

Xiuye ‘Sue’ Chen, PhD

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EDUCATION

Harvard University

Aug 2009 – Aug 2016

Ph.D. in Biology (systems and computational neuroscience)

APPOINTMENTS

Senior Research Scientist, Neuroscience, Yale School of Medicine

Oct 2023 – Present

- Computational work and data infrastructure in connectomics and neuro-genomics
- Piloting and introducing AI-assisted scientific workflows to wet lab and computational researchers
- Promoted from Associate Research Scientist, Jul 2024

Lecturer, Computer Science, Yale SEAS

Dec 2023 – Present

- CPSC 7760: Topics in Industrial AI Applications (Spring 2024, 2025, 2026)
- CPSC 1710: Introduction to AI Applications (Fall 2024, 2025)
- *Upcoming*: CPSC 1710 (Fall 2026); Research Ethics (Fall 2026); AI Applications in Education with Ben Glaser, Poorvu (Spring 2027)

AI Consultant (independent), KekulAI, Inc.

Oct 2025 – Present

- AI workflow design and tool evaluation for drug discovery pipelines at an early-stage biotech

Research Scientist, Alexa AI, Amazon | Cambridge, MA

Jun 2020 – Jun 2023

- Acoustic Event Detection Science team / Alexa Perceptual Technologies / Edge ML
- Built and deployed device-side and cloud-side deep learning models for Alexa Guard features
- Science infrastructure and automation workflows; cross-functional coordination
- Primary researcher on production features; inventor on US patents [1], [2]

Earlier positions:

2016 – 2022

- Lecturer (Part-time), *Northeastern University* — Fundamentals of AI; Communication and Visualization for Data Analytics (2019–2022, concurrent with Amazon)
- Data Science Consultant, *Philips Research* — computer vision in telehealth and radiology (2020)
- Data Scientist, *Cellino Biotech* — deep learning for virtual fluorescence prediction (2019)
- Research Scientist, *Boston University* — calcium imaging analysis software (2017–2018)
- Postdoctoral Data Scientist, *Harvard University* — fMRI object representation models (2016–2017)

PUBLICATIONS

Peer-Reviewed:

1. **Chen X**^{*†}, Mu Y^{*}, Hu Y^{*}, Kuan AT^{*}, Nikitchenko M, Randlett O, Chen AB, Gavornik JP, Sompolinsky H, Engert F, Ahrens MB[†]. Brain-wide Organization of Neuronal Activity and Convergent Sensorimotor Transformations in Larval Zebrafish. *Neuron* 2018, 100: 876-890. PMID: 30473013
*co-first authors; †co-corresponding
2. **Chen X**, Engert F. Navigational strategies underlying phototaxis in larval zebrafish. *Front Syst Neurosci* 2014, 8: 39. PMID: 24723859
3. Yan J, Pan L, **Chen X**, Wu L, Zhang M. The structure of the harmonin/sans complex reveals an unexpected interaction mode of the two Usher syndrome proteins. *Proc Natl Acad Sci USA* 2010, 107: 4040-5. PMID: 20142502

In Preparation / Under Review:

4. Kuan AT*, Phan S*, et al., **Chen X**, et al. Scalable electron tomography for connectomics. *In revision, Nature Methods*
5. Kayani S, Zhang Z, **Chen X**, Kuan A. Mapping the Highways of the Brain: Emerging High-Resolution Imaging Technologies for Projectomics. *Under review, Nature Methods*
6. **Chen X**. From Black Boxes to Building Blocks: Teaching AI Applications Where AI Is Subject, Tool, and Product. *Working paper* (AI education; design-based research on a use-understand-build course framework)

PATENTS

- [1] **Acoustic Event Detection** | US 12,327,551 B1 | Issued Jun 2025
Chen X, Tang Q, Kao CC, Rozgic V, Wang C. System for detecting custom acoustic events from natural language descriptions using knowledge graphs and federated learning.
- [2] **Acoustic Event Detection** | US 12,374,353 B1 | Issued Jul 2025
Ferri C, Mehta S, Johnson TA, Zhang H, Jiang L, Kodamasimham V, Sharma P, Lorusso SM, **Chen X**, Wang C. System for detecting ongoing acoustic events and triggering actions based on temporal patterns.

MENTORING

Yale CS Senior Thesis Advisor (CPSC 4900):

Benjamin Xu (Spring 2026): Taking Control of the AI Narrative in Higher Education: Axiom, a Course-Scoped, Instructor-Curated Tutoring Platform (co-advised with Ben Glaser)

Joseph Elsawyid (Spring 2026): A Conservative Post-Segmentation Pipeline for Large-Scale Connectomics (co-advised with Aaron Kuan)

Aviv Melamud (Spring 2026): ML-Based Model Predictive Control for Residential HVAC Demand Response

Aya Kasim (Spring 2026): Framing the Journey — AI-Assisted System for Customized Museum Tour Planning

Kemi Omoniyi (Fall 2025): Structured Prosodic Supervision for Constraint Learning in Transformer Language Models (co-advised with Ben Glaser)

Miranda Selin (Fall 2025): Interactive Glyph Retrieval for Medieval Latin Manuscripts

Tran Doan (Fall 2025): Evaluating Efficient Fine-Tuning Approaches for Tonal ASR

David Wang (Spring 2025): Improving scCLIP

Neuroscience Research Mentoring:

Y. Fan: Ultrastructural correlates of aging and cognitive decline. *Poster, Society for Neuroscience Annual Meeting, 2025.*