Chenhao WU (Vito)

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Education

The Chinese University of Hong Kong, Shenzhen Guangdong, China
Bachelor of Engineering, Major in Computer Science and Engineering, Minor in Philosophy *Expected May 2021*

Relevant Coursework: Information Theory, Coding Theory, Data Compression, Fundamentals of Communication, Software Development, Computer Networking, Computer Architecture, Applications on IoT

Skills

- **Programming Languages**: C/C++, LLVM, Assembly, Python, Swift, Julia, LaTeX, HTML, CSS, JavaScript
- **Computer Related**: Raspberry PI, Arduino, Zigbee, Linux(kernel level), iOS Software, WeChat Mini-program, Compiler Design, Valgrind, Qt/GTK-based GUI Application, Git
- **Interpersonal Skills**: Public Speaking, Teamwork

Experience

Shenzhen Key Laboratory of IoT Intelligent System and Wireless Network Technology Guangdong, China
Undergraduate Research Assistant *Sep 2018 - Present*

- **Smart Lamp-post**: Designed and assembled a set of IoT devices which can be installed and embedded in the street-side lampposts. The devices can form a network by using both wireless and wired connections, with capability to transmit data from node to node, such as streaming video frame captured from cameras.
- **BATS Protocol**: A multi-hop wireless network protocol to achieve low latency and less packet-loss during transmission
  - Implemented the routing scheme and the routing table of BATS protocol.
  - Designed and implemented the dynamic address assignment algorithms of BATS protocol.
  - Designed and implemented the *Network Controller* module of BATS protocol, which handles the network level BATS protocol information like the network addresses and the routes.
- **Multi-hop Video Streaming**: An application that can play video streaming from cameras installed in remote devices by using a multi-hop wireless network
  - The application supports BATS protocol and can utilize the best performance of this protocol. The latency of a 5-hop network is less than 1 second.
  - The application has been approved and applied by the HK Smart-Lamppost Program.

CUHK(SZ) Network Coding Lab Guangdong, China
Undergraduate Research Intern *May 2018 - Aug 2018*

- **Access Point in Multi-hop Networks**: Implemented an application which can enable Wi-Fi sharing point on devices in a multi-hop network.

Projects

- **Tina**: A facial-recognition based smart lock system with an audio assistant
  - Implemented the facial recognition module of the smart lock using eigen-face algorithms.
  - Implemented the audio module to recognize speech and response audibly, which allows users to communicate and interact with the smart lock system.
  - Designed the control circuit of the electronic lock and installed in the laboratory
- **Profiled-Guided Source Coding on Compiler Optimization**: A C/C++ compiler which will perform an adaptive compiler-guided data compression on memory space during run-time according to different applications and different run-time environments.
- **Data Compression based on Lexical Analysis**: Implemented a compression tool based on lexical analysis which achieves a compression rate around 19% in average.
- **Drones Routing**: A tool that can control remote drones using multi-hop network
  - Allow drones connecting to a multi-hop network.
  - Load video streaming from cameras on the remote drones, and play the video on an arbitrary node in the network.
  - Control remote drones from an arbitrary node in the network .

Additional Experience & Achievements

- Presented a multi-hop video streaming demo on *Practical Inner Codes for BATS Codes in Multi-hop Wireless Networks* at **ACM WUWNet 2018**
- Won the **Undergraduate Research Award** in the Chinese University of Hong Kong, Shenzhen
- Worked as technique manager in CUHK(SZ) Sudoku Club