JAYANTH R TARANATH

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EDUCATION

- **PhD in Electrical Engineering**, August 2021 - August 2026 (Expected)
  Cumulative GPA: 3.99/4
  University of Texas at Austin
  Department of Electrical and Computer Engineering
  Center for Learning and Memory, Center for Theoretical and Computational Neuroscience
- **MSE with Thesis in Electrical Engineering** (Solid-State Electronics and Nanotechnology),
  August 2019 - May 2021
  Cumulative GPA: 3.99/4
  University of Texas at Austin
  Department of Electrical and Computer Engineering
- **Bachelor of Engineering (BE) in Electronics and Communication Engineering**, August 2015 – May 2019
  Cumulative GPA: 9.6/10 (Top 5 in a class of 200)
  Sri Jayachamarajendra College of Engineering
  Visvesvaraya Technological University, India

ACADEMIC PROJECTS

Doctoral Years

- **Understanding the hippocampal spatial memory deficits in Alzheimer's disease (AD)**
  January 2022 – Present
- **Designing a high-bandwidth brain-computer-interface to alleviate hippocampal neurophysiological deficits**
  January 2022 – Present
- **Representation of social-information in the dentate-gyrus**
  April 2023 – Present
- **A predictive model for decision-making in a spatial delayed-match-to-sample task**
  January 2023 – Present

Master's Years

- **Imaging the electron-states at the interface of twisted bilayer Molybdenum Disulfide (MoS_2)**
  August 2019 – January 2021
- **Bioelectronic tattoo sensors based on platinum-based 2-dimensional materials**
  January 2021 – September 2021
- **Biocompatibility of 2-dimensional materials (Thesis)**
  August 2019 – May 2021

Undergraduate Years

- **Air pollution monitoring system using satellite-based hyper-spectral images and ground-based gas-sensor data (Thesis)**
  August 2018 – May 2019
- **pH sensors using topological insulators**
  May 2017 – August 2017

PUBLICATIONS

- **Jayanth RT**, Salim Mjahad, 'An Uncertainty Principle for Probabilistic Computation in the Retina', 2025, DOI: https://arxiv.org/pdf/2507.22785
- **Jayanth RT**, 'On Questions of Predictability and Control of an Intelligent System Using Probabilistic State-Transitions', 2025, DOI: 10.48550/arXiv.2503.06374
- **Jayanth RT**, Rebecca Duquette, Sabrina Salazar, Shanmukh Kutagulla, Martha Serna, Emmanuel Okogbue, Yeonwoong Jung, Dmitry Kireev, Stephanie Seidlits, and Deji Akinwande 'Biocompatibility of Large Area Electronics-Grade 2D Materials With Neural Stem Cells' *(Under Review at Cell Biomaterials)*
- Dmitry Kireev, Emmanuel Okogbue, **Jayanth RT**, Yeonwoong Jung, and Deji Akinwande 'Multipurpose and Reusable Ultrathin Electronic Tattoos Based on PtSe2 and PtTe2'; *ACS Nano 2021*, DOI: 10.1021/acsnano.0c08689
- Calderon V, Sebastian, Rafael V. Ferreira, Deepyanti Taneja, **Jayanth RT**, Langyan Zhou, Ricardo M. Ribeiro, Deji Akinwande, and Paulo J. Ferreira 'Atomic Electrostatic Maps of Point Defects in MoS_2'; *Nano Letters 2021,* DOI: 10.1021/acs.nanolett.1c02334

CONFERENCES AND WORKSHOPS

- 2025 Society for Neuroscience, Chicago (Poster Presentation)
- 2024 Society for Neuroscience, Chicago (Poster Presentation)
- 2023 International Conference on Learning and Memory, Irvine, California (Poster Presentation)
- 2023 Society for Neuroscience, Washington, DC (Poster Presentation)
- 2022 Molecular and Cellular Cognition Society, San Diego, California (Poster Presentation)
- 2022 Nencki School of Ideas in Neuroscience, Warsaw, Poland
- 2021 Society for Neuroscience (Virtual Poster Presentation)
- 2021 Materials Research Society Fall Meeting, Boston, Massachusetts (Invited Talk)
- 2019 IEEE Regional Conference, Mysore, India (Oral Presentation)
- 2017 Indian Academy of Sciences Summer Research Fellowship, New Delhi, India

INDUSTRIAL POSITIONS

- **Technical Advisor**
  Lab91, Austin, Texas
  November 2019 – Present
- **Analog Electronic Design Research Intern**
  Kilby Labs, Texas Instruments, Dallas, Texas
  June 2020 – August 2020

APPOINTMENTS AND AD-HOC REVIEWER RESPONSIBILITIES

- 2022 – Present, Treasurer, IEEE Graduate Student Chapter, UT Austin
- 2023 – Present, Steering Committee Member, Neurotechnology Club, UT Austin
- 2023 – Present, Reviewer, Journal of the American Aging Association

HONORS AND AWARDS

- 2019 **Rhodes** Scholarship National Finalist
- 2017 **Indian Academy of Sciences** Research Fellowship
- 2015 – 2019 **National Merit Scholar** (Government of India)
- 2015 **Top-10** Ranked Scholar in the State-wide 12th grade board examinations (out of ~200,000 students)
- 2013 **National Talent Search Examination (NTSE) Scholarship**, with an all-state rank of 24 (only 5000 students selected out of around 1,000,000 students across India)
- 2013 **Top-10** Ranked Scholar in the State-wide 10th grade board examinations (out of ~300,000 students)

PROFESSIONAL MEMBERSHIPS

- Society for Neuroscience
- Brain Computer Interfaces (BCI) Society
- Institute of Electrical and Electronics Engineers (IEEE)
- Organization for Computational Neurosciences (OCNS)

MENTORSHIP

- Nick Riviera: Performing DeepLabCut analyses of various rodent behavioral assays, and EEG-based power-spectral analyses. Currently a PhD student at Caltech.
- Destiny Okwubodu: Designing and performing animal behavioral assays.
- Amelia Perrette, Zora Cook, Melanie Salazar: Performing neuroscience data-analysis. Part of the *Women in Neuroscience* initiative (encouraging women to pursue research in STEM).

EXTRA-CURRICULARS AND COMMUNITY WORK

- **~15 years of musical training in mridangam** (a South-Indian classical percussion instrument), first public performance at the age of 9 and the first televised performance at the age of 11. Honored as a **child-prodigy** across the city and state. Vidwath (professional/master) grade certificate in mridangam at the age of 19.
- Initiated teaching and workshop events for **middle and high-school students from rural areas** around Mysore, as part of IEEE-Mysore. Also, started the **city-wide science and general quiz series** as part of IEEE-Mysore.
- As part of IEEE, started the 'Outside the Lab' series of **public lectures** of distinguished professors across UT Austin to share their personal life experiences and career trajectories.
- Started the **robotics and BCI hackathon competitions** for Austin-wide high-school and college students as part of the neurotechnology hub.
- As a member of the **Austin Science Network**, a community of scientists, engineers, philosophers, and entrepreneurs based in Austin, Texas, I organize weekly public forums, lectures, pitch competitions, and charity events.