Jean Salac, PhD

Postdoctoral Researcher | Human-Centered Computing & Computing Education

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Education

2021 PhD | Computer Science | University of Chicago | National Science Foundation Graduate Research Fellow
2020 MS | Computer Science | University of Chicago
2017 BS | Computer Science | University of Virginia | High Distinction

Professional Appointments

2022-Present Postdoctoral Researcher & Computing Innovations Fellow, University of Washington
- Mentor : Prof. Amy J. Ko
- Researches justice-focused computing education for youth, namely how youth may learn to examine technology's role in their lives and society, and how educators can foster in youth a critical understanding of computing for a more just future.

2017-21 Graduate Researcher, University of Chicago
- Mentor : Prof. Diana Franklin
- Applied human factors, statistical, and machine learning techniques to analyze student data.
- Built a tool for automatic generation of personalized written assessments that incorporates student code, and a tool that scraped features of student code for static analysis.

2021 AI/ML Education Research Intern, Apple Inc
- Mentor : Prof. R. Benjamin Shapiro
- Explored opportunities to introduce data science practices to K-12 students using Swift Playgrounds & Charts
- Incorporated the latest findings in computing education research into Apple's education strategy

2016-17 Undergraduate Researcher, University of Virginia
- Researched problematic demographic categories used in STEM higher education.
- Investigated the impact of informal computing education on low-income female youth of color.

2016 Computer Science Education Intern, National Science Foundation
- Analyzed prior NSF CS education and broadening participation initiatives.
- Researched social innovation best practices to help shape President Obama's CS for All initiative.

Honors, Awards, and Prominent Appointments

2022-23 Advisory Board, CodePath
2022-24 Computing Innovations Fellow, National Science Foundation & Computing Research Association
2021 William Rainey Harper Dissertation Award, University of Chicago's Highest Honor for Graduate Students
2020-21 Graduate Fellow, Computing Research Association - Education
2020 EECS Rising Star, Rising Stars Academic Career Workshop for Women
2020 Best Reviewed Paper, ACM Conference on International Computing Education Research
2020 Online Organizing Committee Member, IEEE RESPECT Conference for Equity and Sustained Participation
2019 Graduate Research Fellowship, National Science Foundation
2019 Bridge Builder Leadership Award, University of Chicago
2019 Computer Science Department Teaching Award, University of Chicago
2019 Physical Science Division Teaching Award Nomination, University of Chicago
2018 Graduate Student Leadership Award, University of Chicago
2017 Rader Award for Undergraduate Research, University of Virginia
2016 AAPI Young Leader, White House Initiative for Asian-Americans and Pacific Islanders (WHIAAPI)

Publications

In computing, conference papers undergo a highly selective, multi-stage peer review process and are considered on par with journal publications. Approximate acceptance rates : IDC, ITiCSE, SIGCSE - 30%; CHI, ICER - 25%. † denotes students.

2023 **Jean Salac**, Rotem Landesman, Stefania Druga, and Diana Franklin. "Scaffolding Children's Sensemaking around Algorithmic Fairness." Paper in the *Proceedings of the ACM Conference on Interaction Design for Children (IDC)*, 2023.

2023 **Jean Salac**, Donna Eatinger, and Diana Franklin. "The Role of Spatial Orientation in Diagram Design for Computational Thinking Development in K-8 Teachers." Research Paper in the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2023.

2022 Alannah Oleson*, Benjamin Xie*, **Jean Salac**, Jayne Everson, F Megumi Kivuva, Amy J Ko. "A Decade of Demographics in Computing Education Research : A Critical Review of Trends in Collection, Reporting, and Use" In *Proceedings of the 2022 ACM Conference on International Computing Education Research (ICER)*, 2022.
** co-first authors*

2021 **Jean Salac**, Cathy Thomas, Chloe Butler†, and Diana Franklin. "Investigating the Role of Cognitive Abilities in Computational Thinking for Young Learners." In *Proceedings of the 2021 ACM Conference on International Computing Education Research (ICER)*, 2021.

2021 **Jean Salac**, Cathy Thomas, Chloe Butler†, and Diana Franklin. "Understanding the Link between Computer Science Instruction and Reading & Math Performance." Research Paper in the *Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE)*, 2021.

2021 **Jean Salac**, Cathy Thomas, Chloe Butler†, and Diana Franklin. "Supporting Diverse Learners in K-8 Computational Thinking with TIPP&SEE." Research Paper in the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2021.

2020 Diana Franklin, **Jean Salac**, Zachary Crenshaw†, Saranya Turimella†, Zipporah Klain†, Marco Anaya†, Cathy Thomas. "Exploring Student Behavior Using the TIPP&SEE Learning Strategy" In *Proceedings of the 2020 ACM Conference on International Computing Education Research (ICER)*, 2020. **Best Reviewed Paper Award**

2020 **Jean Salac** and Diana Franklin. "If They Build It, Will They Understand It?: Exploring the Relationship between Student Code and Performance." Research Paper in the *Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE)*, 2020.

2020 **Jean Salac**, Cathy Thomas, Bryan Twarek, William Marsland, and Diana Franklin. "Comprehending Code : Understanding the Relationship between Reading and Math Proficiency, and 4th-Grade CS Learning Outcomes." Research Paper in the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2020.

2020 **Jean Salac**, Cathy Thomas, Chloe Butler†, Ashley Sanchez†, and Diana Franklin. "TIPP&SEE : A Learning Strategy to Guide Students through Use–>Modify Scratch Activities." Research Paper in the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2020.

2020 **Jean Salac**, Qi Jin†, Zipporah Klain†, Saranya Turimella†, Max White†, and Diana Franklin. "Patterns in Elementary-Age Student Responses to Personalized & Generic Code Comprehension Questions." Research Paper in the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2020.

