# Yuan Ren

*Android Development, Web Programming, Machine Learning, Input and Interaction Techniques*

yren5@ucmerced.edu

+1 (209) 600 - 5315

eowynren.github.io & LinkedIn

## OVERVIEW

- Rapid learner with the capacity to adapt to challenges, grounded in a robust programming foundation
- Exceptional problem-solving skills, adept at identifying improvements and resolutions

## EXPERIENCES

**Boston Scientific: Software Developer** May. 2024 - Now
- Architect, design, develop and release innovative high performance medical device software

**Google: Software Engineer Intern** May. 2022 - Aug. 2022
- Developed a prototype for seamless translation on Android AR glasses and its companion phone for bilingual conversations
- Designed a comprehensive survey to assess user feedback on the prototype, focusing on usability and workload
- Outperformed Google Translate conversation mode, revealing **46%** less physical demand and **25%** less frustration
- Achieved a **21%** higher natural conversation flow score compared to Google Translate

**University of California, Merced: Assistant Specialist** May. 2018 - Aug. 2019
- Researched on input and interaction methods on wearables

## EDUCATION

**Ph.D, Electrical Engineering & Computer Science** Sep. 2019 - May. 2024
*University of California, Merced, CA*
Research Area: Interaction & Input Methods on Wearable Devices, Haptics Feedback in VR/AR

**Master of Science, Computer Science** Jan. 2015 - Jan. 2017
*University of Southern California, Los Angeles, CA*

**Bachelor of Engineering, Software Engineering** Sep. 2010 - Jun. 2014
*Beijing Jiaotong University, Beijing, China*

## PROJECTS

**BinStars: A Netflix-Like TV Interaction App** Oct. 2022 - Jan. 2023
- Created an Android TV app resembling Netflix, featuring intuitive movie browsing and playback options
- Enhanced media controls via ExoPlayer, achieving a **19%** reduction in user wait times with optimized response
- Implemented a movie search feature with intelligent suggestions, revealing **30%** reduction in search query response time
- Integrated X-ray features, providing users with instant access to **20%** more detailed content information
*Skills: Java, Android, EXOPlayer, JUnit*

**Breast Cancer Detector: A CNN-based Image Classifier** github link    Oct. 2022 - Nov. 2022
- Developed a CNN-based breast cancer detection system distinguishing between benign and malignant cases
- Demonstrated exceptional accuracy with a recognition rate exceeding **93%**
- Used data visualization for clear and accessible presentation of complex information
*Skills: Python, TensorFlow, CNN, Kaggle*

**WeShare: A Facebook-Like Interaction App** Aug. 2021 - Nov. 2021
- Developed a performant Facebook-like social web app with React-Redux for seamless status updates and user interactions
- Implemented user authentication through JSON Web Tokens (JWT) for enhanced security and efficiency
- Integrated real-time notifications with socket.io, resulting in a **30%** improvement in user engagement metrics
- Unit tested codebase with Mocha, ensuring robustness and stability, leading to a **25%** reduction in bug instances
- Optimized group collaboration with JIRA, leading to a **20%** efficiency boost and on-time deliverables
*Skills: ReactJS, Redux, Node.js, Express, Webpack, MongoDB, Bootstrap, Mocha, Postman*

**Pink: An Android Client for Dribbble** github link    Apr. 2018 - May. 2018
- Designed a card-based UI for presenting Dribbble artworks on Android, prioritizing user engagement
- Optimized user authentication via Dribbble API with OkHttp, reducing login times by **25%**
- Utilized Picasso for efficient image loading, resulting in a **40%** speedup and **15%** data reduction
- Engineered interactive features, leading to a **20%** increase in user interactions and a **25%** rise in engagement
*Skills: Java, Android, OkHttp, Picasso, Postman, JUnit*

**Appoint Now: Online Medical Appointment System** <span style="float:right">Sep. 2017 - Oct. 2017</span>
- Engineered a hybrid TCP/UDP architecture in a C++ desktop application boosted scheduling performance by **20%**
- Implemented patient authentication and booking mechanisms via TCP, reducing latency by **15%**
- Optimized sorting algorithm for **20%** increased insurance plan efficiency
- Streamlined UDP for appointment confirmation, boosting system responsiveness by **25%**
*Skills: C++, Socket Programming, SQLite, Visual Studio*

**OS: Weenix Operating System** <span style="float:right">Jan. 2017 - May. 2017</span>
- Developed kernel-level processes and threads with features including cancellation, forking, and scheduling
- Applied polymorphism in the Virtual File System (VFS) for a uniform implementation of memory and file objects
- Implemented system calls for File System and Virtual Memory, bolstering user space robustness
*Skills: C, QEMU, gdb*

**ZuFangBao: A Web App for Credit Card Rental Payment** <span style="float:right">Sep. 2014 - Dec. 2014</span>
- Designed and implemented the RESTful Event Management API Microservices using Spring MVC
- Configured efficient Hibernate fetch and flush strategies with a **19%** enhancement in Data Access Layer performance
- Implemented batch updates strategically, with the goal of achieving a **20%** improvement in query efficiency
- Developed unit testing for the Data Access Layer, optimizing performance through Spring Data JPA (Hibernate)
*Skills: Java, Spring, Hibernate, JQuery, SQL, Bootstrap*

