# Shaoyi Li

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## EDUCATION

**Auburn University**                                                                                  Aug 2017 - Dec 2019
Electrical and Computer Engineering Master                                                       Auburn, AL
- GPA: 3.88/ 4.0
- Github: https://github.com/szl0144
- Thesis: Low Latency Queuing Control in Extendable Mobile Ad-hoc Network Emulator (EMANE)

**Hangzhou Dianzi University**                                                                    Sep 2013 - Jun 2017
Electronic and Information Engineering Bachelor                                              Hangzhou, China

## PROFESSIONAL EXPERIENCE

**Auburn University**                                                                                  Aug 2018 - Present
Research Assistant in Real-Time Networking Lab                                              Pinecrest, FL
- Designs a novel low-latency network scheduling module for various queue disciplines in EMANE using C/C++ under Linux, and tests the algorithm in WLAN under Common Open Research Emulator (CORE)
- Implements and debugs an WiFi batteries lifetime saving scheduling algorithm for IEEE802.3 protocol in Network Simulator 3 (NS-3) using C/C++ under Linux Ubuntu system
- Forecasts COVID-19 cases in Italy with short-term memory (LSTM) and modified SEIR model with estimated model parameters using Python
- Predicts scene depth from self-driving monocular video and studies the Age of Information in inference with DispNetS model using Python

**China Telecom Americas**                                                                        May 2018 - Present
Regional Manager Assistant (Volunteer) in Mobile Service Department                  Pinecrest, FL
- Expands brand among Alabama. Creates highest campus market growth rate record 1576.92% among United States in 2018 summer internship and acquired more than 1000 international students customers.
- Coordinates 118 China orientations of American Universities and 44 Chinese spring festival gala to promote and advertise products as program leader
- Analyses regional marketing data, negotiates 59 annual contracts, established 17 new partners in Midwest USA (18 States) Chinese communities with my supervisor
- Reponsible for running the regional TikTok account including story design, filming and video production

**Huzhou Kefeng Magnetic Industry Co., Ltd**                                              Jun 2015 - Jul 2015
Research Internship                                                                                      Huzhou, China
- Assisted the research program of Mn-Zn ferrite with low power loss and high saturation magnetic flux density
- Investigated and finished a survey of the ferrite marketing, competitors, opportunities and risks in regional area
- Led 2015 and 2016 National Undergraduate entrepreneurship training program basing on the program
- Led and won the first prize in China College Student's Entrepreneurship Competition (Zhejiang Division)

## PROJECT EXPERIENCE

**Low Latency Queuing Control in Extendable Mobile Ad-hoc Network Emulator (EMANE)**     Aug 2018 - Present
Leader Real-Time Networking Lab                                                                Pinecrest, FL
- Designs, implements and debugs a novel low lantency queueing module for real world system in EMANE's MAC layer using C/C++ under Ubuntu 14.04, 16.04, 18.04 on Linux.
- Configures UDP traffic flow at client application layer using Multi-Generator (MGEN) and develops MGEN source code to generate required data using Python.
- Develops UDP/IPv4 protocol in IP header for the queue module identification. (IP layer)
- Configures the WLAN network topology and routers using Optimized Link State Routing (OLSR) protocol and Common Open Research Emulator (CORE) GUI. Creates TDMA schedule xml file for packets Scheduling in WLAN. (Physical layer)
- Troubleshoots the network with Wireshark and system log file. Runs experiments by self-designed Python scripts and bash files. Processes packet data with self-designed crawler Python script. Manage the code using Github.

**COVID-19 Cases Forecast with Machine Learning**                                        Apr 2020 - May 2020
Real-Time Networking Lab                                                                          Auburn, AL
- Trained short-term memory (LSTM) model using CDC cases data and Google trends data, estimate COVID-19 cases with Python.
- Estimated COVID-19 cases, deaths, recovered number using modified SEIR model, optimize the model parameters by annealing algorithm basing on CDC data with Python.

**Lifetime Adjustable Design for WiFi radio via Sleep-Wake Scheduling in Network Simulator 3 (NS-3)**     Nov 2019 - Dec 2019
Leader Real-Time Networking Lab                                                                Auburn, AL
- Developed and debugged a WiFi batteries lifetime saving exponential backoff algorithm for IEEE802.3 protocol on NS-3 using C/C++ under Linux.
- Ran experiments with configured traffic flow and designed a data pre-process Python script for data collection on NS-3.

**Sketch comic images colorization with Conditional GANs (cGANs)**                     Feb 2019 - May 2019
Group Leader                                                                                          Auburn, AL
- Built own training dataset with 13000 cartoon images and their matching sketch images using OpenCV in Python.
- Trained and optimized the Pix2Pix cGANs network.

**Real-time self-balancing and pendulum robots**                                          Feb 2019 - Apr 2019
Program Assistant Real-Time Networking Lab                                                 Auburn, AL
- Maintained LEGO EV3 PID control self-balance robot and pendulum robots, presented the robot demo in Auburn engineering outreach event (E-Day)

## TECHNICAL SKILLS

- C, C++, MATLAB, Python, HTML, CSS, Machine/Deep Learning

## COMMUNITY ENGAGEMENT

- Vice President (Public Relations and Business Development), Chinese Students Organization, Auburn, AL
- President, The 33th Hangzhou Dianzi University Students Union of Electronic Department, Hangzhou, China