

# XIAOYI TIAN

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## EDUCATION

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**University of Florida** 2020 - 2024(*expected*)  
Ph.D. in Human-Centered Computing

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

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

## EXPERIENCE

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**Graduate Research Assistant**, LearnDialogue Lab, University of Florida 08/2020 - *present*  
Advisor: Kristy Elizabeth Boyer  
Subject: Student modeling and affective computing (e.g., frustration) in computer science education

**Research Intern**, Human-Computer Interaction Institute, Carnegie Mellon University 10/2019 -  
07/2020  
Supervisors: Michael Madaio, Amy Ogan  
Subject: Mobile literacy technology *Allo Alphabet* in rural Côte d'Ivoire

**Research Assistant**, Facet Lab, University of Pittsburgh 04/2019 - 05/2020  
Supervisor: Erin Walker  
Subject: Rapport and dominance behaviors in human-robot dialogue

## PUBLICATIONS

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**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)*. In press. 2021.

**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)*. In press. 2021.

**Let's Talk It Out: A Chatbot for Effective Study Habit Behavioral Change**  
Xiaoyi Tian, Zak Risha, Ishrat Ahmed, Arun Balajjee Lekshmi Narayanan, Jacob Biehl.  
*Proceedings of the ACM on Human-Computer Interaction*. 5, CSCW1. April. 2021.

**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.

**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.

### **Online Educational Information Quality Modeling and Perceived Difference Comparison**

Xiaoyi Tian, Jing Li, Qin Yu.

In *Journal of Hefei Normal University*. 2016, 34(5).

## **PROJECTS**

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### **Modeling Linguistic Alignment in pair programming dialogues**

*01/2021 - present*

Course project of Computational Linguistics, University of Florida

Pair programming is a popular collaborative modality in computer science education. Despite the benefits of pair programming, it also poses challenges such as imbalanced group contribution, poor group dynamics and communication. Linguistic alignment plays an important role in grounding and coordination, and potentially contribute to task success. In this project we investigated the role of linguistic alignment on both syntax level and lexicon level in pairs of middle school and college students in pair programming tasks.

### **Prime: Student Modeling for Block-Based Programming Environments**

*08/2020 - present*

Collaborative project, University of Florida

Prime is an intelligent tutoring system which engages novice learners in computer science. My work involved web interface design and development, adaptive hint authoring as well as building data-driven student models in order to provide effective and timely problem-solving hints and motivational support.

### **StudyBuddy: a Chatbot for Effective Study Habits**

*09/2019 - 10/2020*

Collaborative project (lead), University of Pittsburgh

This project investigated the feasibility of using chatbots for influencing study behavior of college freshmen majoring in computer science. We designed *StudyBuddy*, a chatbot prototype deployed in Slack, that periodically sends tips, provides assessment of students' study habits via surveys, helps the students break down assignments, and sends reminders. We evaluated our prototype through utility studies with both CS students and faculty and finally concluded with design recommendations.

### **Learning Curve Analysis and Bayesian Modeling on Pre-literacy Skills**

*10/2019 - 07/2020*

Independent research, Carnegie Mellon University

In this project, I analyzed curriculum progression of *Allo Alphabet*, a literacy system deployed in rural Côte d'Ivoire. My work involved modeling students' phonological awareness skills using Bayesian Knowledge Tracing (BKT) and investigating factors that associate with differing the learnabilities of children's pre-literacy skill.

### **Multi-sessions Teachable Robot**

*04/2019 - 04/2020*

Independent research, University of Pittsburgh

Social robots have been shown to be effective educational tools. We reported on a case study in which 7 middle school students teach an intelligent social robot named Emma for five sessions. We modeled learners' rapport-building linguistic strategies to understand the ways middle school students build rapport with the robot over time.

## SKILLS

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### Programming Languages and Frameworks

Python, HTML, CSS, Bootstrap, Javascript, Java, C, VB, SQL, MATLAB, Blockly

### User-centered Research

Interview, survey, usability test, qualitative coding, content analysis

### Data Pipeline and Statistical Analysis

R, SPSS, Stata

## AWARDS AND HONORS

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**Outstanding Undergraduate Thesis (Top 1% in the Class)**, Anhui University *07/2018*

**Academic Excellence Scholarship**, Anhui University *2015 & 2016 & 2017*

**'Merit Student'**, Anhui University *2015 & 2017*

## ACADEMIC SERVICES

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Reviewer of CSCW 2020

*Last update: 04/24/2021*