Yongbo Chen

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EDUCATION

University of California, Irvine (UCI) **Irvine, CA**
M.S. in Software Engineering GPA:3.94/4.00 Sep. 2022-Jane. 2024
The Ohio State University (OSU) **Columbus, OH**
B.S. in Computer Science and Engineering GPA: 3.67/4.00 Aug. 2018-May 2022
Programming Skills: Java (7yrs), SQL (4yrs), HTML (2yrs), MATLAB (2yrs), C/C# (2yrs), Python (2yrs)

RESEARCH EXPERIENCE

Breaking Strong Encapsulation (BSE): A Comprehensive Study of Java Module Abuse
Team Member, supervised by Dr. Joshua Garcia in the Informatics Department at UCI Dec. 2023-Mar. 2024

- Firstly conducted a systematic study on the BSE problem in JPMS for improving software security
- Designed GitHub Issues to crawl 4076 problems from GitHub and consolidate datasets, analyzed BSE problems' types, features, commonly accessed modules, etc., and explored solutions

Empirical Study of Software Architectural Modularization in Java Systems Apr. 2023-Dec. 2023
Team member, supervised by Dr. Joshua Garcia in the Informatics Department at UCI

- Researched problems of the architectural module of the Java Platform Module System(JMPS) introduced in Java 9 through software architecture analysis
- Crawled experimental client subjects, implemented ecosystem-aware detection of decay in modules to study the evolving modular Java frameworks and abuse of JDK documentation based on the hybrid analysis of empowered detection of module decay on JAVA frameworks
- Analyzed the architecture of JAVA frameworks and how software called their modules to evaluate the appropriateness of the existing exposure and find potential over-exposure effects through static analysis
- Rejuvenated module decay using DARCY, the developed approach in this research project, estimated the provided schemas' feasibility, and performed a comparative study on over-exposure problems of JAVA frameworks

Impacts of Dark Patterns on Blind Users Jan. 2023-Mar. 2023
Team member, supervised by Prof. Sam Malek in the Informatics Department at UCI

- Collected 135 popular Android apps, used the latest version of Android Studio with Pixel 4 API 33 as the emulator, and recorded 459 dark patterns
- Categorized detected dark patterns into 5 types: nagging, obstruction, sneaking, interface interferences, and forced action
- Analyzed the mechanics of Google TalkBack's operation, discussed its detection issues facing dark patterns from the code level, and classified dark patterns into three levels based on their impacts on blind users

Literature Survey on Strategies of Microservice Architecture (MSA) Recovery Oct. 2022-Dec. 2022
Independent project, supervised by Prof. David Redmiles in the Informatics Department at UCI

- Studied concepts of MSA and the quality metrics, coupling, cohesion, and complexity, of microservice system
- Analyzed the Pattern-Based Strategy and Model-Based Strategy and their implementation

Dissecting Game Engine: Case analysis of Unity 3D Oct. 2022-Nov. 2022
Team member, supervised by Prof. Sam Malek, Software Engineering and Analysis Lab

- Categorized the architecture framework of Unity 3D and explored the implementation of the physics and AI engines based on literature review, code analysis, etc.; classified connectors within Unity 3D in view of data transformation

A New Vehicle Distance Measure Method Based on the License Plate with Image Edge Detection and Color Recognition in the Complex Environment May 2021-Jul. 2021

Digital Image Processing and Segmentation Online Research Seminar Program, supervised by Dr. Munib Wober at Harvard University

- Developed an innovative method that combined edge detection and color detection with MATLAB for license plate detection and vehicle distance measurement
- Used edge detection to remove some smooth background and applied color detection to eliminate other useless edges; constructed a blue color distance matrix to restrain the noise
- Binarized the image and used the minimum bounding box to locate each connection domain
- Employed the least square method error correction to detect the license plate and measure the distance between vehicles, and sampled results randomly to correct errors
- Achieved results with least square algorithm and good accuracy with 0.0428

PUBLICATION

Y. Chen, Z. Lu, H. Wang and H. Zhang, "A New Vehicle Distance Measure Method Based on the License Plate with Image Edge Detection and Color Recognition in the Complex Environment," *2021 International Conference on Electronic Information Engineering and Computer Science (EIECS)*, 2021, pp. 225-231, doi: 10.1109/EIECS53707.2021.9587943.

ACADEMIC PROJECTS

Project Lily-New Architecture and Technology Stack for Every Voice Engaged Company Jan. 2022-May 2022

- Aimed to improve moderators' experience for an online deliberation platform regarding managing the forum and participants with Project Lily
- Developed back-end APIs, allowing moderators to send invitation emails, registration links and reminders and implemented using the Spring Boot framework; handled messages with Twilio and used AWS for service hosting and email communication
- Leveraged PostgreSQL database and pgAdmin to store and manage registration and participant information

Campus Listing Platform Jan. 2022-May 2022

- Designed an Android application for OSU faculties and students to trade items
- Built the architecture and implemented functions with Java, and leveraged Firebase to store items' information with sellers' GPS coordinates

Peer Evaluation Tool Nov. 2020-Dec. 2020

- Designed a web application that allows students to provide peer evaluations to their teammates and enables instructors/graders to manage the students' information and assign grades
- Implemented the web application in Ruby On Rails and JavaScript with the traditional MVC architecture, and stored user's information, role, and peer reviews in SQL databases

ADDITIONAL INFORMATION

Polyhedral Thinker Reading Club, OSU Mar. 2020-Jul. 2021

Minister of Multimedia Publicity Department

- Offered tech support for multiple media platforms; handled publicity affairs, including poster design, video clip, and tweeting on the WeChat account
- Organized the major student events and coordinated CSSS to implement activities