Max Chen

Known Alias: Jingru Chen Email: mjchen@wpi.edu Website: https://users.wpi.edu/~mjchen

RESEARCH INTERESTS

I am a PhD student in Interactive Media and Game Development at Worcester Polytechnic Institute, where she is a member of Crafting Computational Crafting Lab, Intentional Design Studio, and HCI Lab. My research focuses on computational design, with a particular emphasis on developing novel interfaces for immersive environments such as video games, virtual reality, and augmented reality. Particularly, I am interested in exploring design strategies that leverage biofeedback and neurofeedback to enhance user experiences in video games. As a research assistant at WPI Academic & Research Computing, she develops, implements, and evaluates digital media products that support and promote faculty research, teaching, scholarship, and external partnerships.

EDUCATION

PhD in Interactive Media & Game Development Aug 2022 - Present
Worcester Polytechnic Institute (WPI), Worcester, MA
Advisors: Prof. Gillian Smith and Prof. Erin Solovey

Master of Science in Interactive Media & Game Development Aug 2020 – Dec 2022
Worcester Polytechnic Institute (WPI), Worcester, MA
Advisors: Prof. Gillian Smith and Prof. Erin Solovey

Bachelor of Engineering in Pharmaceutical Engineering Aug 2016 – June 2020
Wuhan University of Technology, Wuhan, China

RELEVANT SKILLS AND COURSEWORK

Programming: C#, Python, MATLAB, Java, HTML/CSS/JavaScript, C++

Software and Tools: Unity3D, Unreal Engine, GitHub, Plastic, Adobe Creative Suite, Qualtrics, Turbo Satori (NIRx)

Courses: Tangible and Embodied Interaction, Brain-Computer Interaction, Design of Interactive Experiences, Multidisciplinary Research Methods in Computational Media, System Dynamics, Learning Sciences

PUBLICATIONS

JOURNAL ARTICLE

- **Max Chen**, Yichen Li, Hilson Shrestha, Noëlle Rakotondravony, Lane Harrison, and Robert E. Dempski, *FlowAR: An effective mixed reality program to introduce continuous flow concepts.* [Manuscript under review]

CONFERENCE FULL PAPERS

- **Max Chen**, Erin Solovey, Gillian Smith. *Impact of BCI-Informed Visual Effect Adaptation in a Walking Simulator*. Proceedings of the 18th International Conference on the Foundations of Digital Games (FDG '23). Lisbon, Portugal, April 2023
- **Max Chen**, and Shamsnaz Virani Bhada. *Converting Natural Language Policy Article into MBSE Model*. INCOSE International Symposium. Vol. 32. 2022.

PRESENTATIONS

- Robert Dempski, Claire Li, **Max Chen**, and Shano Liang. Integrating Biophysics Immersive Learning Tools Across Campus. Building a Network of Biophysics Education, Virtual, June 2022
- Robert Dempski, Andrew Texeira, Claire Li, Shano Liang, and **Max Chen**. Integrating Immersive Learning Tools across Campus and Beyond. Advanced Manufacturing and Processing Conference, Washington DC, June 2022
- **Max Chen**. The Importation of Murder Mystery Games in China – Game Localization and Creativity. Canadian Game Studies Association Annual Conference, June 2022

INVITED TALK

- IEEE VR 2023 Workshop on VR for Exergaming (VR4Exergame)

PROFESSIONAL EXPERIENCE

Research Assistant, WPI Academic & Research Computing, Worcester, MA — Feb 2021 - Present

- Provide AR/VR training & technical expertise to students and faculties.
- Showcase/prototype AR/VR and media technology for various needs
- Write and maintain intuitive and accessible documentation on equipment (HoloLens 2, Quest 2, Matterport)
- Developed internal website for demonstrating VR showcases

Senior Member, WPI Intentional Design Studio, Worcester, MA — Sep 2020 - Present

- Deliver VR/AR apps, from design to maintenance phase, working on teams of 3-6 programmers, designers, and artists.
- Collaborated with research teams and clients from WPI, Delsys Technology, and UMass Lowell, and Doherty Memorial High School

AWARDS & GRANTS

- 2023 Graduate Student Travel Award
- 2023 Foundations of Digital Games Travel Assistance Program (TAP)
- 2023 Supporting WPI Women in STEM Education Research (Award $11,478)
- 2022 Research Assistant
- 2022 Third Place in WPI 14th Annual Sustainability Project Competition (Award $500)
- 2022 Mentor, Women in Research and Mentorship Program (Award $1500)

PROJECTS

BCI-informed Game Visuals (MS Thesis) Oct 2021 - Dec 2022

- Explored the use of brain-computer interface (BCI)-adapted visual effects to support atmosphere in a walking simulator game and investigated its impact on player-reported immersive experience. Developed an open-sourced interface from functional near-infrared spectroscopy (fNIRS) acquisition and processing tool to Unity3D.

Food Chain AR Sep 2022 - Present

- Explored a participatory design framework for creating AR-based learning tool with educators, students and learning scientists.

Flow Chemistry AR Sep 2020 - Present

- Collaborated in a team of 6, developed a HoloLens AR application to teach students how to set up packed bed column for a flow chemistry laboratory session. Assisted in IRB human protocol application, conducted user study with 33 participants, led qualitative and quantitative data analysis.

WheelUp: Co-design a VR Wheelchair Simulator Sep 2022 - Present

- Collaborated in a team of 5, developed a VR wheelchair simulator to train users in driving electric wheelchair using various input mechanics (joystick, EMG, EEG)

WPI IMGD Annual Escape Room Nov 2021 - Jan 2022

- Led puzzle design and iteration as lead designer, built puzzle prototypes using Arduino, arcade buttons, and rapid prototyping techniques.

VOLUNTEER/SERVICES

- Graduate Student Representative for IMGD Program Committee (2023)
- Graduate Student Union Member (2022)
- Workshop Mentor at Latino Education Institute, Worcester State University (November 2022)

TEACHING/MENTORING EXPERIENCE

Undergraduate Major Qualifying Project

- Amanda Jones, Megan Letendre, Elise Nerden. “Sewn into Memory: Reliving Feelings through an AR Quilt” (2023)

Women’s Research and Mentorship Program

- Rachel Foye, Ava Stockton, and Dinah Agyemang. “Food Chain AR: Co-design an Augmented Reality Book with Educators and Students” (2022)

Guest Lectures

- WPI IMGD 3100: Novel Interfaces for Interactive Environment, “Brain-computer Interfaces and Games” (2023)
- Massachusetts College of Art and Design Artward Bound Program, “Implementing Augmented Reality to Emphasize the Impact of Climate Change” (2022)