Briana Christina Bettin

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Personal Profile

My passion for user experience design and usability extends to the classroom, where I strive to ensure each learner has a course experience leading to mastery, retention, engagement, and joy. Computing is central to our sociotechnical society – and I aim to empower all citizens with skills needed to thrive within it. Working in industry to delight clients solidified my dedication to becoming a faculty member as I developed skills in testing, research analysis, and realized my excitement toward public speaking and mentoring. I am thrilled to continue engaging future leaders with computing, and to conduct research toward more human centered designs.

Research Interests

Computing Education; User Experience; Human Factors; Human-Computer Interactions; Mental Models; Information Representation; Analogy and Metaphor; Rural Digital Literacy; Engagement and Retention; Digital Anthropology; Critical Pedagogy

Education

MICHIGAN TECHNOLOGICAL UNIVERSITY – Houghton, MI
Doctorate of Philosophy in **Computer Science**
Fall 2016 – Summer 2020
Thesis: "*The Stained Glass of Knowledge: On Understanding and Enhancing Novice Mental Models of Programming*"
DOI: 10.37099/mtu.dc.etdr/1086
Adviser: Dr.Linda M. Ott

IOWA STATE UNIVERSITY – Ames, IA (Remote)
Masters of Science in **Human-Computer Interaction**
Spring 2015 - Summer 2016
Capstone Defense: UX Testing and Proposed Redesign of Mile of Music App

MICHIGAN TECHNOLOGICAL UNIVERSITY – Houghton, MI
Bachelors of Science in **Computer Science**, Application Area: **User Experience & Marketing**
Fall 2010 - Spring 2014
Cumulative GPA: **3.69**; Departmental GPA: **3.56** | Cum Laude, Honors Institute student status

Professional Experience

ASSISTANT PROFESSOR @ Michigan Technological University

Houghton, MI (Fall 2020 – Present) | Computer Science Department, Cognitive and Learning Sciences Department

I.   Graduate Teaching Experience

GRADUATE TEACHING ASSISTANT @ Michigan Technological University

Houghton, MI (Fall 2019 – Spring 2020) | CS1121 Intro to Programming I
- Full responsibility for course, including lecturing 160+ students (in Fall) and overseeing lab sections
- Restructured curricula order based on classroom research
- Crafted new material for a four-week introduction to programming ideas course segment
- Created new assignments to fit the revised curricula, research findings, and course goals
- Developed new resources to facilitate understanding of the material and classroom environment
- Managed GTAs for the course and mentored them in the role

GRADUATE TEACHING ASSISTANT @ Michigan Technological University

Houghton, MI (August 2016 – Spring 2019) | CS1121 (Intro to Programming I Lab Sections)
- Lead GTA for the introductory sequence, assisted in course design and coordination among GTAs
- Facilitated lab sections, assist with and grade lab exercises, coordinate undergraduate lab assistants
- Graded students and provided detailed feedback to help students identify and correct mistakes
- Assisted in recitation demonstrations and exam proctoring; provided lecture coverage as needed

GRADUATE RESEARCH ASSISTANT @ Michigan Tech, with Dr.Charles Wallace

Houghton, MI (August 2017 – August 2018)
- Presented to Department External Advisory Board regarding novice programming research
- Collected, transcribed, and coded data for analysis on novice programmer inquiries
- Established midweek meetings for the novice course to "pivot" based on current data findings

GRADUATE TEACHING ASSISTANT @ Michigan Technological University

Houghton, MI (May 2017-June 2017; May 2018 – June 2018)
2017, 2018. *CS1122 (Intro to Programming II, Summer Track A)*
2018. *CS1121 (Intro to Programming I, Summer Track A)*
- Full responsibility for Summer Intro to Programming I and II courses
- Developed video lectures and associated materials for remote learning
- Prepared readings, recommended resources, and assigned work for course
- Supported remote learning through video conference office hours, grading, and detailed feedback

II.   Industry Experience

WEB DESIGNER I and ONLINE MARKETING INTERN @ Skyline Technologies

Green Bay, WI (Intern: June 2014 – August 2014, Designer: August 2014 - August 2016)
- Crafted procedures, testing protocols, templates, and methodologies for User Experience offerings
- Facilitated knowledge transfer of user experience (UX) principles at public and internal events
- Conducted UX and web design daylong training session for interning associates (Summer 2015, 2016)
- Developed front-end code and design of responsive websites on Kentico and DNN CMS platforms
- Designed high fidelity comps of website designs for several project's user interfaces
- Advised on usability needs and brand consistency, promoting further work and client success
- Generated Google Analytics Reports, setting up client dashboards and inferring insights from data

ADVANCED and REGULAR SOFTWARE DEVELOPMENT INTERN @ Humana Inc.

