Abigail Zimmermann-Niefield

Graduate Researcher

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https://abbie.show

Professional Experience

Researcher | *Laboratory for Playful Computation, 2018*-present

I design and build tools and activities for novice youth to learn about machine learning through building models of their own body movements.

I conduct workshops and studies to investigate youths' practices and understandings of machine learning models.

Software Engineer | *Goldman Sachs,* Summer 2014, 2015-2017

I designed, developed, tested, deployed and maintained of software for international tax regulations on financial products.

Research Assistant | *Williams College, 2014-2015*

Advised by Professor Jeannie Albrecht. I used a massive dataset on appliance-level energy readings from smart homes to classify when inhabitants had devices on, with the goal of eventually using the results to work towards an energy disaggregation algorithm for non-smart homes.

Research Assistant | *Brown University, Summer 2013*

Advised by Professor R. Iris Bahar. Researched energy and performance efficient parallel computing for embedded systems with Professor Bahar through Distributed Research Experience for Undergraduates

Teaching Experience

Graduate Teaching Assistant | *Univ. of Colorado Boulder 2017-2018*

Computer Science Senior Capstone in Software Engineering. I met weekly with eight teams of six students to advise them on a year-long software engineering project with industry partners, and graded supplementary assignments.

Fundamentals of Human Computer Interaction. I led weekly lab sections where students completed human-centered design exercises, and graded labs, quizzes, and projects.

Education

University of Colorado, Boulder
PhD Student, Computer Science
Expected Graduation 2022

Williams College
B.A. Computer Science, 2015
B.A. Mathematics, 2015

Awards

National Science Foundation Graduate Research Fellowship, 2019

Skills

UX/UI
Human-centered design
Low/high-fidelity prototypes
Wireframes, sketches, storyboards
Interviews and focus groups
Cognitive Clinical Interviews
Qualitative research methods

Programming Languages
Java
Python
Swift
HTML/CSS
JavaScript
Matlab
C
SQL

Tools and Frameworks
Bluetooth Low Energy (BLE)
REST
Git, SVN
Agile, Waterfall
Test-Driven Development

Summer Immersion Program Instructor | *Girls Who Code, 2017*

I was a classroom teacher for a seven-week program teaching the basics of computing and programming to twenty 14-17 year old girls in Newark, NJ.

I taught Scratch, Python, Arduino (C), and JavaScript with a focus on community building and social awareness.

Counselor and Teaching Assistant | *Williams College Math Camp, 2015*

I ran afternoon classes and help sessions for a two-week-long number theory summer camp for 14-17 year olds.

I planned social and cultural activities, and accompanied the students through their daily lives

Teaching Assistant | *Williams College, 2012-2015*

I assisted with labs, office hours and grading for the following classes: *Introduction to Computer Science, Computer Organization Theory of Computing, Abstract Algebra.*

Publications

Zimmermann-Niefield, Abigail R., Polson, Shawn, Moreno, Celeste, and Shapiro, R. Benjamin. (2020) *Youth making machine learning models for gesture-controlled interactive media.* In Proceedings of the 2020 International Conference on Interaction Design and Children (IDC) 2020, ACM.

Clegg, T., Edouard, K., Greene, D., Jones, S., Melo, N., Nasir, N., Shapiro, R. B., Smith, M., Wright, C. G., Worsley, M., **Zimmermann-Niefield, A.** *Reconceptualizing Legitimate and Generative Experiences in Sports and Technology.* The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020, Volume 1 (pp. 461-467). Nashville, Tennessee: International Society of the Learning Sciences.

Zimmermann-Niefield, Abigail R., Shapiro, R. Benjamin, and Kane, Shaun K. (2019) *Sports and Machine Learning: how young people can use data from their own bodies to learn about ML.* XRDS, ACM.

Zimmermann-Niefield, Abigail R., Turner, Makenna, Murphy, Bridget, Kane, Shaun K. and Shapiro, R. Benjamin. (2019) *Youth Learning Machine Learning through Building Models of Athletic Moves.* In Proceedings of the 2019 International

Speaking

Graduate School Panel Guest | *Williams College Computer Science Colloquium,* Fall 2020
Co-Invited Speaker | *AAAI Symposium on Educational Advances In Artificial Intelligence,* Winter 2020
Invited Speaker | Colorado NCWIT Aspirations Ceremony, Spring 2019

Service

Training Pillar Lead | Goldman Sachs New Analyst Intern Committee***,*** *2016-2017*

I coordinated group that designed and ran classes for new analysts. I personally designed, ran and evaluated Big Data, Public Speaking and Java.