Cheng Lyu

(919)-627-3651 | github.com/cl344 | CL344@duke.edu

Education

Duke University, Pratt School of Engineering	Expected Graduation May 2019	**Relevant Courses:** Data Structures, Algorithms, Database Structures, Computer Architecture, Machine Learning, Operating System, Computer Vision, Artificial Intelligence, Digital Systems, Fundamental of Microelectronic Circuits, Regression

- **Major 1:** B.S. in Computer Science
- **Major 2:** B.S. in Statistical Science
- **Major 3:** B.S.E. in Electrical Computer Engineering
- **Minor:** Mathematics

GPA 3.5/4

Technical Skills

Java, Python, C++, Spark, JavaScript, Linux, Android Studio, OpenCV, TensorFlow, HTML, CSS, PHP, SQL, Matlab, Arduino, R, SAS

Research Experiences

Deep Learning on Cancer Diagnosis, Researcher (Shanghai Jiao Tong University)   **Jun2017 - Aug2017**
- Assisted in designing a Deep Learning Network for rectal cancer detection based on Caffe framework.
- Trained the network with 4000 pairs of patients' MRI image and label on the tumor area.
- The network detects rectal tumor and its position with accuracy of 95.22% and speed of 15 pages per second. This deep learning network beats experienced human doctor in the cancer detecting competition on 2017 China Medical Tech&Equipment Seminar.

Drone Autonomous Flight, Researcher (Duke University)   **Aug2017 - Aug2018**
- Designed autonomous flight program in Python for a big drone with diameter of 1 meter. Coded the drone to fly to target positions with GPS. The drone aims to fly above the open sea to drop and pick up a topographic detecter of 1 kilogram.
- Created Vision System with a camera, which let the drone autonomously track an IR light source on the ground and land on it.
- Developed module with Raspberry Pi which sends PWM signal to autonomously fine-tune the done by mimicking RC signal.

User Interphase for CST Output Editing, Researcher (Duke University)   **Sep2016 - Dec2016**
- Wrote algorithms in Matlab and Java to simplify the editing process of CST, a system that tracks epithelial cells movement.
- Designed software program which generates the mathematical model of edge(spline) and automatically fit the edge to the shape of bright pixels representing a curve in an noisy background image with Newton Optimization.
- Created system assisting CST to automatically correct its model for ground truth and thus save huge amount of human labor.

Data+ Research Program, Researcher (Duke University)   **May2016 - Jul2016**
- Designed a GUI for Cell-Sheet-Tracking algorithm which tracks the shape of epithelial cells as they move through space and time in an image sequence.
- The GUI automatically generates ground truth of the input picture and the corresponding B-spline model. It allows users to edit the B-splines by drawing on the edge and endpoints of a spline.

Research Science Institute Summer Program, Researcher (Media Lab, MIT)   **Jun2014 - Aug2014**
- Interned in an Engineering project called "Fitsocket" at Bio-mechatronic Department.
- Built a tilt-angle tracker with Arduino to adjust the position of "Fitsockt" machine.

Technical Projects

Android App Development for Tutor Program   **Jan2017 - May2017**
- Designed an Android APP called *TutorMe* to match tutors and tutees.
- Allows users to sign up and login as either tutor or tutee. The app matches tutor and tutee based on their subjects, time and locations.
- Equipped the App with chatting and mapping function to help tutor and tutee get in touch.
- Allows tutees to rate and comment their tutors in this App.

Battery Switching Parallel Robot   **Jan2018 - Aug2018**
- Designed a CNC robot able to take out used battery from and put in new battery in other machines without turning them off.
- Engineered special battery case for lithium battery that constantly support power during battery switching with SolidWorks.
- Created battery feeder with timing belt and hopper to continuously feed new battery to the battery case on the robot.
- Developed computer vision python algorithm to let the robot find where the battery case is in 2D space.

Leadership Experience

Shanghai High School Volunteer Union   **Jan2013 - Jun2015**
- Co-funded the Volunteer Union, Collaborated with Shanghai Youth Volunteer Association & Shanghai Government.
- Recruited over 500 volunteers from 17 High schools and raised 10k USD through student charity events with 1000 participants.

Extracurricular Activities

Answer Sheet Auto-grading Application   **Mar2017 - Apr2017**
- Designed a grading application using Python and OpenCV. The application takes the picture of a completed answer sheet as input and detects the student's answer for each question.
- If it is given the answer key and credits for each question, the application can output the score of this answer sheet.

Languages

English, Chinese, German