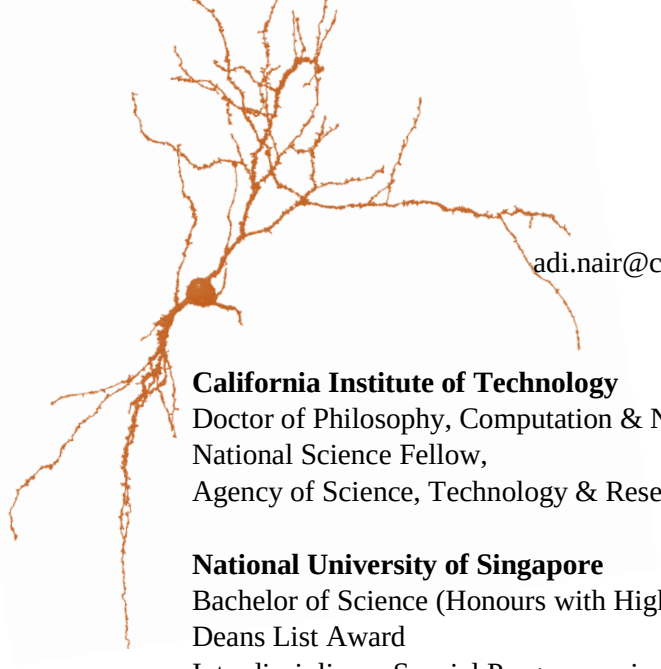

Aditya Nair

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Education

California Institute of Technology — **Pasadena, California, USA**
Doctor of Philosophy, Computation & Neural Systems — October 2019 - Present
National Science Fellow,
Agency of Science, Technology & Research, Singapore

National University of Singapore — **Singapore**
Bachelor of Science (Honours with Highest Distinction) in Life Sciences. — 2014-2018
Deans List Award
Interdisciplinary Special Programme in Science
Specializing in Molecular and Cell Biology
Cumulative Average Point of 4.66/5

Karolinska Institute — **Stockholm, Sweden**
Bachelor of Biomedicine — January to July, 2017
Exchange Semester
Awarded grade A, Outstanding

Toc H Public School — **Kochi, India**
Senior School Certificate (12th Grade) — 2014
Scored 97.8% with a perfect score (100) in Math, Chemistry and 99 in Physics

Research Experience

Singapore Bioimaging Consortium, Agency of Science, Technology & Research — **Singapore**
National Science Scholar & Research Officer, Advisor: Weiping Han, — June 2018 – September 2019
Laboratory of brain plasticity,
Discovery of a novel cholinergic computation in the claustrum

Nanyang Technological University — **Singapore**
Honours Researcher, Advisor: George Augustine, — August 2017-June 2018
Lee Kong Chian School of Medicine,
Identifying neuromodulatory inputs to the claustrum and understanding its significance in claustral circuits

Karolinska Institute, Sweden — **Stockholm, Sweden**
Undergraduate Researcher, Advisor: Gilad Silberberg, — January – July 2017
Department of Neuroscience,
Methods for the automated reconstruction of neuronal morphology from fluorescent images of neurobiotin filled neurons.

[1]The above image represents a neuron reconstructed digitally by a technology I have created named AdReconstructor, developed at the Karolinska Institute, Sweden.

National Neuroscience Institute, Singapore **Singapore**
Undergraduate Researcher, Advisor: Lim Kah Leong, August 2015 – March 2017
Neurodegeneration Laboratory,
Probing the role of the Parkin-Lipoprotein Lipase nexus in Parkinson's Disease.

MedGenome Inc., India **Kerala, India**
Research Intern, Advisor: Vedam Ramprasad and Lakshmi Mahadevan, July 2015 – January 2016
A retrospective analysis of genetic variations associated with hereditary cancers in Indians

Awards and Honours

A*STAR National Science Scholarship (PhD) **2018-2023**
A fellowship for 5 years to pursue a PhD in Computation and Neural Systems at the California Institute of Technology (Caltech) by the Agency of Science, Technology & Research, Singapore, commencing October 2019.

