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

Languages

- **Mandarin**: native speaker
- **English**: professional and academical communications

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 trained a shallow CNN to classify rotated images. Achieved F1-score of 0.99 on test set of 1M+ images
- **BATS Protocol**: A computer vision model to classify views of automobile images
  - Implement the routing table of BATS protocol
  - Design and implement the dynamic address assignment algorithms of BATS protocol
  - Reduced model complexity and size by 40% by freezing model and performing post-training quantization
- **Multi-hop Video Streaming**: A computer vision model to determine if image is total loss or repairable
  - Trained ensemble of CNN architectures on 1M+ automobile images to classify vehicles as total loss or repairable resulting in 25% higher weighted F1-score and 60% decrease in model size compared to older iteration
  - Incorporated first notice of loss information using NLP to increase F1-score by 10%

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

- **Optimal Node Search**: Implemented Dijkstra's algorithm on 10K+ network nodes to find shortest path for signal propagation resulting in 25% reduction in costs

Fujian Daily Group — Fujian, China
Summer Intern — *Jane 2017 - Aug 2017*

- **Squeek Twitter iOS**: Designed and developed Twitter client using Fabric SDK

Projects

- **OCR using Conditional Random Fields**: A probabilistic graphical model for sequential character recognition
  - Implemented a CRF in $O(m|\mathcal{Y}|^2)$ time to achieve a 84% letter-wise accuracy on UPenn OCR dataset
  - Implemented OpenMPI CRF using PETSc and Tao to achieve 77.1% letter-wise accuracy
- **ARYouThereYet**: An augmented reality application developed on ARKit with dynamic AR nodes
- **Aspect-based Sentiment Analysis**: Implemented Deep Memory Networks to achieve 78.66% accuracy, 0.69 F1-score on SemEval 2014 dataset
- **Iris Speech to Code**: A natural speech to code converter for aiding programmers with disabilities
  - Trained an intent classification model in Microsoft Luis to classify 15+ classes or commands
  - Implemented a message passing protocol using RabbitMQ to broker messages between Google API, ElectronJS, and VS Code
- **AI Lifeguard**: Trained a 3D-CNN model on Microsoft Azure for action localization on drowning people in swimming pools. Achieved mean IOU score of 0.45

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 **Undergraduate Research Award** in The Chinese University of Hong Kong, Shenzhen