

Xiaoyi Tian

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SKILLS

User-Centered Research: Contextual inquiry, interview, survey, storyboard, usability testing, persona, qualitative coding, dialogue act tagging, ethnography, case study

Statistical Analysis: R, SPSS, JMP, Stata

Programming Languages and Frameworks: Python, HTML, CSS, Bootstrap, Javascript, Java, C, VB, SQL, MATLAB, Blazor, React, Blockly

EDUCATION

Ph.D. in Human-Centered Computing 2020 - present
University of Florida Gainesville, FL

M.S. in Information Science 2018 - 2020
University of Pittsburgh Pittsburgh, PA

B.Mgmt. in Management Science 2014 - 2018
Anhui University Hefei, China

EXPERIENCE

Graduate Research Assistant | Advisor: Kristy Boyer 08/2020 - present
LearnDialogue Lab, University of Florida Gainesville, FL

- Designed and developed a conversational AI development environment: *AMBY*, that augments Dialogflow with rich visual features, AI conceptual scaffolding and dual input modalities (text and speech) for middle school students
- Modeled linguistic alignment and its relationship with satisfaction outcome in dialogues of middle school students collaborative programming
- Examined affective states and problem-solving behaviors in an adaptive block-based programming environment for novice learners

Research Intern | Supervisors: Michael Madaio and Amy Ogan 10/2019 - 07/2020
Human-Computer Interaction Institute, Carnegie Mellon University Pittsburgh, PA

- Automated data collection for a child literacy system used by 500+ participants in Côte d'Ivoire over 8 months
- Visualized user phonological awareness curriculum progression of 8 units and 1,000+ weekly logs of learning actions

Research Assistant | Supervisor: Erin Walker 04/2019 - 05/2020
Facet Lab, University of Pittsburgh Pittsburgh, PA

- Conducted qualitative research on multi-sessions rapport management of middle school learners with a social robot
- Utilized Independent Component Analysis (ICA) to model linguistic rapport components extracted from human coding and automated LIWC measurements

PROJECTS

Camp DIALOGS | RA project at UF 08/2021 - Present
Summer camps for middle school students on AI learning and co-creation of spoken conversational apps

- Facilitated three two-week AI summer camps and students' co-creation of conversational apps
- Conducted contextual inquiry and usability studies with 46 middle school students and 11 adults
- Designed, developed and iteratively refined *AMBY*: a development environment for youth to create conversational agents

Prime: Student Modeling in Introductory Programming | RA project at UF 08/2020 - Present
Research on novice programmers' problem-solving behaviors and their code progressions in an adaptive block-based programming environment

- Embedded code snapshots by converting Python code to Abstract Syntax Tree (AST) and to vectors using AST2vec algorithm

- Clustered student progression trajectory based on distances between series of student code embeddings using Dynamic Time Warping (DTW)
- Modeled the correlation between student frustration, problem-solving behaviors and other characteristics using MANCOVA
- Evaluated multi-level hint effectiveness and student coding states using logs of interactions and 295,445 code snapshots from 1000+ students

Linguistic Alignment in Collaborative Learning Dialogues | Course project (lead) at UF 01/2021 - present
Research on the role of linguistic alignment in middle school students collaborative problem solving dialogues

- Parsed the syntactic structure and extracted lexical types for both task-relevant and non-task words
- Calculated linguistic alignment on both syntax level and lexicon level for each dialogue exchange
- Performed Bayesian mixed-effect modeling on linguistic alignment and students' satisfaction toward their partner

AWARDS AND HONORS

Gartner Group Graduate Fellowship , University of Florida	2022
Outstanding Undergraduate Thesis (Top 1% in the Class) , Anhui University	2018
Academic Excellence Scholarship , Anhui University	2015 & 2016 & 2017
"Merit Student" , Anhui University	2015 & 2017

PUBLICATIONS

Journal Articles

- J2 **Let's Talk It Out: A Chatbot for Effective Study Habit Behavioral Change**
Xiaoyi Tian, Zak Risha, Ishrat Ahmed, Arun Balajee Lekshmi Narayanan, Jacob Biehl.
Proceedings of the ACM on Human-Computer Interaction. 5, CSCW1. April. 2021.
- J1 **Online Educational Information Quality Modeling and Perceived Difference Comparison**
Xiaoyi Tian, Jing Li, Qin Yu.
In *Journal of Hefei Normal University*. 2016, 34(5).