National University of Singapore Science and Technology Scholarship **2014-2018**
A full scholarship covering tuition and living allowances awarded by the National University of Singapore, Singapore.

Simons Foundation Award, Gordon Research Conference for Modulation of Neural Circuits and Behavior (GRC), USA **2019**
An award for best poster at the GRC on Modulation of Neural Circuits and Behavior sponsored by the Simons Foundation.

Trainee Professional Development Award, Society for Neuroscience (SfN), USA **2018**
A fellowship awarded by SfN, USA for outstanding research conducted by an early career scientist.

Erasmus Plus Scholarship **2017**
A scholarship awarded by the Karolinska Institute to pursue an exchange semester and perform research at the Department of Neuroscience, Karolinska Institute.

Best Speaker Award, Lee Kong Chian School of Medicine Research Retreat, Singapore **2019**
Awarded by Lee Kong Chian School of Medicine, Nanyang Technological University for presenting work titled "Cell-type specific cholinergic modulation of the claustrum"

Best Speaker Award, CUSAT-NUS Joint Conference, India **2016**
Awarded by CUSAT-NUS Joint Conference on Biotechnology and Neuroscience for presenting a novel software AdCount, capable of an automated analysis of sub-cellular morphology.

Best Speaker Award, Integrated Science Congress, National University of Singapore, Singapore **2016**
Awarded at the Integrated Science Congress organized by the Special Programme in Science, Faculty of Science, National University of Singapore for presenting research performed at the National Neuroscience Institute, Singapore.

Merit Recognition from Ministry of Human Resources, Government of India **2014**
Awarded for outstanding performance and being on the top 0.1% of successful candidates in Biology, Physics, Mathematics, Chemistry and English.

Highest score in Physics, Mathematics, Chemsitry and Mathematics in All India Senior Secondary School Examinations
Awarded by Kerala Sahodaya for obtaining the highest score in final year grade 12 examination in 2014.

Leadership and Volunteering Experience

President, Special Programme in Science, Faculty of Science, **2015**
National University of Singapore,

Vice President, Indian Instrumental Ensemble **2016-2017**
Centre for the Arts, National University of Singapore,

Resident Assistant **2015-2016**
Residential College 4, National University of Singapore,

Student Mentor **2016-2017**
Special Programme in Science, National University of Singapore,

Peer Mentor **2017-2018**
Prince George's Park House, National University of Singapore,

School Captain & Chair, Environmental Society **2013-2014**
Toc H Public School, Kochi, India,

Conference Presentations and Posters

Nair, A., Graf, M., & Augustine, G,J. (2019). Opposing cholinergic gain control of the claustrum. In Society for Neuroscience 49th Annual Meeting. Society for Neuroscience.

Nair, A., Graf, M., & Augustine, G,J. (2019). Opposing gain control as a novel cholinergic computation. In Gordon Research Conference for Modulation of Neural Circuits and Behavior 2019.

Nair, A., Graf, M., & Augustine, G,J. (2018). Cell-type specific cholinergic modulation of the claustrum. In Society for Neuroscience 48th Annual Meeting. Society for Neuroscience.

Nair, A., Graf, M., & Augustine, G,J. (2018). The claustrum receives neuromodulatory input from basal forebrain cholinergic neurons. In 3rd Society for Claustrum Research Annual Meeting, Salk Institute.

Nair, A., Thundyil, J., & Leong, L. K. (2016). Automated Analysis of Lipid Droplets in a Toxin-Induced Model of Parkinson's disease. In CUSAT-NUS Joint International conference on Biotechnology and Neuroscience. National University of Singapore; Cochin University of Science and Technology.

Nair, A., Mahadevan, L., & Ramprasad, V. (2015). Identification of novel mutations associated with hereditary cancers; A retrospective study. In 2015 NextGen Genomics, Biology, Bioinformatics and Technologies Conference.

Mahadevan, L., **Nair, A**., & Ramprasad, V. L. (2016). A retrospective analysis of the spectrum of genetic variations associated with hereditary cancers in Indians. American Association for Cancer Research.

