LI LEI

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EDUCATION

2013-2014 **Nanyang Technological University, M.Sc.**
School of Electrical and Electronic Engineering,
Major: Signal Processing, Division of Information Engineering.

2010-2013 **Central China Normal University, M.Sc.**, 1st Honored degree. (GPA: 91.9/100, 1st/67)
Major: Communication and Information Systems, Dept. of Telecommunications.

PROFESSIONAL EXPERIENCE

2018- Present Senior AI Engineer
Continental Automotive Singapore Pte Ltd

Continental is world's top Tier-1 automotive supplier and its R&D center in Singapore is one of the R&D hubs worldwide, leveraging state-of-art technology to meet the growing demand for automotive engineering capabilities, re-define the future mobility and drive the full product creation process from conception to realization to mass production.

In-Cabin Monitoring for Object Detection and Human Pose Classification

Patent: Method for pose categorization based on human key point traits (first author, granted)

- Developed and deployed DL model to detect abandon object as well as human pose categorization for abnormal driver and passenger's behavior in a self-driving bus and car
- Designed a pipeline to train and infer multiple video stream sources from interior automotive grade camera
  - Leveraged TensorTR and SNPE to prune and optimize models as well as accelerate chip runtime performance
  - Extracted human skeleton key points, and formulized to structural effective data before feed to pose pipeline
  - Combined an XGBoost model and rule-based method to classify and estimate the human pose and behavior
  - Streamlined multiple models to achieve different inference tasks in real-time on edge embedded platform
- Setup HW+SW architecture, tested, deployed and maintenance of the algorithms and modules

Smart Mobility of Route Optimization and Driver Profiling

- Designed and developed a dynamic predictive traffic model to represent weighted distance matrix, and solved the Traveling Salesman Problem (TSP) problem base on multiple Singapore locations (lat, long coordinates)
- Implement a computer vision pipeline to identify the lane line boundary area and calculate deviation from the lane center in a video from a front-facing camera on a car
- Developed driver behavior prediction models and algorithms with high-dimensional time-series telemetric data to evaluate and identify potential risky drivers

2014-2018 Solutions Engineer
NEC Laboratories Singapore, NEC Asia Pacific Pte Ltd

Creating and implementing one-to-many innovative social solutions with a team of researchers and solution architects/engineers for Safe and Smart Cities. Working with customers to co-create solutions that combine data-driven algorithms and insights, tailored system architecture and third-party services to solve real-world problems and deliver.

Advanced Video and Audio Analytics System (Public Safety)

Patent: 10201505251X, Surveillance System with Fixed Camera and Temporary Camera (first author, granted)
Press release: http://sg.nec.com/en_AP/press/201502/ap_20150209_01.html

- Built mobile criminal surveillance a web application and deployed in the field police officer that process real-world, user-supplied images and be able to detect faces and object of interest
- Trained an acoustic model for abnormal event detection, optimized to achieve the best recognition performance
- Collaborated with researchers and data scientists from NEC Japan and U.S. lab as well as local engineering team to develop prototypes, validate hypothesis and evaluate results

Smart Patient Recovery Prediction System (Healthcare)

Collaborated with Singapore Changi General Hospital (CGH) to facilitate stroke patient recovery from ICU to discharge

- Led an engineering team to develop multi-sensor environmental monitoring platform, build predictive models and visualize preventive analysis base on patient's 3D movement and ECG signals

KEY SKILLS ASSESSMENT

Programming and Tools Skills

- Good experience in algorithm, modeling and application development
  - Programming languages mainly include Python, C/C++
  - Hands-on experience with embedded NVIDIA Jetson, Qualcomm platforms, e.g. TensorRT, DeepStream and SNPE
  - Understanding and hands-on experience ML/DL frameworks like Scikit-Learn, TensorFlow, Keras, PyTorch
  - Data visualization/BI tool: Tableau

CERTIFICATE and ACHIEVEMENT

Udacity Nanodegree

- Self-Driving Car Engineer Nanodegree
- Deep Reinforcement Learning Nanodegree

Coursera Specialization/Project

- Advanced Machine Learning (7 courses, including DL for CV, Kaggle data science, reinforcement learning, NLP etc.)
- TensorFlow 2 for Deep Learning (3 courses, including customizing models, probabilistic modeling and etc.)
- Create Your First Chatbot with Rasa and Python (NLP project network)

HOBBY and ATRRIBUTES

- Football(professional), hiking, cooking, reading, classical music, meditation
- Life-long Learner (DeDao credit: 850+)