

# HONGZHUO CHEN

University of California, Irvine  
hz.chen@uci.edu ◊ <https://richardchen714.github.io>

## 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

---

<b>Proficient</b>	C/C++, Qt, Python, Git, PyTorch, L <sup>A</sup> T <sub>E</sub> X
<b>Familiar</b>	MATLAB, Java, Anaconda, TensorFlow, Linux, etc.
<b>Test</b>	TOEFL (102, Reading 26, Listening 26, Speaking 21, Writing 29) GRE (Verbal 156, Quantitative 166, Analytical Writing 3.5)

## PUBLICATION

---

1. Yongliang W., Zichao C., **Hongzhuo C.**, Hao C. (2022), "Spatial-Aware Multi-Modal Contrastive Learning for Dense Prediction", In submission

## 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 Transformer-based model 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
- 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

### 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 With 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, and LiDAR detect obstacles
- Use OpenCV to detect lanes so that the car can move in lane straightly, or turn left/right

### 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's ripeness, and estimate its acidity and taste (valued by Brix) 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 model which and detect gliomas in brain tumor magnetic resonance (MR) images

## PROFESSIONAL EXPERIENCE

---

### Zhongke Zhiwei Technology Co., Ltd.

*Machine Learning R&D Intern*

Face recognition, computer vision

Beijing, China

*Jul 2022-Aug 2022*

## 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