*Mentors: Holger Winnemöller, Wilmot Li, Morgan Dixon, and Mira Dontcheva*  
Adobe Research
- 2023–16 Undergraduate Research Assistant  
*Mentors: Cesar Torres and Eric Paulos*  
University of California, Berkeley

## TEACHING EXPERIENCE

Serving as a teaching assistant at the University of Washington unless otherwise noted.

### PhD Courses

Prototyping Interactive Systems: Circuits, Digital Fabrication, and Machine Learning

### Masters Courses

Fabrication and Physical Prototyping

Digital Fabrication

### Undergraduate Courses

Physical Computing

User Interface Design and Development (head teaching assistant, UC Berkeley)

Structure and Interpretation of Computer Programs (course assistant, UC Berkeley)

### Guest Lectures

Basic Electronics. Physical Computing (Undergraduate). *Instructor: Nadya Peek.*

Critiques of Design Methods. Foundations of Human Centered Design and Engineering (Undergraduate). *Instructor: Kristin Dew.*

Lineages of Digital Fabrication Research. Theoretical Foundations of Human Centered Design and Engineering (Graduate). *Instructor: David Ribes.*

## **MENTORING**

\* Signifies co-authorship on peer-reviewed articles.

2022 Maja Ling Han, Computer Science, University of Copenhagen

2019–20 Khang Lee\*, Electrical Engineering, University of Washington

## **ACADEMIC SERVICE**

### **Program Committees**

2022 ACM Symposium on User Interface Software and Technology (UIST)

### **Peer Reviewing**

2023 ACM Conference on Human Factors in Computing (CHI)

2022 ACM Symposium on User Interface Software and Technology (UIST)

2021 ACM Conference on Designing Interactive Systems (DIS)

2021 ACM Conference on Human Factors in Computing (CHI)

2020 ACM Symposium on Computational Fabrication (SCF)

2020 ACM Conference on Tangible and Embodied Interaction (TEI)

2020 ACM Symposium on User Interface Software and Technology (UIST)

2020 Journal of Open Hardware

2020 ACM ACM Conference on Human Factors in Computing (CHI)

2019 ACM Conference on Computer Supported Collaborative Work (CSCW)

2019 ACM Conference on Human Factors in Computing (CHI)

2019 ACM Conference on Creativity and Cognition (C&C)

2019 ACM Conference on Designing Interactive Systems (DIS)

2018 ACM Conference on Designing Interactive Systems (DIS)

2018 ACM Nordic Conference on Human Factors in Computing (NordiCHI)

### **Organizational Committees**

2022 Web Chair, ACM Symposium on User Interface Software and Technology (UIST)

2020 Web Chair, ACM Symposium on User Interface Software and Technology (UIST)

### **Service to the University**

2021–22 Allen School PhD Visit Days Coordinator

2022 Allen School PhD Admissions Reader

2020 Allen School Human-Computer Interaction Seminar Organizer

## REFERENCES

**Nadya Peek** (advisor)

Assistant Professor

Human Centered Design and Engineering, University of Washington  
Seattle, WA

<https://www.hcde.washington.edu/peek>

[nadya@uw.edu](mailto:nadya@uw.edu)

**Jennifer Mankoff**

Richard E. Ladner Endowed Professor

Paul G. Allen School of Computer Science & Engineering, University of Washington  
Seattle, WA

<https://www.cs.washington.edu/people/faculty/jmankoff>

[jmankoff@cs.washington.edu](mailto:jmankoff@cs.washington.edu)

**Mira Dontcheva**

Senior Research Scientist

Creative Intelligence Lab, Adobe Research  
Seattle, WA

<https://research.adobe.com/person/mira-dontcheva/>

[mirad@adobe.com](mailto:mirad@adobe.com)

**César Torres**

Assistant Professor

Department of Computer Science and Engineering, University of Texas at Arlington  
Arlington, TX

<http://cearto.com/>

[cearto@uta.edu](mailto:cearto@uta.edu)

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