

ZHOU CHEN

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EDUCATION

Auburn University

Advisor: Sathyanarayanan Aakur

- PhD in Computer Science and Software Engineering – May. 2024 - Present

· GPA: 4.0/4.0

Auburn University

Location: Auburn, AL

- M.S. in Computer Science and Software Engineering – Aug. 2022 - May. 2024

· GPA: 4.0/4.0

Central South University

Location: Changsha, China

- Central South University

- B.S. in Computer Science and Technology – Sep. 2017 - Jun. 2021

· GPA: 3.3/4.0



PUBLICATION

- **Topic:** EASE: Embodied Active Event Perception via Self-Supervised Free Energy Minimization
 - **Status:** Accepted at *IEEE Robotics and Automation Letters (RA-L)*, 2025
 - **Content:** Developed EASE, a self-supervised framework for real-time active event perception in embodied agents. EASE leverages prediction error and entropy as intrinsic signals to autonomously segment and track salient events without external rewards or annotations. By coupling a generative perception model with an action-driven control policy, the system enables behaviors such as implicit memory, target continuity, and adaptation to novel environments, supporting scalable and privacy-preserving deployment in real-world tasks.
- **Topic:** CRAFT: A Neuro-Symbolic Reasoning Framework for Visual Functional Affordance Grounding
 - **Status:** Under review at *19th International Conference on Neurosymbolic Learning and Reasoning (NeSy 2025)*
 - **Content:** The paper introduces CRAFT, a neuro-symbolic framework that grounds functional affordances by combining commonsense knowledge (e.g., from ConceptNet or language models) with visual input (e.g., CLIP). Given a verb like “cut,” it identifies suitable objects (e.g., knife, scissors) through iterative reasoning using an energy-based method. CRAFT improves accuracy and interpretability in complex scenes and outperforms several prior and learning-based methods.
- **Topic:** Prediction Method of Multiple Related Time Series Based on Generative Adversarial Networks
 - **Time:** Jan 2021

- **Content:** Proposed MTSGAN, a deep learning model for multiple related time series prediction that captures both temporal and interactional dependencies using LSTM and graph convolutional networks. The architecture includes an interaction matrix generator, prediction generator, and time series discriminator trained adversarially. Experimental results on multiple benchmarks show superior accuracy compared to existing state-of-the-art methods.

WORKSHOPS

- **Topic:** Learning to Perceive and Act: Active Event Understanding via Predictive Free Energy Minimization. Vision-based Assistants in the Real-World Workshop, IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2025.
- **Topic:** A Self-supervised Framework for Embodied Active Event Perception. How do robots care? Workshop at IEEE International Conference on Robotics and Automation, 2025.
- **Topic:** A Self-supervised Framework for Embodied Active Event Perception. IEEE International Conference on Robotics and Automation Late Breaking Works, 2025.

WORK EXPERIENCE

Hualu Zhida Technology Co., Ltd.

Aug 2021 – Jun 2022

Junior Software Engineer, Embedded Department – Android Development Group

Dalian, China

- Designed and deployed Android-based POS terminals used in Beijing's public transportation system, enabling real-time fare processing for thousands of daily users. Optimized system reliability and responsiveness under high concurrency and unstable network conditions.
- Led end-to-end development of intelligent driver sign-in devices with integrated modules for identity verification, alcohol testing, and schedule synchronization. Collaborated with backend and hardware teams to ensure robust device-software integration and compliance with safety regulations.

PROJECT AND RESEARCH EXPERIENCES

B.S. Graduation Design (Thesis)

- **Topic:** Design of Experimental Software Tools for Time Series Forecasting Based on Deep Learning
- **Grade:** A
- **Objective:** Developed a visual experimentation platform for researching time series forecasting using a variety of deep learning and machine learning models, with applications in reinforcement learning scenarios.
- **Significance:** The tool provides an extensible and user-friendly environment for exploring time series prediction strategies, accelerating algorithm evaluation and facilitating research in time-dependent decision-making systems.