HONGZHUO CHEN

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EDUCATION

- **University of California, Irvine (UCI), U.S.** *starting Sep. 25, 2023*
  Master of Science in Networked Systems
  Overall GPA **Available in Dec 2023**

- **University of California, Irvine (UCI), U.S.** *Sep.2022-Jun.2023*
  Exchange Student in Computer Engineering, Henry Samueli School of Engineering
  Overall GPA **3.86**
  GPA for Undergraduate or Graduate Courses **3.93**

- **Southeast University (SEU), China** *Sep.2019-Jun.2023*
  BEng in Computer Science & Technology, School of Computer Science & Engineering
  Overall GPA **3.33/4.00 (83.34/100)**

SKILLS

Proficient	C/C++, Qt, Python, Git, PyTorch, LaTeX
Familiar	MATLAB, Java, Anaconda, TensorFlow, Linux, etc.
Test	TOEFL (102, Reading 26, Listening 26, Speaking 21, Writing 29)
	GRE (Verbal 156, Quantitative 166, Analytical Writing 3.5)

RESEARCH EXPERIENCE

Automatic Music Transcription based on Deep Learning
Developer Advisor: Dr. Xiao Dong, SEU *Jan. 2023-Jun. 2023*

· Designed a Diffusion-based model (DiffRoll) for transcripting piano music to MIDI files
· Implemented a deep learning model based on Transformer for transcripting multi-instrument music to MIDI-like sequences
· Compared F1 scores of different model's performance of music transcription on MAESTRO and MAPS dataset

Spatial-Aware Multi-Modal Contrastive Learning for Dense Prediction
Developer / Core Member of 3. Advisor: Prof. Hao Chen, SEU *Nov. 2021 - Jul. 2022*

· Proposed a spatial-aware multi-modal contrastive learning framework for the pre-training of multi-modal dense prediction, which well exploits the spatial alignment and semantic agreement between RGB and depth
· Studied the contribution of intra-modal and inter-modal contrastive constraints for spatial-aligned multi-modal data
· Outperformed the traditional contrastive learning benchmark, MoCo, on RGB-D salient object detection and semantic segmentation and achieves comparable performance to ImageNet supervised-pretraining schemes

A City-Wide Crowdsourcing Delivery System with Reinforcement Learning
Developer/Team leader of 5. Advisor: Prof. Shuai Wang, SEU *Nov. 2020-Nov. 2021*

· Applied reinforcement learning (RL) to order dispatching in city-wide express
· Designed a profit model with consideration of earnings (from customer payment), cost (payments to participating passengers), and timeout compensation

· Designed an action filter based on the estimated time of arrival (ETA) to eliminate the invalid actions to improve the package routing performance

PROJECT EXPERIENCE

Autonomous Car Based on LiDAR and OpenCV
Developer / Core Member of 5. Advisor: Prof. Ian G. Harris, UCI *Sep. 2022 - Mar. 2023*

· Built an autonomous car using a Raspberry Pi to control itself
· Use OpenCV to detect lanes so that the car can move in lane straightly, or turn left/right
· Use LiDAR to detect obstacles

A CNN Based Smart Farm Image Classification/Prediction System
Developer / Leader of 3. Advisor: Prof. Gang Li, Deakin University *Nov. 2021 - Dec.2021*

· Project for *Pattern Recognition*, 2021 Fall, Southeast University
· Adopted CNN to a smart farm image analysis system, which can classify a strawberry as ripe, part-ripe, or unripe, and estimate its acidity and Brix (a value used to quantify its taste) based on its image

Video Caption
Developer / Core Member of 5. Advisor: Prof. Jiasong Wu, SEU *Sep. 2021 - Dec.2021*

· Project for *Deep Learning and its Application*, 2021 Fall, Southeast University
· Built a video description model based on S2VT (Sequence to Sequence Video to Text) to output a natural language description for the input of videos

AI-Based Brain Tumor Classification and Segmentation
Developer / Core member of 8. *Feb. 2021*

· Project for Data Science Online Winter School of Imperial College London
· Developed a CNN-based AI model which and detect gliomas in brain tumor magnetic resonance (MR) images

PROFESSIONAL EXPERIENCE

Zhongke Zhiwei Technology Co., Ltd. Beijing, China
Machine Learning R&D Intern *Jul 2022-Aug 2022*

· Tested face recognition models based on DeepFace, DeepID3, and FaceNet
· Trained a PyTorch-based FaceNet face recognition model on a human face dataset

RELEVANT COURSES

- **Math**: Mathematical Analysis, Linear Algebra, Discrete Mathematics, Complex Variable Functions, Probability Theory and Mathematical Statistics
- **Computer Science at SEU**: Programming and Algorithmic Language, Data Structures, Computer Architecture and Organization, Signals & Systems, Algorithm Design and Analysis, Operating System, Principle of Database, Computer Network, Principles of Compiler, Software Engineering
- **Computer Science at UCI**: Introduction to Programming (EECS 12), Design and Analysis of Algorithms (EECS 215), Introduction to Artificial Intelligence (CS 171), Advanced System Software (EECS 211), Digital Image Processing (EECS 203), Control, ML, and AI (EECS 298)
- **Seminar**: Operations Research, Pattern Recognition, Deep Learning and its Application, Machine Vision and Applications, Knowledge Graph and its Application