Louisville, KY (Regular: May 2012 – August 2012; Advanced: May 2013 – August 2013)
- Enhanced user interface and overall usability for an in-development contractor requisition system
- Developed guidance and planning documentation such as flow charts, task lists, and design comps
- Created web parts for use within team SharePoint

- Redesigned iconography for bug reporting software
- Developed with team an administrative tool for use with the Quality Management System's database
- Gained experience working on an IT development team using Agile/Scrum methodology

Refereed Publications

(Invited, <u>in Review</u>) Polysemicolon; Novice Programmers and Java Keywords. Briana Bettin. In Digital Humanities Quarterly (DHQ) Critical Code Studies Special Issue. 2021.

(Invited, <u>in Review</u>) Preparing Engineering Students for Coding in the Fourth Industrial Revolution. Briana Bettin, Michelle Jarvie-Eggart, Kelly S. Steelman, Charles Wallace. In IEEE Transactions on Education (ToE) 50 Years of Engineering Education Research Special Issue. 2021.

(*To Appear*) Developing a Comic-Creation Assignment and Rubric for Teaching and Assessing Algorithmic Concepts. Briana Bettin, Michelle Jarvie-Eggart, Kelly Steelman, Charles Wallace. In IEEE Frontiers in Education Conference (FIE), Lincoln, Nebraska, USA. 2021.

Frozen in the Past: When it Comes to Analogy Fears, It's Time For Us to "Let it Go". Briana Bettin, Linda Ott. In Innovation & Technology in CS Ed (ITiCSE), Virtual Conference. 2021. DOI: 10.1145/3430665.3456381

Infusing Computing Identity into Introductory Engineering Instruction. Briana Bettin, Michelle Jarvie-Eggart, Kelly Steelman, Charles Wallace. In IEEE Frontiers in Education Conference (FIE), Virtual Conference. 2020. DOI: 10.1109/FIE44824.2020.9274290

Work in Progress: The perception of computer programming within engineering education : An investigation of student attitudes, beliefs, and behaviors. Kelly Steelman, Michelle Jarvie-Eggart, K.L. Tislar, Nathan Manser, Briana Bettin, Leo C Ureel, and Charles Wallace. In ASEE Annual Conference & Exposition. American Society of Engineering Education, Virtual Conference. 2020. DOI: 10.18260/1-2--35683

More Effective Contextualization of CS Education Research: A Pair-Programming Example. Briana Bettin, Linda Ott, Leo Ureel. In Innovation & Technology in CS Edu (ITiCSE), Aberdeen, UK. 2019. DOI: https://doi.org/10.1145/3304221.3319790

The Impact of placement in introductory computer science courses on student persistence in a computing major. Linda Ott, Briana Bettin, Leo Ureel. In Innovation & Technology in CS Ed (ITiCSE), Larnaka, Cyprus. 2018. DOI: https://doi.org/10.1145/3197091.3197139

The Impact of Placement Strategies on the Success of Students in Introductory Computer Science. Glen Archer, Briana Bettin, Leonard Bohmann, Allison Carter, Christopher Cischke, Linda M Ott, Leo Ureel. In IEEE Frontiers in Education Conference (FIE), Indianapolis, IN, USA. 2017. DOI: 10.1109/FIE.2017.8190526.

Honors and Awards

- **Exceptional "Average of 7 Dimensions" Student Evaluation Score for Instructor Evaluations.** *Fall 2019, Fall 2020, Spring 2021 – Michigan Technological University*
- **Midwestern Association of Graduate Schools Teaching Award Nominee:** *Spring 2020 – Michigan Tech*
- **Outstanding Graduate Teaching Award:** *Fall 2017 – Michigan Tech GSG*

Funded Grants

- 2021 – 2023. **EAGER SAI: Illuminated Devices: A Sociotechnical Approach to Empowering Digital Citizens and Strengthening Digital Infrastructure.** National Science Foundation (Award #2122034). Award Amount: $299,617. Kelly Steelman (PI), Charles Wallace (Co-PI), Briana Bettin (Co-PI), Leo Ureel (Co-PI).
- 2020 - 2021. **Infusing Computing into Engineering Education**. Michigan Technological University IDEAHub. Award Amount: $3,500. Briana Bettin (PI), Michelle Jarvie-Eggart (Co-PI), Kelly Steelman (Co-PI), Charles Wallace (Co-PI).

Fellowships

- 2021. **Inaugural Cohort of the Cultural Competency in Computing (3Cs) Fellows Program**. Program run by the Identity in Computing Group at Duke University.
- 2018 - 2020**. The King-Chavez-Parks Future Faculty Fellowship**. Awarded in October by State of Michigan.

