

Akshay K. Jagadish

Research Fellow, Princeton AI Lab

📍 Princeton, USA | 📩 akshaykjagadish@gmail.com | 🛡 akjagadish.github.io | 🐾 akjagadish | 🐦 akjagadish | 🎓 Scholar

Position

Research Fellow

Princeton University

Independent researcher in the Natural and Artificial Minds program at the Princeton AI Lab

Princeton, USA

2025 - ongoing

Education

Ph.D. in Computer Science

University of Tübingen · Max Planck Institute for Biological Cybernetics · Helmholtz Munich

Meta-Learning: A Unifying Framework for Testing Theories of Human Learning

Tübingen, Germany

2021 - 2025

M.Sc. in Computational Neuroscience

University of Tübingen · Max Planck Institute for Biological Cybernetics

Compositional Reinforcement Learning in Minds and Machines

Tübingen, Germany

2018 - 2020

B.Tech. in Electrical and Electronics Engineering

National Institute of Technology Karnataka · Ecole Polytechnique Federale de Lausanne

Structural and Functional Correlates of Personality

Surathkal, India

2013 - 2017

Experience

Doctoral Thesis

University of Tübingen · Max Planck Institute for Biological Cybernetics · Helmholtz Munich

Computational Principles of Intelligence Lab · Advisors: Dr. Marcel Binz and Prof. Eric Schulz

Tübingen, Germany

Apr. 2021 - Aug. 2025

Master Thesis

Max Planck Institute for Biological Cybernetics

Computational Principles of Intelligence Lab · Advisors: Dr. Marcel Binz and Prof. Eric Schulz

Tübingen, Germany

Jun. 2020 - Dec. 2020

Graduate Research Assistant

University of Tübingen

Sinz Lab · Advisors: Prof. Fabian Sinz and Prof. Edgar Walker

Tübingen, Germany

Nov. 2018 - Mar. 2021

Graduate Research Assistant

Max Planck Institute for Biological Cybernetics

Computational Neuroscience Lab · Advisor: Prof. Peter Dayan

Tübingen, Germany

Nov. 2019 - Feb. 2020

AI Researcher

Wadhwani Institute for Artificial Intelligence

AI for Social Impact · Advisor: Dr. Rahul Panicker

Mumbai, India

May 2018 - Sep. 2018

Postbaccalaureate Research Assistant

University of Minnesota, Twin-cities

Computational Visual Neuroscience Lab · Advisor: Prof. Kendrick Kay

Minnesota, USA

Jul. 2017 - Feb. 2018

Undergraduate Thesis

Ecole Polytechnique Federale de Lausanne

Medical Image Processing Lab · Advisors: Prof. D. van de Ville and Prof. P. Giannakopoulos

Lausanne, Switzerland

Aug. 2016 - May 2017

Undergraduate Research Assistant

Indian Institute of Science

Computational Tomography Lab · Advisor: Prof. Kasi Rajgopal

Bangalore, India

May 2015 - May 2017

Publications

* equal contribution, # alphabetical ordering

Jagadish, A. K., Thalmann, M., Coda-Forno, J., Binz, M. & Schulz, E. (2025). Meta-learning ecological priors from large language models captures human learning and decision making. Preprint [PDF]

Rmus, M.* , **Jagadish, A. K.***, Mathony, M., & Schulz, E. (2025). Generating Computational Cognitive Models using Large Language Models. In the 39th Annual Conference on Neural Information Processing Systems (NeurIPS) [PDF]

Binz, M., **Jagadish, A. K.**, Rmus, M., & Schulz, E. (2025). Automated scientific minimization of regret. In the AI4Science Workshop at the 39th Annual Conference on Neural Information Processing Systems (NeurIPS) [PDF]

Jagadish, A. K., Thalmann, M., Coda-Forno, J., Binz, M. & Schulz, E. Bounded ecologically rational meta-learned inference explains human category learning. (2025). Proceedings of the Annual Meeting of the Cognitive Science Society [PDF]

Binz, M., ..., **Jagadish, A. K.**#,..., & Schulz, E. (2025). Centaur: a foundation model of human cognition. Nature [PDF]

Demirican, C.* , Saanum, T.* , **Jagadish, A. K.**, Binz, M., & Schulz, E. (2025). Sparse Autoencoders Reveal Temporal Difference Learning in Large Language Models. In the 13th International Conference on Learning Representations (ICLR) [PDF]

Jagadish, A. K., Coda-Forno, J., Thalmann, M., Schulz, E., & Binz, M. (2024). Human-like Category Learning by Injecting Ecological Priors from Large Language Models into Neural Networks. In the 41st International Conference on Machine Learning (ICML) [PDF]

Schubert, J., **Jagadish, A. K.**, Binz, M., & Schulz, E. (2024). In-context learning agents are asymmetric belief updaters. Proceedings of the 41st International Conference on Machine Learning (ICML) [PDF]