Conference Papers

- C6 **AI Made By Youth: A Conversational AI Curriculum for Middle School Summer Camps**
Yukyeong Song, Gloria Katuka, Joanne Barrett, Xiaoyi Tian, Amit Kumar, Tom McKlin, Mehmet Celepkolu, Maya Israel and Kristy Elizabeth Boyer
The Thirteenth Symposium on Educational Advances in Artificial Intelligence (EAAI). To appear.
- C5 **A Summer Camp Experience to Engage Middle School Learners in AI through Conversational App Development**
Gloria Ashiya Katuka, Yvonika Auguste, Yukyeong Song, Xiaoyi Tian, Amit Kumar, Mehmet Celepkolu, Kristy Elizabeth Boyer, Joanne Barrett, Maya Israel, Tom McKlin.
Proceedings of the 54th ACM Technical Symposium on Computer Science Education (SIGCSE). To appear.
- C4 **Applying Cognitive Load Theory to Examine STEM Undergraduate Students' Experiences in An Adaptive Learning Environment: A Mixed-Methods Study**
Dolly Bounajim, Arif Rachmatullah, Madeline Hinckle, Bradford Mott, James Lester, Andy Smith, Andrew Emerson, Fahmid Morshed Fahid, Xiaoyi Tian, Joseph B Wiggins, Kristy Elizabeth Boyer, Eric Wiebe.
Proceedings of the Human Factors and Ergonomics Society Annual Meeting. October. 2021.
- C3 **Modeling Frustration Trajectories and Problem-Solving Behaviors in Adaptive Learning Environments for Introductory Computer Science**
Xiaoyi Tian, Joseph B. Wiggins, Fahmid Morshed Fahid, Andrew Emerson, Dolly Bounajim, Andy Smith, Kristy Elizabeth Boyer, Eric Wiebe, Bradford Mott, James Lester.
Proceedings of International Conference on Artificial Intelligence in Education (AIED). July. 2021.
- C2 **Progression Trajectory-Based Student Modeling for Novice Block-Based Programming**
Fahmid Morshed Fahid, Xiaoyi Tian, Andrew Emerson, Joseph B. Wiggins, Dolly Bounajim, Andy Smith, Eric Wiebe, Bradford Mott, Kristy Elizabeth Boyer, James Lester.
Proceedings of the 29th ACM Conference on User Modeling, Adaptation and Personalization (UMAP). July. 2021.
- C1 **Understanding Rapport over Multiple Sessions with a Social, Teachable Robot**
Xiaoyi Tian, Nichola Lubold, Leah Friedman, Erin Walker.
Proceedings of International Conference on Artificial Intelligence in Education (AIED). July. 2020.

Workshop Papers and Posters

W2 Early Design of a Conversational AI Development Platform for Middle Schoolers

Amit Kumar, **Xiaoyi Tian**, Mehmet Celepkolu, Maya Israel, Kristy Elizabeth Boyer.

Poster in 2022 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC). September. 2022.

W1 Dominance as an Indicator of Rapport and Learning in Human-Agent Communication

Amanda Buddemeyer, **Xiaoyi Tian**, Erin Walker.

Student Research Workshop in Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL). July. 2020.

ACADEMIC AND COMMUNITY SERVICES

Microsoft TEALS volunteer, teacher for high school computer science (CS1, Python)

08/2022 - present

Reviewer of International Conference on Educational Data Mining (EDM) 2022

Reviewer of ACM Conference on Computer-Supported Cooperative Work (CSCW) 2020

INVITED TALKS AND SEMINARS

Guest speaker of AI workshop for Florida middle school teachers, University of Florida

07/2022

Camp DIALOGS: Teaching Conversational AI in Middle School Summer Camps

Guest speaker of undergraduate HCI course, University of Florida

03/2021

Let's talk it out: A chatbot for effective study behavioral change

Last update: 11/20/2022