Peer Reviewed Abstracts

Toward Understanding and Enhancing Novice Students' Mental Models in Computer Science. Briana Bettin. Abstract In Proceedings of the 2019 ACM Conference on International Computing Education Research (ICER), Presented as a Poster for the Doctoral Consortium, Toronto, Ontario, Canada. 2019. DOI: 10.1145/3291279.3339434

Exploring Programming Instruction in Multidisciplinary Contexts. Michelle Jarvie-Eggart, Russell Louks, Briana Bettin, Leo Ureel. Panel Presented at SIGCSE, Minneapolis, MN, USA. 2019.

Enforcing Positive Pair Programming by Shattering Student Perceptions. Briana Bettin, Jamie L. Berger, Sarah Larkin, Leo Ureel. Poster presented at Grace Hopper Celebration (GHC), Houston, Texas, USA. 2018.

Discoveries in Computer Science Learning Obstacles Through Observations of Student Inquiries. Briana Bettin, Jamie L. Berger, Sarah Larkin, and Leo Ureel**. Presented at UPTLC, Marquette, MI, USA. 2018.

Collaborative Programming Explorations in Introductory Computer Science Courses. Briana Bettin and Leo Ureel. Birds of a Feather Session Presented at MICWIC, Lansing, MI, USA. 2017.

Guest Speaker Engagements

Explorations into Introductory CS: *At the College of Computing Showcase at Michigan Tech (Fall 2019)*
UI & UX Design Careers: *At the "Design for Humans" Summer Youth Camp at Michigan Tech (Summer 2018)*
Privacy & Security in the Era of Information: For *Michigan Tech's CS3000 Ethics Course (Spring 2018) and a shortened variant for HU2642 Digital Media Course (Spring 2019)*
The Art of Storytelling: *For a UW-Oshkosh Student Group*
Why UX Matters: *For AMA NEW, as a Webinar July 15 2015, and variants for Skyline and UW-Oshkosh Students*

Professional Activities

- **Reviewer.** The Annual Conference on Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT). 2021.
- **Reviewer.** IEEE Frontiers in Education Conference (FIE). 2020.

Courses Taught

- CS1121 – Introduction to Programming I (Java)

- CS1121 Detroit Hispanic Development Center Dual-Enrollment Offering

Diversity and Outreach involvement

C++ INTRODUCTORY WORKSHOP for Biomedical Robotics Instructor @ Michigan Technological University
Spring 2020, Fall 2020
Students of the Biomedical Robotics club and the Biomedical major attended a two-hour workshop to learn fundamental C++ concepts in order to gain exposure and useful skills.
Facilitated the workshop, instructed on fundamentals, guided activities, and helped with debugging.

WOMEN IN COMPUTING DAY Instructor @ Michigan Technological University
Spring 2019
Young women finishing high school attend a day to learn more about the computer science program at Michigan Technological University.
Taught during a Day Zero lecture simulating a "real" college CS class.

WOMEN IN COMPUTER SCIENCE Summer Youth Instructor @ Michigan Technological University
Summer 2017, 2018, 2019
WiCS is a weeklong discovery of the field of Computer Science via a competitive scholarship program.
Head Instructor overseeing and planning the project activity, creating an enjoyable environment, and chaperoning students as they attend guest lectures and demonstrations (Summer 2017, 2019)
Guest Speaker on User Experience in computing; presenter of VR Game Demo and discussion on UX in VR testing (Summer 2018, 2021)

CODE NINJAS: Middle School Girls Coding Camp Speaker & Assistant @ Michigan Technological University
Fall 2016 – Summer 2018
Guest Speaker heading student led discussion pane l on topics such as Industry, College, Web Design, Accessibility, Programming, and User Experience (Fall 2016, Spring 2017, Fall 2017, Summer 2018)
Assistant teacher and troubleshooter for project work (Spring 2017)

CS4HS High School Teacher's Camp – Intro Programming Instructor @ Michigan Technological University
Summer 2017
A three-day camp for K-12 instructors to learn programming skills. *Instructor for new to CS teachers on programming concepts, utilizing Scratch over Java to better introduce them to concepts they can take to their classrooms for varying age groups and skill levels (Summer 2017)*

AAUW TECHSAVVY Session Leader @ University of Wisconsin Fox Valley (Working @ Skyline)
Tech Savvy is a daylong STEM career conference designed to attract sixth to ninth grade girls to these fields and inform them about the opportunities available.
Guest Speaker presenting "How to Find your Passion in STEM!" (Spring 2016)

Department and University Committees, Leadership

- 2020 – Present. Member, **Undergraduate Student Learning Goals Committee #6**.
- 2020 – Present. Member, **Computer Science Department Recruitment Committee**.
- 2020- Present. Member, **College of Computing Diversity Committee**.
- 2020 – Present. Faculty Advisor, **The Pokémon League at Michigan Tech**.
- 2020 – 2021. Member, **ExploreCSR Planning Committee**.
- 2020 – 2021. Member, **Human Factors Degree Committee**.
- 2020. Graduate Student Representative, **College of Computing Dean Search Committee**.