2020 Diana Franklin, **Jean Salac**, Cathy Thomas, Zené Sekou† and Sue Krause. "Eliciting Student Scratch Script Understandings via Scratch Charades." Experience Report in the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2020.

2019 **Jean Salac**, Max White†, Ashley Wang†, and Diana Franklin. "An Analysis through an Equity Lens of the Implementation of Computer Science in K-8 Classrooms in a Large, Urban School District." Research Paper in the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2019.

2018 David Weintrop, Afsoon Afzal, **Jean Salac**, Patrick Francis, Boyang Li, David C. Shepherd, and Diana Franklin. "Evaluating CoBlox : A comparative study of robotics programming environments for adult novices." In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (SIGCHI)*, 2018. **Best Paper Honorable Mention**

2018 Daniel S. Katz, Kyle E. Niemeyer, Sandra Gesing, Lorraine Hwang, Wolfgang Bangerth, Simon Hettrick, Ray Idaszak, **Jean Salac**, Neil Chue Hong, Santiago Nunez-Corrales, Alice Allen, R. Stuart Geiger, Jonah Miller, Emily Chen, Anshu Dubey, and Patricia Lago. "Fourth workshop on sustainable software for science : practice and experiences (WSSSPE4)." *Journal of Open Research Software* 6, no. 1 (2018).

Grants - Over $400,000 total

2022 Computing Innovations Fellowship, National Science Foundation & Computing Research Association ($250,000)
2019 Graduate Research Fellowship, National Science Foundation ($138,000)
2016 The Jefferson Trust, University of Virginia ($10,320)
2016-20 Various Travel Grants from NSF, CRA, ACM, & others ($11,500)

Invited Talks and Workshops

April 2023 "The Kids are Alright : Scaffolding Critical Computing Consciousness in Children & Adolescents", Apple Inc
April 2023 "The Kids are Alright : Scaffolding Critical Computing Consciousness in Children & Adolescents", Program in Computing for the Arts & Sciences (PCAS) Speaker Series, University of Michigan
April 2023 "The Kids are Alright : Scaffolding Critical Computing Consciousness in Children & Adolescents", School of Information Colloquium, University of Texas-Austin
February 2023 "Moving from Equity to Justice in Computing instruction for Youth", Seminar Series on Primary (K–5) Computing Education Research – Teaching and Teachers, Computer Raspberry Pi Foundation
July 2022 "TIPP&SEE : Scaffolding for K-8 Computer Science", K-8 Research+Practice Workshop by csedresearch.org, Computer Science Teachers Association Conference
March 2021 *"Scratch Strategies to Engage Diverse Learners"*, Equity in Action Conference, Computer Science Teachers Association
February 2021 *"Scratch Strategies to Engage Diverse Learners"*, Excellence in Teaching Conference, Notre Dame University
2020-21 *Workshop on the Next 15 Years of Computing Education Research*, National Science Foundation
November 2020 *Accessible Computer Science Education Workshop*, Microsoft Research
August 2020 "Diagramming as a Strategy for Primary/Elementary-Age Program Comprehension", Doctoral Consortium, International Computing Education Research (ICER) Conference
August 2019 "Personalized Assessment Worksheets for Scratch (PAWS) : Exploring a Bridge between Interviews, Written Assessments, and Artifact Analysis", Doctoral Consortium, International Computing Education Research (ICER) Conference

Students Mentored

2022-23 Lena Armstrong, BS in Computer Science 2023, University of Pennsylvania
2022 Audrey Le Meur, BA in Computer Science 2022, University of Minnesota-Morris
2019 Marco Anaya, BS in Computer Science 2021, University of Chicago
2019 Zachary Crenshaw, BS in Computer Science 2021, University of Chicago
2019 Qi Jin, BS in Computer Science 2019, University of Chicago
2019 Zipporah Klain, BS in Computer Science 2021, University of Chicago
2019 Ashley Sanchez, BS in Computer Science 2019, Texas State University
2019 Saranya Turimella, BS in Computer Science 2021, University of Chicago
2018-19 Chloe Butler, MA in Psychology & Special Education 2019, Texas State University
2018-19 Max White, BS in Computer Science 2020, University of Chicago
2018 Ashley Wang, BS in Computer Science 2020, University of Chicago
2017 Zené Sekou, BS in Computer Science 2020, University of Chicago

Teaching Experience

2022-23	Lead Instructor, Course(s) : Introduction to Computing Foundations with a Critical Lens, University of Washington Upward Bound Summer Academy
2017-19	Teaching Assistant, Course(s) : Computers for Learning (Game Engine Design, Introduction to Object-Oriented Programming), University of Chicago
2016-17	Teaching Assistant, Course(s) : Human-Computer Interaction & Computer Architecture, University of Virginia
2013-17	Museum Educator, National Air & Space Museum

Select Service

2023	Program Committee Member, Conference on Primary & Secondary Computing Education Research (WiPSCE)
2023	Panel Reviewer, NSF Computer and Information Science and Engineering (CISE)
2021-Present	Program Committee Member & Publicity Chair, International Computing Education Research (ICER) Conference
2021-Present	Peer Reviewer, CHI, IDC, Communications of the ACM (CACM), Journal of Computer Science Education (CSE), Transactions of Computing Education (TOCE), Transactions of Human Factors in Computing (ToCHI)
2018-21	Computer Science Representative, University of Chicago : (1) Graduate Recruitment Initiative Team & (2) Physical Sciences Division's Committee on Equity, Diversity, & Inclusion
2018-20	Co-Organizer, University of Chicago Research Symposia : (1) Women in STEM Symposium & (2) Transcending Boundaries Research Symposium for Scholars of Color
2018-19	Co-Chair & Founder, University of Chicago Graduate Women in Computer Science