Tamara Nelson-Fromm

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EDUCATION

PhD Candidate in Computer Science and Engineering, University of Michigan, Aug. 2020–Dec. 2024
CERTIFICATE in Graduate Teaching
ADVISOR: Dr. Mark Guzdial

B.S. in Computer Science with Honors, University of Illinois at Urbana-Champaign, Aug. 2016–May 2020
MINOR in Media and Cinema Studies, Certificate in Undergraduate Research
THESIS: *Visualizing Engineering Curriculum Commonalities and Prerequisite Chains*
ADVISOR: Dr. Wade Fagen-Ulmschneider

TEACHING EXPERIENCE

University of Michigan, Graduate Student Instructor
EECS 183: Elementary Programming Concepts (Comprehensive Studies Program Sections), *C++*, 40 students, Fall 2022 & Winter 2023
- Designed additional lessons and exercises specifically for the Comprehensive Studies Program sections
- Managed and mentored 2 undergraduate TAs in teaching techniques and course administration

EECS 493: User Interface Development, *JavaScript, HTML, and CSS,* 200 students, Winter 2022
- Managed a team of 6 undergraduate TAs and 6 undergraduate grading staff
- Created and delivered a guest lecture on educational technology interface design

University of Illinois at Urbana-Champaign, Course Assistant
Computer Science 225: Data Structures, *C++*, 800 students, Spring 2019 & Fall 2020
- Taught weekly lab sections and office hours, created additional instructional material

Engineering 100: Engineering Orientation, 30 students, Fall 2018
- Taught weekly discussion sections about engineering opportunities and professional development

iD Tech Camps at Macalester College
Assistant Director, 20+ staff members, 200+ students/week, Summer 2019
Lead Instructor, *Scratch, Java, Python, and Javascript*, 10 students/week, Summer 2018

PUBLICATIONS

Nelson-Fromm, T., Naimipour, B., Shreiner, T. and Guzdial, M. **Data Visualization Technology to Support Inquiry and Chronological Understanding in Social Studies.** In *Social Education.* DOI: upcoming

Guzdial, M. and Nelson-Fromm, T. **A Purpose-First Theory of Transfer Through Programming in a General Education Computing Course.** In *PLATEAU 2024.* DOI: upcoming

Guzdial, M., Dodoo, E., Naimipour, B., Nelson-Fromm, T., and Padiyath, A. **Putting a Teaspoon of Programming into Other Subjects.** In *Communications of the ACM, Volume 66, Issue 5.* DOI: doi.org/10.1145/3587926

Nelson-Fromm, T. and Fagen-Ulmschneider, W. **A Metro Map-Based Curriculum Visualization for Examining Interrelated Curricula.** In *2022 American Society for Engineering Education Annual Conference (ASEE 2022).*

POSTERS AND PRESENTATIONS

Nelson-Fromm, T. **Task-Specific Languages as Scaffolding for Programming in Discrete Mathematics Classes.** *SIGCSE 2024.* National Science Foundation Project Showcase. DOI: upcoming

Dodds, Z., Garcia, Y., Ojha, V., Guzdial, M., Nelson-Fromm, T., Barr, V. and Matsumoto, S. **Computing as a University Graduation Requirement.** *SIGCSE 2024.* Birds of a Feather Session. DOI: upcoming

Nelson-Fromm, T., Barkhuff, G., Everson, J., Fong, M. and Rivera, E. **Building Community for Graduate Students in CS Education Research.** *SIGCSE 2024.* Birds of a Feather Session. DOI: upcoming

Nelson-Fromm, T. **Open-Ended Assignments for Teaching Contextualized Computing.** *ICER 2023.* Doctoral Consortium. DOI: doi.org/10.1145/3568812.3603445

Krause-Levy, S., Perez, M., Nelson-Fromm, T. and Suh, S. **Graduate Students in CS Education Research.** *SIGCSE 2023.* Birds of a Feather Session. DOI: doi.org/10.1145/3545947.3573346

Nelson-Fromm, T. **Investigating the Effect of Task-Specific Programming in K12 Students.** *2021 Engineering Research Symposium Proposal Competition, University of Michigan,* December 2021. ***[Honorable Mention]***

Nelson-Fromm, T. **Creating Better Teaching Tools Through Examining Teachers' Understanding of Data Representations.** *VL/HCC 2021.* Doctoral Consortium. DOI: 10.1109/VL/HCC51201.2021.9576206

Nelson-Fromm, T. **Visualizing Curriculum Commonalities and Prerequisite Chains Through Metro Maps.** *2020 UIUC Undergraduate Research Symposium,* April 2020. ***[Outstanding, top 0.5% of presentations]***

OTHER RESEARCH EXPERIENCE

Data Science Research Collaborative (d7), *University of Illinois at Urbana-Champaign*, Jan. 2019–May 2020
PI: Dr. Wade Fagen-Ulmschneider
PROJECTS: The Grainger Engineering Metro Map, Gender Diversity of Course Instructors at Illinois
- Collected datasets, designed, and implemented data visualizations using Javascript, HTML/CSS, and d3.js

Documenting Barriers to Changing the Engineering-Mathematics Curriculum, *University of Illinois at Urbana-Champaign*, Aug. 2018–Aug. 2019 PI: Dr. Geoffrey Herman
- Collected and analyzed survey data from 150+ student subjects
- Recruited 100+ student research participants from sophomore-level engineering courses

OTHER PROFESSIONAL EXPERIENCE

University of Michigan Center for Research on Teaching and Learning, *Engineering Teaching Consultant*, Fall 2023–Present

HubSpot, *Software Engineering Intern*, June 2020–Aug. 2020

AWARDS

Honorable Mention in Research Proposals, University of Michigan Engineering Research Symposium, December 2021
Outstanding Poster in Science & Mathematics, UIUC Undergraduate Research Symposium, April 2020
University of Illinois at Urbana-Champaign Achievement Scholarship, 2016–2020
Society of Women Engineers & Northrop Gruman Scholarship, 2018
Illinois Computer Science John Deere Scholar, 2018

UNIVERSITY AND DEPARTMENTAL SERVICE

University of Michigan
Ensemble of CSE Ladies (ECSEL+), *External Relations Chair*, May 2021–May 2022

University of Illinois at Urbana-Champaign
Computer Science Undergraduate Studies Committee, *Student Representative*, Jan. 2020–May 2020
Illinois Engineering Student Tour and Admissions Representative, Jan. 2018–Dec. 2019
Women in Computer Science, *Executive Board*, May 2018–May 2019
Engineering Undeclared Advisory Council, *Student Representative*, Aug. 2017–May 2018
Society of Women Engineers, *Marketing Committee Chair*, Aug. 2016–May 2017