Kexin Chen
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Education

2018-present	Ph.D.	Cognitive Neuroscience	University of California, Irvine, CA
		Advisor: Dr. Jeffrey Krichmar	
2014-2017	B.S.	Cognitive Science	University of California, San Diego, CA
		Minor: Mathematics	

Experience

2018-present Graduate Researcher University of California, Irvine, CA
Cognitive Anteater Robotics Lab (PI: Dr. Jeffrey Krichmar)
- Combined computational approaches and neurophysiological data to study visual perception mechanisms in the macaque brain, and spatial cognition in the rodent brain
- Participated in developing and maintaining CARLsim, an open source GPU-accelerated spiking neural network simulator (github.com/UCI-CARL/CARLsim6/)

2017 Undergraduate Research Assistant University of California, San Diego, CA
Systems Neuroscience Lab (PI: Dr. Douglas Nitz)
- Utilized machine learning, data visualization, and quantitative methods to study phase precession in hippocampal data recorded in spatial navigational tasks

2016-2017 Undergraduate Research Assistant University of California, San Diego, CA
Language Production Lab (PIs: Dr. Victor Ferreira and Dr. Tamar Gollan)
- Conducted human subject experiments that studied speaker-specific learning and adaptation

Publications

- **Chen K**, Beyeler M, Krichmar JL (2022). Cortical motion perception emerges from dimensionality reduction with evolved spike-timing dependent plasticity rules. *Journal of Neuroscience*. DOI: 10.1523/JNEUROSCI.0384-22.2022
- Niedermeier, L, **Chen, K**, Xing, J, Das, A, Kopsick, JD, Scott, EO, Sutton, N, Weber, K, Dutt, N, Krichmar, JL (2022). CARLsim 6: An Open Source Library for Large-Scale, Biologically Detailed Spiking Neural Network Simulation. *IJCNN 2022*.
- Kopsick, JD, Tecuatl, C, Moradi, K, Attilli, SM, Kashyap, HJ, Xing, J, **Chen, K**, Krichmar JL, Ascoli, GA (2022). Robust Resting-State Dynamics in a Large-Scale Spiking Neural Network Model of Area CA3 in the Mouse Hippocampus. *Cogn Comput*. https://doi.org/10.1007/s12559-021-09954-2
- **Chen K**, Johnson A, Scott, EO, Zou X, De Jong KA, Nitz DA, Krichmar JL (2021). Differential Spatial Representations in Hippocampal CA1 and Subiculum Emerge in Evolved Spiking Neural Networks. *IJCNN 2021*.

- Zou X, Scott, EO, Johnson A, **Chen K**, Nitz DA, De Jong KA, Krichmar JL (2021). Neuroevolution of a recurrent neural network for spatial and working memory in a simulated robotic environment. *GECCO 2021*.
- Xing J, Nagata T, **Chen K**, Neftci E, Krichmar, JL. (2021) Domain Adaptation In Reinforcement Learning Via Latent Unified State Representation. *AAAI 2021*.
- **Chen K**, Hwu T, Kashyap HJ, Krichmar JL, Stewart K, Xing J and Zou X (2020) Neurorobots as a Means Toward Neuroethology and Explainable AI. *Front. Neurorobot*. 14:570308. doi: 10.3389/fnbot.2020.570308

Conferences and Presentations

2021   Oral presentation: "Differential Spatial Representations in Hippocampal CA1 and Subiculum Emerge in Evolved Spiking Neural Networks". IJCNN 2021

2019   Poster presentation: "MSTd-like response properties emerge from evolving STDP and homeostatic parameters in a Spiking Neural Network model". Neuroscience 2019

Teaching Experience

2018-present   Graduate Teaching Assistant   University of California, Irvine, CA
Neurobiology of Human Cognition; Cognitive Robotics; Psychological Fundamentals; Brain Disorders; Theories of Psychotherapy

2016   Instructional Assistant   University of California, San Diego, CA
Modeling and Data Analysis

Awards

2020. 2019   John I. Yellott Scholar Award - Honorable Mention

2019   Google PhD Fellowship - Campus Nomination

Academic Services

2022   Co-Organizer & Program Committee: NeuroVision Workshop at CVPR 2022:

2022   Guest Editor: Biological Cybernetics Special Issue: What can Computer Vision learn from Visual Neuroscience?

Industry Experience

2022   Machine Learning Internship   Meta, Menlo Park, CA
- Developed scalable end-to-end data pipelines to support the training and inference processes of large scale machine learning models
- Generated user-to-video embeddings with two-tower models and utilized K-Nearest-Neighbors to facilitate content matching

2021   Machine Learning Internship   Facebook, Menlo Park, CA
- Adapted a Multi-Task-Multi-Label network architecture that increased data efficiency, mitigated the label sparsity issue, and reduced complexity in model maintenance

- Incorporated a wide component linear layer into the deep neural network to capture implicit correlations between key input features

2017-2018   Software Engineer   DeepRadiology Inc., Santa Monica, CA

- Focused on a deep learning computer vision project that used deep convolutional neural networks to perform pathology detection with medical images such as X-ray or CT scans
- Integrated a channel attention mechanism into the existing network architecture to improve network performance with light additional computation cost