

Aakash Madhav Rao

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Education

Post-Graduate Diploma in Advanced Studies and Research <i>Ashoka University. Sonipat, India.</i> <i>Thesis:</i> Quantifying the tissue topology in cancer pathology images using deep learning algorithms. <i>Advisor:</i> Dr. Rintu Kutum, Prof. Subhashis Banerjee, Dr. Madhura Kulkarni	<i>2023 - Present</i> <i>CGPA -/4.00</i>
Bachelors of Science (Honours) in Computer Science <i>Ashoka University. Sonipat, India.</i> Advisor: Prof. Debayan Gupta and Prof. Anirban Mondal (late)	<i>2020 - 2023</i> <i>CGPA 3.25/4.00</i>
High School Diploma <i>Ryan International School, Bengaluru, India.</i> Headed of the student council (President). Created and led one of the regions first TedED chapter.	<i>2018 - 2020</i> <i>CGPA 90.4%</i>

Work

Graduate Research Assistant <i>Trivedi School of Biosciences, Ashoka University.</i> Investigated and developed deep learning algorithms for diagnosis and prognosis in oral cancer.	<i>Jan 2023 - Present</i> <i>Sonipat India</i>
Summer Research Intern <i>With Dr. Rintu Kutum, Ashoka University.</i> Built and optimized a pipeline to harmonize large-scale in-house dataset of pathological images (H&E).	<i>Jun 2023 - Sep 2023</i> <i>Sonipat India</i>
Winter Research Intern <i>Centre for Healthcare Analytics and Research trends, Ashoka University.</i> - Evaluated deep learning algorithms for TB cough sound data (Acoustic Machine Learning). - Implemented Deep Spectral Segmentation for H&E pathological images of breast cancer.	<i>Dec 2022 - Jan 2023</i> <i>Sonipat India</i>
Research Assistant <i>With Professor Subashis Banerjee, Ashoka University.</i> Examined the variation of patch level context and its effect on deep learning based classification, in H&E histopathology images.	<i>Aug 2022 - Dec 2022</i> <i>Sonipat India</i>
Summer Research Intern <i>Mphasis Labs for Machine Learning and Computational Thinking, Ashoka University.</i> Reviewed and bench-marked deep learning based classification models to classify tumor, stroma, and tumor infiltrating lymphocytes (TILs) at a patch level in H&E histopathology images.	<i>Apr 2022 - Aug 2022</i> <i>Sonipat India</i>

Publications and Posters

<i>(Pre-print)</i> ORCHID: A Comprehensive Oral Cancer Histology Image Database for Histopathological Analytics and Diagnostics (August, 2023) Nisha Chaudhary, Arpita Rai, Aakash Madhav Rao , Md Imam Faizan, Jeyaseelan Augustine, Akhilanand Chaurasia, Deepika Mishra, Akhilesh Chandra, Varnit Chauhan, Rintu Kutum, Tanveer Ahmad DOI: 10.1101/2023.08.14.23294094	
<i>(Poster)</i> Grade-level classification of oral squamous cell carcinoma (OSCC) from digital pathology using ensemble deep learning algorithms (April, 2023) Nisha Chaudhary, Aakash Madhav Rao , Md Imam Faizan, Arpita Rai, J. Augustine, Akhilanand Chaurasia, Deepika Mishra, Akhilesh Chandra, Rintu Kutum, Tanveer Ahmad ISMB/ECCB 2023: The 31st Annual Intelligent Systems For Molecular Biology and the 22nd Annual European Conference on Computational Biology, Lyon. [Poster]	
<i>(Poster)</i> Histopathology Image Analysis using Automated Cell and White Space Classification: A Solution for Improved Digital Pathology (March, 2023) Aakash Madhav Rao , Pranit Sinha, Debayan Gupta, Rintu Kutum The 1st Ashoka Science and Research Fair (ASRF) Haryana, India	
<i>(Paper)</i> The Future of China's Minorities with the Growing Power and Breadth of Technology (April 14, 2022) (April, 2022) Aakash Madhav Rao Journal of Social and Political Sciences, Asian Institute of Research URL: https://www.asianinstituteofresearch.org/RaoFut2022	

Teaching

Peer Tutor

Independently with the department of Physics and Computer Science, Ashoka University.

*August 2023 - Present
Sonipat India*

CSL2010 - TA for Introduction to Machine Learning

Indian Institute of Technology Jodhpur

Prof. Rintu Kutum, Prof. Sucharita Dey, and Prof. Pankaj Yadav

*Jun 2023 - Sep 2023
Jodhpur, India*

CS2378 - TA for The New Geography of the Information Age

Department of Computer Science, Ashoka University.

Prof. Debayan Gupta

*Jan 2023 - May 2023
Sonipat India*

CS1230 - TA for Data Structures I

Department of Computer Science, Ashoka University.

Prof. Soumyottam Chakrabarti, Prof. Debayan Gupta

*Sep 2022 - Dec 2022
Sonipat India*

CS2378 - TA for The New Geography of the Information Age

Department of Computer Science, Ashoka University.

Prof. Debayan Gupta

*Jan 2022 - May 2022
Sonipat India*

Awards and Accomplishments

Student Travel Grant | July 2023

Ashoka University Centre for Supporting Students

Received a \$1200 grant to travel for the the 31st annual Intelligent Systems For Molecular Biology and the 22nd Annual European Conference on Computational Biology ISMB/ECCB at Lyon, France.

Singapore International Pre-Graduate Award | March 2023

A-Star Laboratories and The Government of Singapore

Earned this award for an exceptional research profile at an undergraduate level.

All Round Best Student Award | May 2020

Ryan International School

Awarded for exceptional contribution to the school as well as exceptional academic record.

Leadership

President of the Computer Science Society

Ashoka University | Jun 2022 - Jun 2023

Advisor: Prof. Debayan Gupta and Prof. Manu Awasthi

Led a society of close to 50 undergraduate students. Planned, oversaw, and executed multiple community building and academic events. Strengthened the position of the society in the academic space.

Editorial Board for Healthcare x Computer Science

The Crossthink Journal | Jun 202 - Present

Advisors: Prof. Debayan Gupta and Prof. Partho Pratim Chakrabarti

Reviewed articles and works submitted to the journal. Suggested constructive changes to articles and evaluated arguments presented in the inter-sectional field of healthcare and computer science.

Volunteering

National Conclave: The Future of Disability Inclusion in Higher Education | September 2023

Office Of Learning Support | Ashoka University, Sonipat, India.

Assisted in logistical arrangements. Guided guests with visual impairment and other disabilities.

Peer Mentor | Sep - Dec 2022

Office Of Learning Support | Ashoka University, Sonipat, India.

Counseled and supported students with a diverse range of learning disabilities. Facilitated the better understanding of mathematics and computer science.

Fundraising Volunteer | May 2018 - Jun 2020

Helpage India

Participated in funding campaigns. Represented people in old age homes and educated the public on the gaps in care facilities.

Key Skills

Languages: C, Python, Java, R

Libraries: PyTorch, Tensorflow, sklearn, scikit-image, OpenCV

Tools: Vim, Git, L^AT_EX, VSCode, Inkscape, Adobe, AutoCAD