Zhen Ye

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Education

University of California,Irvine,Irvine, CA **Graduation: June 2024**
BS in Business Information Management
BS in Computer Science
Organizations/Awards: Pi Kappa Alpha Fraternity, Dean's Honors List

Research Publications

iTask: Task-Oriented Object Detection in Resource-Constrained Environments
SungHeon Jeong, Hamza Errahmouni Barkam, Hyunwoo Oh, Hanning Chen, Tamoghno Das, **Zhen Ye**, and Mohsen Imani
ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, USA, Jun 2025, pp. 1–7

Relevant Projects

Intelligent Sensing **Jan 2025**

- Participated in the development of the iTask framework using LLM to generate abstract knowledge graphs, enabling efficient task-oriented object detection with minimal samples.
- Assisted in designing software configurations with a distilled, task-specific vision transformer.
- Achieved a 15% accuracy improvement in defined scenarios.

Adversarial AI **Sep 2024**

- Extracted symbolic features from datasets (MNIST, CIFAR-10, SVHN, MedMNIST) for adversarial analysis.
- Applied specialized noise attacks to assess the robustness of extracted features, enhancing model resilience evaluation.
- Conducted feature robustness testing to contribute insights into adversarial vulnerability and defensive strategies.

Neuro Symbolic AI **Jul 2024**

- Modified neuro-symbolic models(PyGCN, NLM, NSCL) to support symbolic tracing, enhancing compatibility and functionality.
- Implemented torch-flops library to calculate floating-point operations per second, aiding in performance evaluation.
- Help identifying hardware bottlenecks to address compositionality challenges.
- Contributing to optimized, reusable hardware system deployment.

Gym Scheduler (Web Application) **Jun 2024**

- Utilized JavaScript and CSS for the frontend, ensuring a responsive and user-friendly interface
- Implemented backend functionality using Python and Flask to handle reservations and membership management
- Managed data storage and retrieval with SQLite, ensuring efficient database operations and integration with the backend

Search Engine **Dec 2023**

- Crafted a search engine using Python, combining web crawling, indexing, and NLP techniques.
- Crawled and indexed 4 domains and processed over 30,000 URLs.
- Designed and refined ranking algorithms (e.g., tf-idf) achieving a 20% performance improvement.

Experience

UC Irvine BIASLAB, Irvine, CA
Junior Research Specialist **Jul 2024 – Present**

- Pioneered modifications in learning algorithms for Hyperdimensional Computing across classification, adversarial AI, graph reasoning, genome sequence detection, and clustering.
- Leveraged vision large language models to design task-oriented object detection frameworks.
- Developed object detection systems using Hyperdimensional Computing models, improving robustness and precision in vision tasks.
- Collaborated closely with PhD students under the guidance of our PI/advisor, contributing to over 10 research projects that advanced innovative solutions in AI and demonstrated strong teamwork and interdisciplinary research impact.

UC Irvine Intercollegiate Department, Irvine, CA
Intercollegiate Tutor **Oct 2021 – Sep 2022**

- Delivered academic assistance in computer science subjects including Statistics and Python.
- Exhibited expertise in programming and algorithms, aiding students' understanding and application of complex concepts.
- Achieved a 100% passing rate, with student grades improving from C's to B's and up to A's.

Skills/Certifications

Programming & Scripting:	Python, Java, C++
Software Development:	Git, Django, React, Figma, FastAPI, RestAPI, Flask, AWS, Docker, Kubernetes
Data Science & ML:	Scikit-learn, Pytorch, Tensorflow, Matplotlib, Seaborn, Numpy, OpenCV, MLOps
Database Management:	MySQL, PostgreSQL
Certificates:	AWS Cloud Practitioner
Additional:	Bilingual (Fluent in Mandarin)