TARANA NIGAM

Post-doctoral researcher, Perception and Plasticity Group, European Neuroscience Institute, Göttingen and German Primate Center, Germany; Visiting Scientist, Neural Systems Laboratory, The Rockefeller University, New York, USA
Email: tnigam@dpz.eu; tnigam@rockefeller.edu

Systems neuroscientist interested in studying building blocks of intelligence: neural and computational mechanisms in rapid learning, generalization/abstraction, cognitive flexibility, contextual and learning effects on perception.
Skilled in experiments and data analysis of acute, multi-channel electrophysiology and fMRI in awake non-human primates and intracranial electrophysiology (ECoG) in humans.

POSITIONS HELD

AUG 2024- CURRENT (UNTIL DEC 2024)
VISITING SCIENTIST, NEURAL SYSTEMS LAB, THE ROCKEFELLER UNIVERSITY, NEW YORK, USA
Supervisor: Dr. Winrich Freiwald

JULY 2024- CURRENT
POST-DOCTORAL RESEARCHER, PERCEPTION AND PLASTICITY GROUP, GERMAN PRIMATE CENTER AND EUROPEAN NEUROSCIENCE INSTITUTE, GÖTTINGEN, GERMANY
Supervisor: Dr. Caspar Schwiedrzik

JULY 2022- SEP 2022
VISITING SCIENTIST, NEURAL SYSTEMS LAB, THE ROCKEFELLER UNIVERSITY, NEW YORK, USA
Supervisor: Dr. Winrich Freiwald

AUG 2019- JUNE 2024
DOCTORAL RESEARCHER, PERCEPTION AND PLASTICITY GROUP, GERMAN PRIMATE CENTER AND EUROPEAN NEUROSCIENCE INSTITUTE, GÖTTINGEN, GERMANY
Supervisor: Dr. Caspar Schwiedrzik

EDUCATION

2019- 2024
PH.D. IN NEUROSCIENCE, INTERNATIONAL MAX PLANCK RESEARCH SCHOOL FOR NEUROSCIENCES, GEORG-AUGUST UNIVERSITY, GÖTTINGEN
Thesis: *Flexibility and optimization of neural codes in primate sensory cortex;* Perception and Plasticity Group, German Primate Center and European Neuroscience Institute; Advisor: Dr. Caspar Schwiedrzik

2017-2019
M.SC. IN NEUROSCIENCE, INTERNATIONAL MAX PLANCK RESEARCH SCHOOL FOR NEUROSCIENCES, GEORG-AUGUST UNIVERSITY, GÖTTINGEN
Thesis: *Dyadic interactions in social-decision making in NHP & humans;* Decision and Awareness Group, German Primate Center, Göttingen; Advisors: Drs. Sebastian Moeller, Igor Kagan, Alexander Gail

2013-2017
B.TECH. (ENGINEERING) IN BIOTECHNOLOGY, VIT UNIVERSITY, VELLORE, INDIA
Thesis: *Adult Neurogenesis: Molecular regulation & implications on spatial memory;* Brain homeostasis & neuroinflammation lab, National Center for Biological Research, India; Advisor: Dr. Hiyaa Ghosh

RESEARCH EXPERIENCE

MAR 2018 – MAY 2018; OCT 2018 – MAY 2019
GERMAN PRIMATE CENTER, GÖTTINGEN, GERMANY
Gaze and dyadic interactions in social decision-making in monkeys & humans; Drs. Sebastian Moeller, Igor Kagan

MAY 2018 – JULY 2018
EUROPEAN NEUROSCIENCE INSTITUTE, GÖTTINGEN, GERMANY
Role of temperature and TRPV1 channel on sharp-wave ripples in the hippocampus; Dr. Camin Dean

JAN 2018- MAR 2018
UNIVERSITY MEDICAL CENTER, GÖTTINGEN, GERMANY
Effect of transcranial stimulation on conflict processing and decision-making models; Dr. Andrea Antal

JUN 2016 – AUG 2016
UNIVERSITY PIERRE ET MARIE CURIE, PARIS, FRANCE
Effect of stress and glucocorticoid receptor in prefrontal cortex and task switching; Dr. Francois Tronche

JUN 2015 – JUL 2015
AIX-MARSEILLE UNIVERSITY, MARSEILLE, FRANCE
Tissue-specific expression of muscular dystrophy gene enhancer in mice embryos; Dr. Francoise Helmbacher

TALKS

Sep 2024	The 10th Mismatch Negativity Conference, Salamanca, Spain
Mar 2024	Neuroscience Institute, University of Chicago, USA (Dr. Marlene Cohen, Dr. David Freedman)
Dec 2023	Center for Neuroscience, Indian Institute for Sciences, Bengaluru, India (Dr. S.P. Arun)
Aug 2022	The Rockefeller University, New York, USA (Dr. Winrich Freiwald)
Aug 2022	Princeton Neuroscience Institute, Princeton University, USA (Dr. Timothy Buschman)
Aug 2022	Brain and Cognitive Sciences, Massachusetts Institute of Technology, USA, (Dr. Mehrdad Jazayeri)
Aug 2022	Neuroscience Institute, NYU Langone Health, New York University, USA (Dr. Jayeeta Basu)
Apr 2020	Intracranial Electrophysiology Symposium, University Medical Center Goettingen, Germany

PUBLICATIONS

1) **Nigam, T.**, Schwiedrzik, C.M. (2024), Predictions enable top-down pattern separation in the macaque face-processing hierarchy, Nature Communications 15, 7196 (2024). https://doi.org/10.1038/s41467-024-51543-y