Jagadish, A. K., Binz, M., Saanum, T., Wang, J. X., & Schulz, E. (2024). Zero-shot compositional reasoning in a reinforcement learning setting. Preprint [PDF]

Ben-Zion, Z., Witte, K.* , **Jagadish, A. K.***, Duek, O., Harpaz-Rotem, I., Khorsandian, M., ... & Spiller, T. R. (2024). “Chat-GPT on the Couch”: Assessing and Alleviating State Anxiety in Large Language Models. npj Digital Medicine [PDF]

Coda-Forno, J.* , Witte, K.* , **Jagadish, A. K.**, Binz, M., Akata, Z., & Schulz, E. (2023). Inducing anxiety in large language models increases exploration and bias. Preprint [PDF]

Binz, M., Dasgupta, I., **Jagadish, A. K.**, Botvinick, M., Wang, J.X., & Schulz, E. (2023). Meta-learned models of cognition. Behavioral and Brain Sciences [PDF]

Schubert, J., **Jagadish, A. K.**, Binz, M., & Schulz, E. (2023). A Rational Analysis of Optimism Bias using Meta-Reinforcement Learning. In Conference on Cognitive Computational Neuroscience (CCN) [PDF]

Jagadish, A. K., Saanum, T., Wang, J. X., Binz, M., & Schulz, E. (2022). Probing Compositional Inference in Natural and Artificial Agents. In 5th Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)

Bashiri, M.* , Walker, E.* , Lurz, K. K., **Jagadish, A. K.**, Muhammad, T., Ding, Z., ... & Sinz, F. (2021). A flow-based latent state generative model of neural population responses to natural images. In Advances in Neural Information Processing Systems (NeurIPS) [PDF]

Lurz, K. K., Bashiri, M., Willeke, K. F., **Jagadish, A. K.**, Wang, E., Walker, E. Y., ... & Sinz, F. (2021). Generalization in data-driven models of primary visual cortex. In International Conference on Learning Representations (ICLR) [PDF]

Rodriguez, C.* , **Jagadish, A. K.***, Meskaldji, D. E., Haller, S., Herrmann, F., Van De Ville, D., & Giannakopoulos, P. (2019). Structural correlates of personality dimensions in healthy aging and MCI. Frontiers in psychology [PDF]

Annadani, Y., Naganoor, V., **Jagadish, A. K.**, & Chemmangat, K. (2016). Selfie detection by synergy-constraint based convolutional neural network. In 2016 12th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), IEEE [PDF]

Jagadish, A. K., Goswami, S., Saha, P., Chakrabarty, S., & Rajgopal, K. (2016). Artificial Bee Colony (ABC) based variable density sampling scheme for CS-MRI. In 2016 IEEE Region 10 Conference (TENCON) [PDF]

Honors, Awards, & Fellowships

2025	Top Reviewer , Top 10 % reviewer (main track) for Neural Information Processing Systems (NeurIPS)	USA
2025	Natural and Artificial Mind Fellowship , Top 5 candidates with a fellowship to conduct independent research at the Princeton AI Lab	USA
2025	Ph.D. with Magna cum Laude , for exceptional research conducted during doctoral studies	Germany
2024	Top Reviewer , Top 10 % reviewer (main track) for Neural Information Processing Systems (NeurIPS)	Canada
2024	ELLIS Winter School on Foundation Models , Top 40 students selected from 607 to present their research	Netherlands
2023	Analytical Connectionism , Top 35 students selected to attend the summer course at the Gatsby Computational Neuroscience Unit in University College London	UK
2020	SMARTSTART Fellowship in Computational Neuroscience , Top 15 students awarded a travel budget of 1000 euros and mentorship from Prof. Peter Dayan and Prof. Fabian Sinz	Germany
2019	Dean's List , Top 3 performers in the summer semester for M.Sc. program in Computational Neuroscience	Germany
2018	Dean's List , Top 3 performers in the winter semester for M.Sc. program in Computational Neuroscience	Germany
2018	Max Planck Society Scholarship , Top 5 students selected to undertake M.Sc in Computational Neuroscience at the University of Tübingen	Germany
2017	Harvard Young Scientist Development Program , Top 25 students selected for training in neuroscience	USA India
2016	Summer Research Program , Top 20 students funded to conduct research at EPFL	Switzerland
2016	Summer Research Fellowship Program , Top 10 % students funded to conduct research at the Indian Institute of Science	India
2013	Ranked Top 0.1% , Karnataka Common Entrance Test among 150,000 students	India
2013	Ranked Top 0.1% , COMED-K among 200,000 students	India
2011	Most Consistent Performer of the Batch , High school at Presidency School	India

