

Sugandha Sharma

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EDUCATION

- PhD in Computational Neuroscience**, Massachusetts Institute of Technology Cambridge, MA | March, 2024
• **Advisors:** Professor Josh Tenenbaum and Professor Ila Fiete
- MASc. in Sytems Design Engineering**, University of Waterloo Waterloo, ON | May, 2018
• **Advisor:** Professor Chris Eliasmith
- BASc. in Electrical Engineering**, University of Waterloo Waterloo, ON | May, 2015
• Dean's Honours List.

WORK EXPERIENCE

- Nvidia** | Generative AI Santa Clara, CA | April 2023 – Present
• Developing LLMs, multimodal foundation models, AI chatbots and applications using Graph RAG and Temporal RAG
- Microsoft Research** | Research Scientist New York City, NY | May 2023 – March 2024
• Paper: Toward Human-AI Alignment in Large-Scale Multi-Player Games
• Built **GPT based** game playing AI agents for a multi-player Xbox game: Bleeding Edge
• Studied human-AI alignment through analysis of AI & human behavior using unsupervised manifold learning (UMAP) on a large-scale human gameplay dataset 100K games (and on generated AI datasets)
- Stanford University** | Visiting Researcher Stanford, CA | May 2017 – Aug 2017
- AMD** | Software Developer Markham, ON | Sept 2014 – Dec 2014
- Nvidia** | Systems Engineer Santa Clara, ON | Jan 2014 – May 2014
- Nvidia** | Systems Engineer Santa Clara, ON | April 2013 – Aug 2013
- Blackberry** | Software Engineer Waterloo, ON | Sept 2012 – Dec 2012

SELECTED PUBLICATIONS

- Map Induction: Compositional Spatial Submap Learning For Efficient Exploration In Novel Environments** ICLR 2022
S Sharma, A Curtis, M Kryven, J Tenenbaum, I Fiete
- Content Addressable Memory Without Catastrophic Forgetting By Heteroassociation With A Fixed Scaffold** ICML 2022
S Sharma, S Chandra, I Fiete
- High-capacity Flexible Hippocampal Associative And Episodic Memory Enabled By Prestructured Spatial Representations** under review at Nature
*S Chandra, *S Sharma, R Chaudhury, I Fiete (*co-first, alphabetical)
- Efficient Inference In Structured Spaces** Cell 2020
Sanders, M Wilson, M Klukas, S Sharma, I Fiete
- Toward Human-AI Alignment In Large-Scale Multi-Player Games** arXiv 2024
S Sharma, G Davidson, K Khetarpal, A Kanervisto, U Arora, K Hofmann, I Momennejad
- Fragmented Spatial Maps From Surprisal: State Abstraction And Efficient Planning** bioRxiv 2022
M Klukas, S Sharma, Y Du, T Lozano-Perez T, L Kaelbling, I Fiete
- How Is Scene Recognition In A Convolutional Network Related To Human Visual System** ICANN 2016
S Sharma, B Tripp
- Large-scale Cognitive Model Design Using The Nengo Neural Simulator** Elsevier BICA 2016
S Sharma, S Aubin, C Eliasmith

SKILLS

- **Hands on experience:** GPT, LLMs, Generative AI, RL, Planning, SLAM, Navigation, Memory retrieval
- **Packages:** Pytorch, Tensorflow, SciPy, Scikit-learn, Numpy