Thundyil, J., Zhang, S. Y., **Nair, A**., Lim, G., Yao, T. P., & Lim, K. L. (2016). The parkin-lipoprotein lipase link in the pathogenesis of parkinson's disease. In Society for Neuroscience 46th Annual Meeting. Society for Neuroscience.

W, Tang, Thundyil, J., Zhang, S. Y., **Nair, A**., Lim, G., Yao, T. P., & Lim, K. L. (2018). Parkin modulates brain lipid metabolism through lipoprotein lipase - Implications for Parkinson's disease. In Society for Neuroscience 48th Annual Meeting. Society for Neuroscience.

Publications

Nair, A, , Graf, M & Augustine, G. J. (2019). Opposing gain control as a novel cholinergic computation. Manuscript submitted for review.

Nair, A, Augustine, G. J., Tsuda, S (2019). Compartmentalization of inhibitory cerebellar microcircuits by Zebrin. Manuscript submitted for review.

Nair, A, & Leong, L. K. (2018). AdCount: Automated analysis of subcellular structures with a focus on usability for the biologist. Manuscript submitted for review.

Graf, M, **Nair, A**, & Augustine, G. J. (2019). Unsupervised, electrophysiological based classification of claustral neurons in mice. Manuscript submitted for review.

Mao, C, **Nair, A**, & Augustine, G. J. (2018). A novel type of tyrosine hydroxylase-expressing neuron in the dorsal striatum. Frontiers in Neural Circuits

Nair, A, & Graf, M, Augustine, G.J (2018). Claustrum Classifier: A webtool for the automated extraction and classification of claustrum neurons based on electrophysiological properties . Manuscript submitted for review.

Invited Seminars

Society for Claustrum Research Annual Meeting 2019 on *Opposing cholinergic gain control of the claustrum* at Knapp Center, University of Chicago.
October 2019

Lee Kong Chian School of Medicine Retreat Research Seminar on *Cell Type Specific Modulation of the Claustrum* at Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore.
January 2019

Forum for Researchers in Neuroscience Scientific Seminar on *AdCount: Automated analysis of subcellular structures with a focus on usability for the biologist*, National Neuroscience Institute, Singapore
December 2016

Invited to present software developed titled AdCount to the **Center for Neuroscience, Indian Institute of Science, Bangalore, India**
July 2017

Neuroscience and Behavioral Diseases Seminar at Duke-NUS Medical School, Singapore on *AdCount and AdReconstructor: In-house developed tools for the automated analysis of macromolecular and neuronal morphology*.
November, 2017

Technologies Developed

Claustrum Classifier: A webtool utilizing machine learning for the automated extraction and classification of claustrum neurons based on electrophysiological properties. Available at https://claustrum.shinyapps.io/classifier/

AdReconstructor: Automated quantification and modelling of 3D neuronal morphology. Available at https://adityanairneuro.github.io/silver-reconstructor/

AdCount: Automated quantification and modelling of 2D mitochondrial morphology. Available at https://adcount.shinyapps.io/online.

- Featured in *Straits Time*, August 2018: https://www.straitstimes.com/singapore/he-finds-tech-fix-for-neuroscience-problem

AutoABF: Automated extraction of 20 electrophysiological parameters from ABF files. Available in Matlab

Beyond the books

Besides academics, I also perform as a guitarist and pianist for an Indian-fusion music ensemble called The Indian Instrumental Ensemble, Singapore. Watch us live here!: https://www.facebook.com/nusiie/

References

Prof Lim Kah Leong,
Department Head, Physiology
National University of Singapore,
Duke-NUS Medical School,
Director,
National Neuroscience Institute,
Singapore
Email: kahleong.lim@duke-nus.edu.sg

Prof George Augustine,
Professor of Neuroscience and Mental Health,
Lee Kong Chian School of Medicine,
Nanyang Technological University,
Singapore
Email: george.augustine@ntu.edu.sg

Prof Gilad Silberberg,
Associate Professor,
Department of Neuroscience,
Karolinska Institute,
Sweden
Email: gilad.silberberg@ki.se