

Victoria Zhang

Machine Learning Research Scientist

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EDUCATION

- **Ph.D. Computer Science**, University of California San Diego, GPA: 3.96/4.0 **Expected 2026**
- **M.S. Computer Science**, Washington University in St. Louis, GPA: 4.0/4.0 **August 2020 – May 2021**
- **B.S. Computer Science**, Washington University in St. Louis, GPA: 3.95/4.0 **August 2016 – May 2020**
- **B.S. Electrical Engineering**, Washington University in St. Louis, GPA: 3.95/4.0 **August 2016 – May 2020**

WORK EXPERIENCE

Meta

June 2025 – September 2025

Research Scientist Intern

- Developed **multimodal-to-language model** for handwriting recognition and enabled its research-to-product deployment for the **Meta Neural Band**, featured in a [live demo](#) by Mark Zuckerberg at [Meta Connect 2025](#).
- Improved the **robustness** of EMG-based handwriting recognition, achieving a 5% relative accuracy gain under motion conditions using signal processing, **diffusion-based data augmentation**, and importance weighting techniques.

Meta

June 2024 – September 2024

Research Scientist Intern

- Built the EMG–CV **multimodal foundation model** infrastructure for hand recognition using neural wristbands and glasses.
- Achieved strong performance across multiple downstream decoding tasks using device-agnostic representations, including 99.6% gesture classification accuracy and less than 4° joint angle error.

University of California San Diego

September 2021 – Present

Graduate Student Researcher | advised by Dr. Gal Mishne, Dr. Mikio Aoi

- Identified the *Position Curse*, a position-based retrieval failure in LLMs; **developed benchmark** and targeted **post-training** methods (SFT, LoRA) that improved indexing and code-understanding capabilities for **coding agents**.
- Developed a **real-time speech decoding** method using **LLM** (DPO and instruction tuning) and **adversarial domain adaptation**, improving cross-session test-time brain-computer interface (BCI) decoding accuracy by 65% absolute.
- Designed a hierarchical framework that preserves multi-scale semantic information across embedding dimensions, enabling **efficient retrieval** and vector **search** systems, enabling flexible **accuracy–latency tradeoffs**.
- Designed an **unsupervised** learning framework on a large-scale human bipolar behavior **video dataset** and developed interpretable quantitative metrics, increasing the detection accuracy by 45.85% relative.

Washington University in St. Louis, Harvard Medical School

December 2019 – August 2021

Research Assistant | advised by Dr. Carlos Ponce

- Discovered principles of information encoding in primate ventral streams with macaque monkey electrophysiological data.
- Designed **interpretable** alignment methods to compare information encoding principles in primate brains and in **neural network** models (**ViTs, CNNs, RNNs**) of the ventral stream.

SELECTED PUBLICATIONS

- Zhang, Z. et al. (2026) (in review) [The Position Curse: LLMs Struggle to Locate the Last Few Items in a List.](#)
- Zhang, Z. et al. (2026) (preprint) Neural Embedding Representation for Multiscale Clustering.
- Zhang, Z. et al. (2026) (UAI) [ALIGN: Adversarial Learning for Generalizable Speech Neuroprosthesis.](#)
- Zhang, Z. et al. (2025) (NeurIPS Workshops) [BEHAVE: Behavioral ethology for human assessment via variational encoding.](#)
- Raut, R., Rosenthal, Z.,..., Zhang, Z., et al. (2025) (Nature) [Arousal dynamics mirror spatiotemporal brain dynamics.](#)
- Zhang, Z., et al. (2025) (Science Advances). [Brain feature maps reveal progressive animal-feature representations in the ventral stream.](#)
- Rosberg, H., Miranda, A.,..., Zhang, Z., et al. (2025). (Methods in Psychology). [Quantifying exploratory behavior in the human behavioral pattern monitor using automated video tracking.](#)
- Zhang, Z. et al. (2024) (in review) [Characterizing behavioral dynamics in bipolar disorder with computational ethology.](#)

SKILLS

- **Programming:** Python, PyTorch, Distributed Data Parallel (DDP), CUDA, C/C++
- **Machine Learning:** LLMs (post-training: SFT, RL, DPO), deep learning (CNNs, RNNs, Transformers, VAEs), generative and self-supervised learning, multimodal learning, foundation models, transfer learning, efficient LLMs optimization, computer vision, signal processing, large-scale data pipelines, data visualization.
- **Leadership:** Technical Leadership, Cross-functional Collaboration, Research-to-production, 0-1 Projects, Rapid Learning