Shengchen Liu
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Education

Georgia Institute of Technology Atlanta, GA
M.S. in Computer Science *Expected May 2020*
- Relevant coursework: Computer Vision, Reinforcement Learning, Machine Learnign for Trading

Northeastern University Boston, MA
Ph.D. in Mechanical and Industrial Engineering *Expected Dec. 2019*
- Relevant coursework: Machine Learning, Engineering Probs and Stats, Big-Data Sys Engr Using Scala

Nanjing University of Aeronautics and Astronautics Nanjing, China
B.S. in Mechanical and Automation *Sept. 2009 – May. 2013*

Experience

Research Assistant - Northeastern University Boston, MA
Object Detection and Path Planning for 3D Printed quadcopters *Aug. 2017 - Present*
- Speech control with voice recognition: Controlled quadcopter's motion by connecting with Amazon's Alexa. Voice-prompted commands were recognized to achieve actions including "take off", "land" and "go forward".
- Object detection: Image classification models based on Tensorflow Object Detection API were embedded on the quadcopter to achieve real-time object detection.
- 3D printing: Designed 3D models using Solidworks and printed models with plastic materials such as PLA and PETG.

Research Assitant - Northeastern University Boston, MA
Mechano-sensing of subsurface inclusion in soft gel *Jan 2014 - Aug. 2017*
- Computer vision: Used OpenCV to track and detect hard inclusions inside translucent phantoms based on their colors.
- Mechanical design: Designed two original biomedical prototypes geared towards unique testing devices for breast cancer detection, including force sensors, magnetometer visualization and stepper motors. The devices can successfully detect near-surface solid inclusions with diameters no smaller than 1mm.

Projects

Kaggle competition: The 2nd YouTube-8M Video Understanding Challenge Silver Medal
Team Rank:49/312
- Used Tensorflow to build a machine learning pipeline on Google Cloud Machine Learnign Engine. Ensembled three state-of-the-art models (NetVLAD, FVNeT and RNN) for audio and video feautures multi-label classification.
- Trained models on 1.53TB frame-based audio and video features provided by YouTube. The Global Average Precision (GAP) reached to 0.86083 on test dataset.

Kaggle competition: Quora Insincere Questions Classification
Team rank 151/3696
- Built deep sequential models with Keras and Pytorch to detect insincere questions on Quora. The models contained bidirectional GRU and LSTM layers with advanced mechanisms such as Attention and Pseudo Labeling.
- Trained models on 1.3 million Quora question records with a F1 score of 0.698 on public dataset.

Programming Skills

- **Languages**: Scala, Python, Javascript, C++, SQL, Java