

HONGZHUO CHEN

University of California, Irvine

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EDUCATION

University of California, Irvine (UCI), U.S.	<i>starting Sep. 25, 2023</i>
Master of Science in Networked Systems	
Overall GPA	Not Available
Southeast University (SEU), China	<i>Sep.2019-Jun.2023</i>
BEng in Computer Science & Technology, School of Computer Science & Engineering	
Overall GPA	3.33/4.00 (83.34/100)
University of California, Irvine (UCI), U.S.	<i>Sep.2022-Jun.2023</i>
Exchange Student in Computer Engineering, Henry Samueli School of Engineering	
Overall GPA	3.86
GPA for Undergraduate or Graduate Courses	3.93

SKILLS

Proficient	C/C++, Qt, Python, Git, PyTorch, L ^A T _E X
Familiar	MATLAB, Java, Anaconda, TensorFlow, Linux, etc.

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 transcribing piano music to MIDI files
- Implemented a deep learning model based on Transformer for transcribing 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, momentum contrast, 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 - Present

- 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 can detect gliomas in brain tumor magnetic resonance (MR) images

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