2) **Nigam, T.**, Campos, A., Megevand, P., Mehta, A.D., Vidal, J., Perrone-Bertolotti, M., Kahane, P., Lachaux, J.P., Thesen, T., Doyle, W., Devinsky O., Melloni, L., Schwiedrzik, C.M. (2024), Multiple task-demands flexibly optimize neural geometry in human inferotemporal cortex, (Manuscript in preparation)

3) Caruso, N., Zimmermann A., **Nigam T.,** Becker C., Lipson K., Helmbacher F. (2022), An intragenic FAT1 regulatory element deleted in muscular dystrophy patients drives muscle and mesenchyme expression during development https://doi.org/10.1101/2022.09.14.507898 (in revision)

4) Lehr, A., Henneberg, N., **Nigam, T.**, Paulus, W., & Antal, A. (2019). Modulation of Conflict Processing by Theta-Range tACS over the Dorsolateral Prefrontal Cortex. Neural plasticity, 2019, 6747049. https://doi.org/10.1155/2019/6747049

SELECTED CONFERENCES AND SUMMER SCHOOLS

Mar 2024 Poster Presentation- **Computational and Systems Neuroscience (COSYNE) 2024, Portugal**
Predictions enable top-down separability in the macaque face-processing hierarchy

Mar 2023 Poster Presentation**- Primate Neurobiology Meeting, 2023, Göttingen, Germany**
Predictions enable top-down separability in the macaque face-processing hierarchy

Nov 2022 Poster Presentation- **Society for Neuroscience Meeting, 2022, San Diego, USA**
High-level prediction signals cascade through the macaque face-processing hierarchy for efficient pattern separation

Mar 2022 Poster Presentation - **Computational and Systems Neuroscience (COSYNE) 2022, Portugal**
High-level prediction signals cascade through the macaque face-processing hierarchy

Mar 2021 Poster Presentation - **14th Göttingen Meeting of the German Neuroscience Society**
Precise predictions lead to increased efficiency of processing in stimulus-specific visual cortex

July 2019 **Cognitive and Computational Neuroscience Summer School, Cold Spring Harbor Asia, Suzhou, China** Organized by Xiao-Jing Wang, Dora Angelaki, Chris Honey and Robert Yang

June 2019 **Cellular, Computational and Cognitive Neuroscience Summer Program, Princeton Neuroscience Institute, Princeton, USA** Organized by Michael J. Berry and Alan Gelperin

CONFERENCES ORGANIZED

MAY 2021- JUNE 2022

NEURIZONS 2022, MAX PLANCK INSTITUTE FOR MULTIDISCIPLINARY SCIENCES, GÖTTINGEN

Main role: General coordinator, leading multiple teams, inviting speakers, organizing career fair, workshops and acquiring funds through Boehringer Ingelheim Foundation

MAY 2019 – MAY 2020

NEURIZONS 2020, MAX PLANCK INSTITUTE FOR BIOPHYSICAL CHEMISTRY, GÖTTINGEN

Main role: Leading the panel discussion team- Natural & Artificial Intelligence, inviting speakers

MAY 2018 – SEP 2019

HORIZONS IN MOLECULAR BIOLOGY 2019, MAX PLANCK INSTITUTE FOR BIOPHYSICAL CHEMISTRY, GÖTTINGEN

Main role: Co-moderated the panel discussion with Prof. Mary Osborn on mental health awareness, work-life balance in academia and science communication; Acquiring funds for conference organization

TEACHING EXPERIENCE

JAN 2024 - NOW

RESEARCH SUPERVISION, ANDREA FERNANDA CAMPOS PÉREZ

M.Sc./Ph.D. IMPRS Neuroscience program

2019 – 2023

TUTOR FOR METHODS COURSE, INVASIVE ELECTROPHYSIOLOGY IN HUMANS

M.Sc. IMPRS Neuroscience program Instructor: Dr. Caspar Schwiedrzik

GRANTS AND FELLOWSHIPS

July 2024	Short-term International Mentoring Program from SFB1528 for mentoring from Dr. Winrich Freiwald and research stay at The Rockefeller University, New York, USA (Amount: 10000 €)
June 2024; May 2022	Outgoing Fellows Grant from The Leibniz ScienceCampus Primate Cognition for Exchange Program at The Rockefeller University, New York, USA (Amount: 4000 x 2(awarded twice)=8000€)
Mar 2022	Dorothea Schlözer Mentoring Program for young women scientists (1 year program)
Dec 2021	Grant for organizing scientific conference awarded by Boehringer Ingelheim Foundation (Amount: 5700 €) (as a part of Neurizons organizing team) for supporting junior scientists, speakers at the Neurizons 2022 conference to promote inclusivity and diversity in academia.
Jul 2019	Full financial support from Cold Spring Harbor Asia for Cognitive and Computational Neuroscience Summer School, Suzhou, China (1 month)
Jun 2019	Full financial support from the National Institute of Mental Health (USA) and Wellcome Burroughs Funds for Cellular, Computational and Cognitive Neuroscience Summer Program- Princeton Neuroscience Institute, USA (1 month)
July 2018	Travel award from Abcam- Adult Neurogenesis Conference, TU Dresden, Germany
2017-2019	Scholarship from International Max Planck Research School (IMPRS), Germany, for Masters in Neuroscience (Amount: ~15000 €)
2015, 2016	Scholarship from French National Centre for Scientific Research (CNRS), France for summer research internships