Xiang Liao

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Education

Huazhong University of Science and Technology(HUST)   2019/09 – 2023/06
B. Eng in Computer Science and Technology   Wuhan, China
- GPA 3.69/4.0, Outstanding Graduate (top 3%)
- Courses: Software Engineering, Operating System, Compiler Principles, Computer Telecommunication & Network, Computer Organization, Database System, Computer Architecture

University of Melbourne   2020/01 – 2020/01
Artificial Intelligence Winter Seminar, Certificate   Melbourne, Australia
Mentored by: **Prof. Rui Zhang**

Research Experience

Software Aurora Lab at University of California ,Irvine   2022/05 – 2023/06
Undergraduate Research Assistant   Irvine, USA
Advisor: **Prof. Joshua Garcia**
- Developed a test generation approach called **DoppleTest** aimed at identifying bug-revealing violations in Autonomous Driving Systems.
- **Extracted pivotal information**, including junctions and traffic signals from serialized protobuf files associated with the HD Map module in Baidu Apollo.
- Wrote Python scripts for **analyzing test reports** to provide detailed testing information and implemented a function to calculate pedestrians' positions in real time.
- Categorized collision types and identified **123** bug-revealing violations into **8** distinct bug categories for Baidu Apollo.

DP Innovation Works at HUST   2020/12 – 2023/05
Undergraduate Research Assistant   Wuhan, China
Advisor: **Prof. Ran Wang**
- Developed a lip-reading recognition algorithm utilizing the **3DDFA-V2** technology to extract 3D facial landmarks and perform facial alignment for accurate lip region detection.
- Implemented a feature extraction method combining 3D CNN and ResNet to capture both motion and appearance features, improving the performance of the neural network.
- Achieved a Word Error Rate (WER) of **35.7%** on the LRS2-BBC dataset, surpassing the state of the art DAVSR-TMS2S method by **14.1%**.
- Reduced the processing time to a remarkable **4.6 milliseconds** for recognizing text from 100 video frame samples while remaining efficient.

Publications

- Huai, Yuqi, Yuntianyi Chen, Sumaya Almanee, Tuan Ngo, **Xiang Liao**, Ziwen Wan, Qi Alfred Chen, and Joshua Garcia. "Doppelgänger Test Generation for Revealing Bugs in Autonomous Driving Software." In 2023 *IEEE/ACM 45th International Conference on Software Engineering (ICSE)*, pp. 2591-2603. IEEE, 2023. [**Paper**][**Code**]

Professional Experience

TP-LINK   2023/07 – Present
Quality Assurance Engineer   Shenzhen, China
- Developed comprehensive test cases based on product specifications, design, functionality, and performance requirements.
- Executed test cases, recorded and analyzed test results, and reported defects using a **structured defect tracking system**, ensuring clear documentation and **effective communication** of issues with the development team.

ByteDance   2022/02 – 2022/05
Quality Assurance Engineer Intern   Shanghai, China

- Developed and refined **cross-platform testing tools** for Mac and Windows systems, enabling comprehensive evaluation of Feishu's (ByteDance's communication and collaboration platform) functionalities such as file downloads and meeting management.
- Designed and implemented an internal web-based platform that facilitates **seamless collaboration** among team members, allowing them to upload and analyze test reports. The platform **automatically generated comprehensive test documentation** based on the results, fostering efficient communication and knowledge sharing.

Projects

wdapy [Code]   2021/07 – 2021/11

A Python library that extends the capabilities of the popular facebook-wda library for iOS automation testing.
- Implemented new features such as multi-version **WebDriverAgent** support, allowing compatibility with various iOS platforms.
- Integrated autocomplete functionality into every function in wdapy, allowing users to easily access the documentation and parameters of each function.
- Utilized enumerations for better handling of function inputs, resulting in clearer code and reduced errors.

HustHole [Website]   2021/05 – 2021/10

An iOS app that provides an anonymous community for students in HUST; downloadable in the App Store.
- Implemented markdown support within the app to improve user experience, allowing users to format their posts and comments effectively.
- Updated the app's logic to enable users to reset their forgotten passwords securely and efficiently, ensuring a seamless login experience.
- Actively maintained the app, addressing bugs and issues reported.

Contributions and Services

HUST Computer Association   2021/03 – 2022/10

President   Wuhan, China
- Dedicated to promoting the development of computer science and technology through various activities and projects.
- Took charge of the organization and ensured its seamless operations; Coordinated the planning and organization of events.

Awards

- 2020 Scholarship for Scientific and Technological Innovation **(Top 3%)**, 800 CNY, HUST
- 2020, 2022 Outstanding Student Cadres **(Top 3%)**, 800 CNY, HUST
- 2022 Mathematical Contest in Modeling, **Finalist (Top 1%)**, Certificate, The Consortium for Mathematics and its Applications
- 2022 Communication Data Mining Competition, **Rank 3 (3/100)**, 3,000 CNY, Computational Communication Professional Association

Skills and Languages

Programming Skills: Python, JavaScript, Java, Rust, Go
Technical Skills: Software Testing, Automated Testing, Web Development, Linux, Computer Vision
Language: English (Fluent), Chinese (Native)