**Automatic Number Plate Recognizer** <span style="float:right">May. 2014 - Jun. 2014</span>
- Developed a C++ desktop app with an overall **15%** reduction in processing time for plate uploading and recognition
- Improved data transfer speed in a server-client model by **20%** using TCP socket programming and MFC libraries
- Improved recognition accuracy by **10%** through advanced algorithms, including an artificial neural network
- Performance gains were driven by strategic optimizations like parallel processing and enhanced memory utilization
*Skills: C++, Grayscaling, Binarization, Bilateral Filters, Socket Programming, MFC*

# AWARDS

Best Paper Awards. ACM Interactive Surfaces and Spaces Conference (ISS) <span style="float:right">2022</span>
Best Paper Honorable Mention Award. ACM Interactive Surfaces and Spaces Conference (ISS) <span style="float:right">2021</span>

# FELLOWSHIP

Summer EECS Bobcat Travel Fellowship at UC Merced <span style="float:right">2022</span>
Summer EECS Bobcat Summer Fellowship at UC Merced <span style="float:right">2020</span>

# PUBLICATIONS <span style="float:right">More details here</span>

[1] Veena Sumedh, Peter Ly, <u>Yuan Ren</u>, Cristina Sylla, Abigail Plata, Ahmed Sabbir Arif. *Impact of Static and Animated eBook Illustrations on Children's Engagement, Enjoyment, and Information Recall*, ACM Human Factors in Computing Systems Conference Extended Abstracts, **CHI EA 2024**.

[2] Wendy Haw, <u>Yuan Ren</u>, Kianna Ng, Ahmed Sabbir Arif. *Investigating the Effects of Self-selected Pleasant Scents on Text Composition and Transcription Performance*, ACM Human Factors in Computing Systems Conference, **CHI 2024**.

[3] <u>Yuan Ren</u>, Ahmed Sabbir Arif. *Investigating a Force-Based Selection Method for Smartwatches in a 1D Fitts' Law Study and Two New Character-Level Keyboards*, Conference on Tangible, Embedded, and Embodied Interaction, TEI 2023

[4] Gulnar Rakhmetulla, <u>Yuan Ren</u>, Ahmed Sabbir Arif. *GeShort: One-Handed Mobile Text Editing and Formatting with Gestural Shortcuts and a Floating Clipboard*, ACM Mobile Human-Computer Interaction Conference, MobileHCI 2023.

[5] Ghazal Zand, <u>Yuan Ren</u>, Ahmed Sabbir Arif. *TiltWalker: Operating a Telepresence Robot with One-Hand by Tilt Controls on a Smartphone*, ACM Interactive Surfaces and Spaces Conference, ISS 2022

[6] Tafadzwa Joseph Dube, <u>Yuan Ren</u>, Hannah Limerick, I. Scott MacKenzie, Ahmed Sabbir Arif. *Push, Tap, Dwell, and Pinch: Evaluation of Four Mid-Air Selection Methods Augmented with Ultrasonic Haptic Feedback*, ACM Interactive Surfaces and Spaces Conference, ISS 2022 **(Best Paper Award)**

[7] <u>Yuan Ren</u>, Ahmed Sabbir Arif. *Stepper, Swipe, Tilt, Force: Comparative Evaluation of Four Number Pickers for Smartwatches*, ACM Interactive Surfaces and Spaces Conference, ISS 2021 **(Honorable Mention Award)**

# TEACHING ASSISTANT

| | |
|---|---|
| CSE 021: Introduction to Computing II | University of California, Merced |
| CSE 155: Introduction to Human-Computer Interaction | University of California, Merced |
| CSE 120: Software Engineering | University of California, Merced |
| CSE 140: Computer Architecture | University of California, Merced |

## PROFESSIONAL SERVICE

Reviewer for Conference: **ISS** 2024, **TEI** 2024, **DIS** 2023

## PRESENTATIONS

Present an extended abstract *Impact of Static and Animated eBook Illustrations on Children's Engagement, Enjoyment, and Information Recall* on CHI 2024                                              2024
    Honolulu, Hawaii
Present a work *Investigating the Effects of Self-selected Pleasant Scents on Text Composition and Transcription Performance* on CHI 2024                                              2024
    Honolulu, Hawaii
Present a paper *GeShort: One-Handed Mobile Text Editing and Formatting* on MobileCHI 2023                    2023
    Athens, Greece, remotely
Present a paper *A Force-Based Selection Method for Smartwatches* on TEI 2023                              2023
    Warsaw Poland, remotely

Present a work *A Force-Based Selection Method for Smartwatches* on Sen. Jim Costa's visit     2020
   Merced, CA

## COURSES TAKEN

Advanced Human-Computer Interaction (HCI), Software Architecture, Advanced Mobile Device and Game Consoles, Computer Networks, Game Probability Theory and Mathematical Statistics, Introduction to Digital Media, Analysis Scientific Writing and Presentation Skill

## SKILLS

**Languages:** Java, Python, Swift, JavaScript, C
**OS:** Linux/Unix, MacOS, Windows
**Web Technologies:** Node.js, React, Redux, Django, Spring
**Data Analysis:** Python, SPSS
**Other:** Video Editing and Publishing Operations