Curriculum Vitae

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psychedelics · visual/computational neuroscience · statistics · physics

2025-now · PostDoc (Usona Institute Fellow) · Dráulio Araújo lab · Psychedelic Study Center · Brain Institute · UFRN, Natal, Brazil

2025-now · Researcher · Geisler vision lab · Center for Theoretical & Computational Neuroscience · The University of Texas at Austin

2022-25 · PostDoc · Geisler lab · The University of Texas at Austin

2022-25 · Researcher · Greg Fonzo lab · Center for Psychedelic Research & Therapy · The University of Texas at Austin

2013-22 · PhD, Physics · Geisler lab · The University of Texas at Austin

2008-13 · BS-MS, Physics · Indian Institute of Science Education and Research, Kolkata

Research highlights · Google Scholar · ResearchGate

current · Biomarkers in treating depression with ayahuasca · with Dr Dráulio Araújo · UFRN Brain Institute House Symposium 2025

current · Ecological trauma in the collective psyche: a psychedelic, transpersonal, and non-dual view · pre-print · Forever Jung conference 2025 talk, California Institute of Integral Studies

current · Measuring psychedelic treatment with eye-tracking · podcast · UT Austin Annual Psychology Graduate Research Showcase 2024: poster & talk · Roots alumni meet 2025, IISER-K · UFRN Brain Institute Seminar 2025

current · Understanding camouflage detection · PhD Thesis · Vision Sciences Society (VSS) conference 2025 (talk), 2022, 2020, 2018 (talk) · Natural Environments, Tasks, and Intelligence (NETI) 2023 · Computational and Systems Neuroscience (COSYNE) 2018

current · Self-supervised models of texture discrimination · VSS 2024

2025 · New methods to compute the generalized chi-square distribution · Journal of Statistical Computation & Simulation

2021 · A method to integrate and classify normal distributions · Journal of Vision (cover article) · VSS conference

2020 · Systematic errors in inferring strongly recurrent circuits from activity · Nature Neuroscience · Austin Conference on Learning and Memory · Gordon Research Conference: Neural circuits for perception, memory, thought and consciousness · COSYNE

2017 · Applying a variational autoencoder:

· for visual texture classification and synthesis · Junior Scientist Workshop on Machine Learning and Computer Vision, Janelia Research Campus · I presented a talk and coordinated an interactive python workshop.

· for unsupervised head-direction extraction from mouse recordings · with Dr Ila Fiete, dept. of Neuroscience, UT Austin · talk

2015 · Transient dynamics in the thermal ratchets transport model · arXiv · MS thesis

2011 · Process time comparison between GPU and CPU · with Dr Robi Banerjee, University of Hamburg · with the DAAD (German Academic Exchange Service) scholarship · I benchmarked the use of CUDA for parallel computing on NVIDIA GPU's, for numerical astrophysics.

2010 · Perspective: the maths of seeing (book) · Lambert Academic Publishing, Germany · I wrote this book from high school through my first undergrad year, on mathematical/computational models of perspective projection in vision.

Career highlights · awards · teaching · outreach

2025 · received the Usona Institute Scholarship for postdoctoral research on psychedelics

2020-now · The Room of Lives podcast · conversations with people on science, spirituality, mind and mystery · 131 episodes with 67 guests so far

2024, 23, 21 · Taught UT Austin Neuroscience boot camp · taught workshops on Matlab and signal detection theory to incoming grad students.

2019 · Texas Prison Education Initiative · Taught meditation and UT-accredited math courses at Lockhart Women's prison

2018 · Invited talk at Trinity University: 'Making Sense of the Brain with Physics'

2017-18 · Radio show host · co-hosted UT student-run KVRX 91.7 FM show 'They Blinded Me with Science', which showcased grad student research.

2015-19 · Organized Molotov Seminar (104 talks by 89 speakers), a weekly series of open talks by anyone, for anyone, on anything, at UT Austin · News coverage articles 1, 2, 3

2015-16 · Assistant Instructor and Head Teaching Assistant, UT Austin · as Assistant Instructor, I taught an undergrad electromagnetism course. As Head Teaching Assistant of engineering physics lab, I instructed and oversaw all other graduate TA's.

2013 · IISER Kolkata Gold Medal of Excellence · from state governor M.K. Narayanan, for academics and extracurriculars during BS-MS.

2012 · Invited as instructor for the National Centre for Radio Astrophysics & Inter-University Centre for Astronomy and Astrophysics Radio Astronomy Winter School · I coordinated experiments, gave a talk, and analyzed galactic neutral hydrogen data from the Giant Metrewave Radio Telescope, with Dr Subhashis Roy.

2011-12 · DAAD (German Academic Exchange Service) Young Ambassador to India · elected in 2011, re-elected in 2012. I promoted German education programs and scholarships by writing online, organizing seminars, and helped applicants with scholarship, program and visa questions.

2010 · NCRA-IUCAA Radio Astronomy Winter School, India · voted best of seven teams in experiments, seminar and poster.

2008-9 · Received the C.N.R. Rao Foundation Prize for achieving institute rank 1 in both semesters 1 and 2 at IISER Kolkata.

Talks

2022 · Open your Science and be More Seen · Big Data in Neuroscience Workshop

2016 · Noise correlations in neural systems

2015, 13, 12 · Telling right from left: the misleading handedness of electrodynamics

2012 · Web Design: HTML · CSS · Javascript

2012 · Diffusion-limited aggregation

2009 · DNA double helix: a mathematical approach to the physical structure

2008 · Cellular Automata

Coding highlights · Github · Arctic code vault contributor

2021 · Center for Theoretical and Computational Neuroscience website · open source

2021 · Integrate and Classify Normal Distributions · open source

Integrate multinormal distributions in any dimensions with any parameters in any domain, compute pdf/cdf/inverse cdf of any function of a normal vector, and measures of classification performance among two or more multinormals, such as error matrix and sensitivity index.

2021 · Generalized chi-square distribution · open source · compute the statistics, pdf, cdf, inverse cdf and random numbers of the distribution.

2015-16 · Particle image velocimetry · open source · for studying internal waves in Dr Harry Swinney's fluid dynamics group, UT Austin.

Technical articles

2017 · Depth estimation from stereo image pairs · Matlab code

2015 · Training neural networks with genetic algorithms (R)

2014-15 · Calculating the Lyapunov exponent of: time series (python) · logistic map (Mathematica)

2014 · Multivariate random-walk Metropolis sampling (R)

2014 · Partners meet halfway: a simple correlation study of an undergrad lab class

2013 · A/B and Rh antigens in blood types: a statistical test of independence among IISER Kolkata students

2012 · Locating numbers inside bisected interval sequences (python)

2011 · Chaos in the brain (Matlab)

2011 · Simulating evolution and behaviour (python)

References

Dr Wilson Geisler · PhD & PostDoc advisor · Center for Theoretical & Computational Neuroscience, UT Austin · w.geisler@utexas.edu

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