

Education

Doctor of Philosophy in Computer Science, University of California, Irvine Sept. 2026 – Present
Advisor: Prof. Judy Hoffman

Bachelor of Science, University of California, San Diego Sept. 2022 – Dec. 2025

Double Major: Mathematics-Computer Science; Cognitive Science (Specialization: Machine Learning and Neural Computing)

Research Interests

World Models, Embodied AI, Machine Learning, Artificial Intelligence

Publications and Conference Presentations

1. Qiyue Gao*, Kun Zhou*, Jiannan Xiang*, Zihan Liu*, Dequan Yang, **Junrong Chen**, Arif Ahmad, Cong Zeng, Ganesh Bannur, Xinqi Huang, Zheqi Liu, Yi Gu, Yichi Yang, Guangyi Liu, Zhiting Hu, Zhengzhong Liu, Eric Xing
World Reasoning Arena [PDF](#)
arXiv:2603.25887, 2026.
2. Yidong Jiang, **Junrong Chen**, Eftychia Makri, Jialin Chen, Peiwen Li, Ali Maatouk, Leandros Tassioulas, Eliot Brenner, Bing Xiang, Rex Ying
Fin-RATE: A Real-world Financial Analytics and Tracking Evaluation Benchmark for LLMs on SEC Filings [PDF](#)
Submitted to SIGKDD 2026 and under review.
3. Qiyue Gao*, Xinyu Pi*, Kevin Liu, **Junrong Chen**, Ruolan Yang, Xinqi Huang, Xinyu Fang, Lu Sun, Gautham Kishore, Bo Ai, Stone Tao, Mengyang Liu, Jiayi Yang, Chao-Jung Lai, Chuanyang Jin, Jiannan Xiang, Benhao Huang, David Danks, Hao Su, Tianmin Shu, Ziqiao Ma, Lianhui Qin, Zhiting Hu
Do Vision-Language Models Have an Internal World Model? Towards an Atomic Evaluation [PDF](#)
Findings of 63rd Annual Meeting of the Association for Computational Linguistics (ACL 2025)
World Models: Understanding, Modeling, Scaling, and Applications workshop at ICLR 2025 (Poster)
4. PAN Team Institute of Foundation Models (contributing author: **Junrong Chen**).
PAN: A World Model for General, Interactable, and Long-Horizon World Simulation [PDF](#)
arXiv:2511.09057, 2025.
5. **Junrong Chen**, Jan Kwong, Sarah Paull, Sarah Creel
Whisper Automatic Speech Recognition and humans are similarly sensitive to accents, but use sentence context differently [PDF](#)
Submitted to Journal and under review.
6. Sarah Creel, **Junrong Chen**, Caroline Hall-Sherr, Sadrac Santacruz Ibarra, Carly Villongco, Kaitlyn Chou
Whispers of knowledge: ASR vs human performance in child transcription
Abstract accepted at the ISCA/ITG LLM Diversity 2025.
7. **Junrong Chen**, Jan Kwong, Sarah Creel
Accented sentence and word recognition: Humans versus Whisper automatic speech recognition
Abstract accepted for oral presentation at the 187th Meeting of the Acoustical Society of America (187th ASA) [Link](#)
GenAI Summit UCSD (Poster), Feb. 2025

Research Experience

UCSD Mix lab | Research Assistant

Mentor: Professor [Zhiting Hu](#)

Project 1: World Model Evaluation [Link](#) (TR Released, Eval MS in Prep) Mar. 2025-Present · 14mos

- Fine-tuned and evaluated PAN-2, the second-generation [PAN](#) world model, across domains including robotics, autonomous driving, and gaming.
- Led the robotics track and initiated the autonomous driving thread, responsible for dataset streaming across 6+ sources, model training and fine-tuning, and developing 20+ demos and pipelines, as well as 8+ controlled experiments, including IDM model training and use of the SimplerEnv simulator to validate key model capabilities.
- Skills: Python, Hugging Face, PyTorch, CUDA, Slurm, Bash

Project 2: World Model Benchmark [Link](#) Mar. 2024-Jun. 2025 · 16mos

- Developed a fine-grained evaluation framework (23 dimensions) across 6 simulated environments with controlled counterfactual simulations, testing 11 commercial/open-source VLMs through 517 controlled experiments.

- Led data pipeline development and collected data using Habitat-Lab and ManiSkill2, ThreeDWorld simulators for over 6 datasets with 12k+ cases in total. Utilized 11+ open-source datasets to evaluate models, 5 commercial VLMs and 6 open-source VLMs. Conducted data analysis, visualization, and drafted conclusions.
- Drafted the Introduction, Experimental Design, and Appendix; Produced a promotional video and website.
- Skills: Python, Hugging Face, PyTorch, CUDA, Docker

Yale University Graph and Geometric Learning Lab | Research Assistant.

