Hua MENG

PhD Student in The Hong Kong University of Science and Technology email:hmengab@connect.ust.hk

EDUCATION

- **The HONG KONG University of Science and Technology** **2024.9 – present**
  PhD Student in Department of Electronic & Computer Engineering

- **The HONG KONG University of Science and Technology** **2020.9 – 2021.11**
  MSc. in Big Data Technology | GPA: 3.52/4.0

- **Nanjing University** **2016.9 – 2020.6**
  B. Eng. in Computer Science | GPA: 4.41/5.0
  ***Thesis**: Design and Implementation of Loop Invariant Generation Tools by Machine Learning and Selective Sampling* *Advisor: Lei Bu*

RESEARCH INTERESTS

- Real-time communication, network tail latency optimization, AI for network

RESEARCH EXPERIENCES

- **Socket Codec | Spark group in HKUST | Advisor: MENG Zili** **2024.9 – present**
  Working on design and implement a socket codec, to provide a better cooperation between network and codec. Though this, codecs can quickly respond to the fluctuation of the network, reduce the video lag and provide better experience in real-time communication.
- **Crowdsourcing Strategy | LAMDA group, Nanjing University | Advisor: Wei Wang** **2017.9 – 2018.9**
  Worked with Prof. Wei Wang in LAMDA group on validating and improving crowdsourcing dataset quality. Proposed a hierarchical crowdsourcing algorithm, dividing data into high- and low-accuracy sets, and repeatedly enforcing voting mechanisms to improve the low-accuracy data while controlling the cost of data collection. Implemented the project back-end and the algorithms.
- **GUI-based Obfuscation on Android App | Nanjing University | Advisor: Jun Ma** **2017.8 – 2019.3**
  Worked on a project on attacking and defending GUI-based obfuscation. We proposed a series of approaches and datasets to obfuscate the GUI of Android apps by obfuscating of the GUI appearances (e.g., colors, component orders, transparent components). In charge of the attack team and wrote the final report.

WORK EXPERIENCES

- **SWE, KuaiShou Editor SDK group | Kuai-Star (Special recruitment)** **2021.9 – 2024.5**
  *Implementation and optimization of video and image editor functionalities, including cropping, editing, filters, special effects, and animations. Familiar with software and platform **codec**, including ffmpeg, mediacodec, videotoolbox. Familiar with different **GPU renderer** back-ends, e.g., OpenGL and Metal. The detailed works:*
  - *Decoder Modification: optimizing video playback fluency in different play speed settings; improving user experiences during video seeking; reusing decoders under suitable situation, including consistent video segments, and multi-track same videos.*
  - *Render Back-end Implementation: based on kgfx (Kuaishou's proprietary render engine), replaced the legacy rendering pipeline of Editor SDK for compatibility with render back-ends, e.g., Opengl, Metal and Vulkan.*

- **SWE intern, Google Nest** **2019.7 – 2019.9**
  *Introduced **OpenThread**, an energy-efficient and low-latency wireless mesh networking protocol, into OpenWRT embedded system, to extend the application of OpenThread. This work involves web development and multi-thread programming. OpenThread solves the complexities of the IoT devices, addressing challenges such as interoperability, range, security, energy, and reliability. OpenThread networks have no single point of failure and enables self-healing of network communication.*

- **SWE intern, Microsoft Office 365 Team** **2019.1 – 2019.3**
  Worked in Datacop group in Office 365 as an intern. Implemented a logger and monitor for Office 365 group to improve data processing efficiency.

- **Google Summer of Code 2018** **2018.4 – 2018.8**
  Worked in Wine Project under the Google Summer of Code 2018 program. Implemented a subset of Concurrency namespace, the concurrent vector class of Wine, in three months.

HONORS AND AWARDS

- **Asian Future Leaders Scholarship Program (1 of 10 awardees per year)** 2021
- **Provincial-level Merit Student** 2019
- **Tung OOCL Scholarship** 2018
- **Outstanding Student of Nanjing University** 2018
- **Renmin Scholarship (People's Scholarship)** 2017