Neha Binish, M.Sc.

Computational Neuroscience Researcher

Graduate Training Center of Neuroscience & University of Tübingen

Helfrich Lab
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Research Interests: Intracranial EEG | Neural Population Coding | Dynamical Systems | Mathematical & Statistical Modelling

Education

Ph.D. Computational Neuroscience, *Graduate Training Center of Neuroscience & University of Tübingen.*

Apr 23 – now Member of the International Max Planck Research School for Mental Functions and Dysfunction. Advisor: Dr. Dr. Randolph Helfrich (Advisory Board: Prof. Dr. Anna Levina & Prof. Dr. Martin Giese). My research [1] focuses on how the human cortex structures neural population codes and routes information to enable higher-order cognition.

M.Sc. Physics and Computational Physics, *Université Bourgogne Franche-Comté (UBFC).*

Sep 20–Aug 22 GPA: 16.105/20 (rank: 1/11). 1st Master Thesis: "Characterizing Neuronal Activity by Magnetic Resonance", supervised by Dr. David Viennot, 2nd Master Thesis: "Single Cell Signaling Dynamics of p53 in the Context of DNA Damage", supervised by Dr. rer. nat. Adrián Granada.

B.Sc. Integrated Physics, *Amrita University.*

Jun 17 – Jul 20 GPA: 9.46/10 (top 5% of graduates). Thesis: "The Cooling Mechanism of White Dwarfs".

Experience

Hertie-Institute for Clinical Brain Research · *Tübingen, Germany*

Apr 23 – now *Ph.D. student* with Dr. Dr. Randolph Helfrich at the Helfrich Lab, working on functional network architecture of cortico-cortical interactions supporting cognitive processes in humans [1].

Charité Comprehensive Cancer Center · *Berlin, Germany*

Feb 22–Aug 22 *Research Intern* with Dr. rer. nat. Adrián Granada at the Granada Lab, working on p53 signaling dynamics from long-term single-cell fluorescence microscopy recordings of irradiated cell lines [2].

Humboldt University · *Berlin, Germany*

Jul 21 – Sep 21 *Research Intern* with with Prof. Dr. Martin Rolfs at the Rolfs Lab, working on modeling geometrical and simulated eye rotations to analyze retinal image changes due to eye movements (see work here).

Institute UTINAM - CNRS · *Besançon, France*

Nov 20 – Jul 21 *Research Intern* with Dr. David Viennot at OSU THETA, working on theoretically characterizing fMRI-recorded neural activity into chaotic and regular regimes.

Amrita University · *Coimbatore, India*

Jun 19–May 20 *Research Intern* with Dr. Bharat Sharma, working on the structural and thermodynamical properties of white dwarfs, including the mass-radius relationship.

Jun 18–Jun 19 *Research Intern* with Dr. Satyajith K.T. and Dr. Wolfgang Quint, working on variations in trapped electron density in a Penning trap under varying electric potentials and magnetic fields.

Supervision & Initiatives

Supervision Michael Moroz (Postgrad 2024 at Yale University, co-supervised with Dr. Dr. Randolph Helfrich)

Reviewing Neuron (2024)

Organizing Science exhibition at Anokha Techfest (2018 & 2019)
"Atomic Spectroscopy, Hydrogen Atom" workshop at Amrita University (2019)

Projects "Hydraulic Windmill" and "Underwater Robot" at GMU UAE science exhibition (2016 & 2017)

Fellowships & Awards

2026 Young Scientist G. A. Lienert Foundation Stipend.
2025 IMPRS-MMFD Fellowship.
2022 Awarded the Networking Badge by EIPHI-BFC Graduate School.
2022 & 2021 Erasmus+ Internship Mobility Grant.
2022 & 2021 Dynastage Bourgogne Franche-Comté Regional Grant for Research Internship.
2021 Santander Scholarship from Humboldt Internship Program.
2021 ISITE BFC International Master Grant.

Publications

2026 [1] **N. Binish**, J. Terlau, J. Martini et al., *Nat Neurosci.* (2026).
2025 [2] N. Gutu, **N. Binish**, U. Keilholz, H. Herzel, A. E. Granada, *Commun. Biol.* (2023).

Skills

Languages English: fluent — Malayalam: native — Hindi: fluent — German: elementary (A2).

Coding Python: expert — Matlab: advanced — C: elementary — Fortran: elementary.

Technical Multivariate Statistical Methods — Machine Learning — Numpy & Scipy — Git — Linux — Bash — LaTeX — Fieldtrip — VASP — ilastik — CellProfiler — ImageJ — SAOImage DS9.

May 2026