Sept.2025 – Present · 7 mos

Mentor: Professor [Rex \(Zhitao\) Ying](#)

- Co-authored Fin-RATE, a benchmark for evaluating LAGs on financial reasoning over SEC filings, spanning detail-oriented reasoning, cross-company comparison, and longitudinal tracking across 7,500 QA instances derived from 2,472 filings covering 43 companies and 36 industries.
- Designed the evaluation framework, error taxonomy, and human validation protocol; conducted controlled experiments characterizing model degradation across task types and analyzed corresponding failure patterns.
- Performed data analysis and visualization, drafted the main results section, and contributed to revisions throughout the manuscript.
- Skills: Python, Hugging Face, SEC filings analysis

Cornell University Jennifer J. Sun's lab | Undergraduate Researcher

Mar.2024- Mar.2025 ·13mos

Mentor: Professor [Jennifer J. Sun](#)

- Developed an automated pipeline to enforce programmatic cycle consistency in text-to-image models using LLM-generated verification code and visual grounding tools (Workshop manuscript in preparation).
- Created a dataset of 20,000+ images using Stable Diffusion and conducted over 20,000 experiments on models including CLIP, SigLIP, Llava, PaliGemma, and Llama.
- Conduct controlled experiments on how improved prompt fidelity and image accuracy compared to baseline generation pipelines (e.g., Stable Diffusion).
- Skills: Python, Hugging Face, PyTorch

UCSD Language Acquisition and Sound Recognition Lab | Lead Researcher

Sept.2023- Sept.2025 ·25mos

Mentor: Professor [Sarah Creel](#)

Project: Enhancing Speech Recognition using Machine Learning Tools

- Investigated AI bias in speech recognition tools (e.g., Montreal Forced Aligner, Char-siu, Whisper) for diverse speech types-standard American English, accented speech (Mandarin, Spanish), child speech, and distorted speech (noise-vocoded, sine-wave)-to improve inclusivity and accuracy.
- Processed 40,000+ audio files using Whisper for varying model sizes, analyzed data using R, and wrote paper.
- Skills: R, Hugging Face, Python, PyTorch

UCSD Language Acquisition and Sound Recognition Lab | Research Assistant

Apr.-Sept. 2023 ·6mos

Mentor: Professor [Sarah Creel](#)

Project: KidTalk and L2Talk

- Investigated the gap between monolingual children's language output and language perception (KidTalk), and the gap between bilingual adults' language output and language perception (L2Talk).
- Collected and analyzed 72 pieces of 3–5-year-old child word-naming, free speech, Goldman-Fristoe Test of Articulation (GFTA) data and 5 pairs of adult data of word-naming data, contributed to experiment design.
- Skills: Matlab, Phon, Praat, Eyelink100, R

UCSD System Neuroscience Lab | Research Assistant

Jun. 2023-Mar. 2024 ·10mos

Mentor: Professor [Douglas A. Nitz](#)

- Conducted rat experiment analyzing visual stimuli transitions from overhead to an eye-level perspective.
- Processed 200+ minutes of animal behavior videos using DeepLabCut and SLEAP, Trained machine learning models to track rat positions; Assisted in brain-computer interaction (BCI) drive-building sessions for rats.
- Skills: Python, DeepLabCut, SLEAP

Professional Experience

Ask Margot (*UCLA AI Studio Fellow*), Los Angeles, CA

Aug.2024-Apr.2025 ·9mos

- Built a web chatbot using AWS Lex and integrated AWS Lambda and SageMaker for sentiment analysis and model training.

Brain machine interface workshop & hackathon, UCSD

Sept. 2023 ·1mos

Mentor: Professor Vikash Gilja (UCSD), Cindy Chestek (UMich), Gal Mishne (UCSD)

- Analyzed neural data with tools (NumPy, Pandas) and machine learning (scikit-learn, PyTorch) to prototype neural prostheses and present ZebraFinch Dataset findings.

TalkMeUp Software Engineering Internship, Pittsburgh, PA

Aug.-Sept. 2023 ·2mos

- Developed and optimized machine learning software solutions to automatically score interview videos; implemented product-focused AI solutions using computer vision and NLP.

Honor and Awards

UCSD Triton Research & Experiential Learning Scholarship (TRELS), Spring Quarter 2024 [Link](#)

UCSD Provost Honors (2022-2025)

IEEE-Eta Kappa Nu (IEEE-HKN) (2024)

Instructional Apprenticeship

Undergraduate Teaching Assistant at UC San Diego

Lead discussion sections, hold office hours, answer students' questions via email, grade homework and exams, and proctor exams.

COGS14A - Intro. to Research Methods (Spring Quarter 2024, Professor Steven Barrera)

COGS14B - Intro. to Statistical Analysis (Winter Quarter 2024, Professor Drew Ellen Walker)

Last updated: Apr. 19, 2026