Press

2025	New York Times , An opinion piece called "Scientists Use A.I. to Mimic the Mind, Warts and All" on our article A foundation model to predict and capture human cognition [URL]	AoE
2025	New York Times , A science-education piece called "Digital Therapists Get Stressed Too, Study Finds" on our article "Chat-GPT on the Couch": Assessing and Alleviating State Anxiety in Large Language Models [URL]	AoE
2025	Fortune Magazine , Interview to discuss our article "Chat-GPT on the Couch": Assessing and Alleviating State Anxiety in Large Language Models [URL]	AoE
2025	ScienceDaily , An accessible take on our article "Chat-GPT on the Couch": Assessing and Alleviating State Anxiety in Large Language Models [URL]	AoE
2025	Tagesspiegel , An accessible article in German called "How does ChatGPT "think"? A chatbot goes to a psychologist" on our article "Chat-GPT on the Couch": Assessing and Alleviating State Anxiety in Large Language Models [URL]	AoE

Supervision

2025	Doctoral Student , Liyi Zhang's doctoral research project on "Distilling inductive reasoning into LLMs" at the Princeton University	USA
2025	Doctoral Student , Solim Legris's doctoral research project on "Neuro-symbolic models for ARC benchmark" at the Princeton University	USA
2025	Doctoral Student , Younes Strittmatter's doctoral research project on "Tools for automated scientific discovery" at the Princeton University	USA
2025	Master Student , Daniel Braga's master research project on "Automated representational structure discovery" at the Princeton University	USA
2024	Master Student , Elif Kara's master research project on "Human decision-making in the wild" at the University of Munich	Germany
2023	Master Student , Johannes Schubert's master thesis on "Rational Analysis of Optimism Bias" at the University of Tübingen. Converted to a publication at the <i>International Conference on Machine Learning (ICML)</i> [PDF]	Germany

Teaching

2023	Teaching Assistant , “Computational Cognitive Science” course at the Graduate Training Center for Neuroscience, University of Tübingen	Germany
2022	Tutor , Tutorial on “Meta-Reinforcement Learning” at the Max Planck Institute for Biological Cybernetics	Germany

Invited talks

2025	Cornell-CUNY-UC Davis , Cross-lab meeting part of an NSF grant on ”Collective behavior in smart environments”.	USA
2025	New York University , NYUConcats talk series – the longest running scientific discussion groups in the Department of Psychology at NYU	USA
2025	Princeton University , Natural and Artificial Minds monthly talk series in the the Princeton AI Lab	USA
2025	Princeton University , Workshop on Automated Discovery of Mind and Brain	USA
2025	University of Osnabrück , Lab meeting at the Laboratory for Automated Scientific Discovery of Mind and Brain	Germany
2024	Annual Meeting of the Cognitive Science Society (CogSci) , Workshop on “In-context learning in natural and artificial intelligence”	Netherlands
2024	Annual Meeting of the Cognitive Science Society (CogSci) , Workshop on “Compositionality in minds, brains and machines: A unifying goal that cuts across cognitive sciences”	Netherlands
2024	Indian Institute of Science , Seminar talk at the Center for Neuroscience	India
2024	Princeton University , Lab meeting at Computational Cognitive Science Lab	USA
2023	Helmholtz München , Joint lab retreat with Explainable Machine Learning Lab	Germany
2023	University of Oxford , Lab meeting at the Human Information Processing Lab	United Kingdom
2022	Max Planck Institute for Human Cognitive and Brain Sciences , Joint lab retreat with Doeller Lab	Germany
2021	Stanford University , Joint lab retreat with Human Information Processing and Causality in Cognition Lab	USA
2019	University of Tübingen , Workshop on “Causality in Neuroscience” at Neuroscience Conference for Young Scientists	Germany

Organization

2024	Co-organizer , “Connecting Minds and Machines a Foundation Model Approach to Learning” symposium at Helmholtz Pioneer Campus, Munich	Germany
2024	Co-organizer , “In-context learning in natural and artificial intelligence” workshop at CogSci-2024	Netherlands
2023	Co-organizer , Laboratory Retreat of Computational Principles of Intelligence Lab	Germany
2022	Co-organizer , Computation and Cognitive Tübingen Summer School (CaCTüs) aimed specifically at young scientists held back by personal, financial, regional or societal constraints.	Germany
2019	Co-organizer , “Causality in Neuroscience” Workshop at Neuroscience Conference for Young Scientists	Germany
2020	Volunteer , Machine Learning Summer School (MLSS) held at MPI for Intelligent Systems, Tübingen	Germany

Service

2025-	Reviewer , Transactions on Machine Learning Research (TMLR)	AoE
2024-	Reviewer , Neural Information Processing Systems (NeurIPS)	AoE
2023-	Reviewer , International Conference on Learning Representations (ICLR)	AoE
2025-	Reviewer , International Conference on Machine Learning (ICML)	AoE
2022-	Reviewer , Annual Meeting of the Cognitive Science Society (CogSci)	AoE
2023-	Reviewer , Cognitive Computational Neuroscience (CCN)	AoE