KUANG-YU LI

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EDUCATION

Universität Stuttgart – Stuttgart, Germany — Oct. 2019 - present
M.S. in Information Technology, German Grading: 1.8 (Gut)

National Chiao Tung University (NCTU) – Hsinchu, Taiwan
M.S. in Electronics Engineering and Electronics, GPA: 4.27/4.3 — Sept. 2013 - Oct. 2015
B.S. in Electrical Engineering and Computer Science, GPA: 3.9/4.3 — Sept. 2009 - Aug. 2013

EXPERIENCE

MediaTek, Inc. – Hsinchu, Taiwan — Dec. 2015 - Aug. 2019
Firmware Engineer

- Developed firmware in Android smartphone for 5G/4G mobile communication digital signal processing
- Wrote 6K code lines, reviewed and maintained 20K code lines in C/C++ on Red Hat Enterprise Linux
- Designed firmware architecture, implemented algorithm, developed and published tests with Python and Perl scripts for performance verification
- Participated in 3 large-scale projects(over 200K code lines and 1000 engineers) and collaborated and communicated with software and hardware teams across 9 countries
- Involved in all stages of SDLC for over 10 MediaTek's smartphone products including world's fastest 5G Helio M70 with download speed 4.7Gbps in 2019
- Supported technical issue with troubleshooting, issue analysis, solution implementation, and patch releasing for global customer including Samsung, LG and Huawei
- Received 7 times MediaTek vAward in recognition of top 10% performance of the month

TECHNICAL STRENGTHS

Programming	Java, Python, C/C++, JSON, HTML/CSS, SQL, Perl, MATLAB, Assembly
Tool	Git, GitHub, Perforce, IntelliJ, PyCharm, Android Studio, VirtualBox, Docker
Platform & Protocol	Google Firebase, JavaServer Pages (JSP), OpenFlow, TCP/IP, HTTP, REST
Language	German (intermediate), English (fluent), Chinese (native)

PROJECTS

Publish-Subscribe Service for Software-Defined Network Java, REST API, HTTP — SDN Lab

- Developed a "Subscriber" Java application which can subscribe energy data via REST API and receive UDP datagram from a publishing service by type and value.
- Developed a publishing service, which can receive subscription via HTTP request (GET, POST, DELETE) and perform content-based routing in a OpenFlow network. The service is a Java module in Floodlight controller. The routing algorithm is based on sorting and merging interval of encoded IP-address to minimize network traffic and reduce application filtering effort.

Dynamic Routing for Software-Defined Network Java, Dijkstra's algorithm — SDN Lab

- Developed a Java module in Floodlight controller, which provides 2 dynamic routing modes in OpenFlow network.
- Reactive mode routes with shortest path. Adaptive mode routes TCP flow with load balancing by querying network traffic statistics dynamically and matching IP addresses and TCP ports. The implementation is based on Dijkstra's algorithm.
- Verified application with Iperf in MiniNet on Linux and achieves 6x bandwidth increase (582kbs vs 3478kbs) in adaptive mode

Java Application for Wireless Ad-hoc Network Java, UDP, Raspberry Pi — Mobile Computing

- Developed 4 Java server and client applications which implement 2 protocols: Flooding and Dynamic Source Routing (DSR). Flooding achieves high robustness with UDP messages broadcast. DSR achieves reduced data transfer overhead with route discovery in control messages. Applications use DatagramSocket classes from java.net package for UDP transmission.
- Verified applications on Raspberry Pi with real mesh 802.11 WiFi network.

Android App for City Temperature with Google Firebase Java, Android — Mobile Computing

- Developed an Android application, which can update, subscribe, and calculate daily average of designated city temperature
- Implemented functions for accessing and querying data in JSON in a shared Realtime NoSQL database with Google Firebase API

ATP Tennis Player Network Analysis Python, Graph, NetworkX — Complex Network System

- Developed Python programs to generate complex network and derive structural insights such as Page Rank, Connectivity, Clustering, etc.
- Implemented algorithms with NetworkX package and built an undirected graph by processing real tennis match statics in csv format.
- Discovered, visualized, rendered and exported network topology with open-source software Gephi

Forest Cover Type Prediction – Python Machine Learning

· Implemented *Decision Tree* and *Support Vector Machine* with *Scikits-Learn* package, evaluated and discussed the performance on forest type classification problem