Jasper Tran O'Leary

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

jaspero@cs.washington.edu
+1 206 880 0395
jaspertranoleary.com

RESEARCH MISSION

To enable safe, expressive, and learnable programming for manipulating physical matter.

Specialization: Human-computer interaction

Other interests: Digital fabrication, programming languages, computer graphics

Current topics: Computational notebooks for fabrication, functional programming for machines

EDUCATION

Ph.D.   Computer Science and Engineering, University of Washington, *expected* 2024

M.S.   Computer Science and Engineering, University of Washington, 2020

B.A.   Computer Science, University of California, Berkeley, 2016

PUBLICATIONS

In Submission

2024   **J. Tran O'Leary**, T. Ramesh, O. Zhang, and N. Peek. "Implementing an Error-Prone Digital Fabrication Workflow as a Single Program." *Under review for the 2024 ACM Conference on Human Factors in Computing Systems.*

Peer-Reviewed Conference Articles

2023   J. Li, E. Rawn, J. Ritchie, **J. Tran O'Leary**, and S. Follmer. "Beyond the Artifact: Power as Lens for Creativity Support Tools." *Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology.* doi:10.1145/3586183.3606831

2023   **J. Tran O'Leary**, G. Benabdallah, and N. Peek. "Imprimer: Computational Notebooks for CNC Milling." *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 ACM 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 ACM 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 2019 ACM Conference on Human Factors in Computing Systems*. 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 2018 ACM Conference on Human Factors in Computing Systems*. 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 ACM 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 ACM Symposium on User Interface Software and Technology*. doi:10.1145/2984511.2984579

Doctoral Symposia

2023   **J. Tran O'Leary**. "Physical-Digital Computing." *To appear in Adjunct Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology.*

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

Magazine Articles

2023   **J. Tran O'Leary**, G. Benabdallah, N. Peek. "Physical-Digital Computing." *XRDS: Crossroads, The ACM Magazine for Students. Volume 29, Issue 4, Summer 2023, pp 48–53.* doi:10.1145/3596930

Patents

2018   L. Dontcheva, W. Li, M. Dixon, **J. Tran O'Leary**, H. Winnemöller. "Integrated Computing Environment for Managing and Presenting Design Iterations." US10896161B2.

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   Cornell Tech HCI & Fabrication Group. *Host: Thijs Roumen.*

2023   University of Pennsylvania HCI Group. *Host: Andrew Head.*

2023   Boston University Graphics Group. *Host: Edward Chiang.*

2021   Allen School Colloquium, University of Washington. *Host: Zachary Tatlock.*

RESEARCH EXPERIENCE

2017–   Graduate Research Assistant
Mentor: Nadya Peek
University of Washington

2017   Research Intern
Mentors: Holger Winnemöller, Wilmot Li, Morgan Dixon, and Mira Dontcheva
Adobe Research

2013–16   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

Reading Web Data on Microcontroller Firmware. Physical Computing (Undergraduate). *Instructor: Nadya Peek*.

Sending Sensor Data from Microcontrollers to Web Pages. Physical Computing (Undergraduate). *Instructor: Nadya Peek*.

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 (PhD). *Instructor: David Ribes*.

MENTORING

* Signifies co-authorship on peer-reviewed articles.

2023   Thrisha Ramesh*, B.S. Computer Science and Engineering, University of Washington

2023   Octi Zhang*, B.S. Computer Science and Engineering, University of Washington

2022   Maja Ling Han, M.S. Computer Science, University of Copenhagen

2019–20   Khang Lee*, B.S. Electrical Engineering, University of Washington

ACADEMIC SERVICE

Program Committees

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

Peer Reviewing

2024   IEEE Virtual Reality

2023   ACM Symposium on User Interface Software and Technology (UIST)

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

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

Mira Dontcheva
Senior Research Scientist
Creative Intelligence Lab, Adobe Research
Seattle, WA
https://research.adobe.com/person/mira-dontcheva/

mirad@adobe.com

César Torres
Assistant Professor
Department of Computer Science and Engineering, University of Texas at Arlingon
Arlington, TX
`http://cearto.com/`
cearto@uta.edu

Updated November 2023