Aakash Madhav Rao

mrao.aakash@gmail.com | Ashoka University, Sonipat, India | mraoaakash.github.io | +91 91138 44809

Education

Post Graduate Diploma in Advanced Studies and Research — *2023-2024*
Ashoka University. Sonipat, India. — *CGPA –/4.00*
Advisor: Prof. Rintu Kutum, Prof. Subhashis Banerjee, Dr. Madhura Kulkarni
Thesis: Quantifying the tumor topology in cancer pathology images using deep learning algorithms.

Bachelors of Science (Honours) in Computer Science — *2022-2023*
Ashoka University. Sonipat, India. — *CGPA 3.25/4.00*
Advisor: Prof. Debayan Gupta and Prof. Anirban Mondal (late)

High School Diploma — *2018-2020*
Ryan International School, Bengaluru, India. — *CGPA 9.25/10.0*

Work

Graduate Research Intern — *Jun 2023 - Sep 2023*
Trivedi School of Biosciences, Ashoka University. — *Sonipat India*

Undergraduate Research Intern — *Dec 2022 - Mar 2023*
Centre for Healthcare Analytics and Research trends, Ashoka University. — *Sonipat India*

Undergraduate Research Intern — *Apr 2022 - May 2023*
Mphasis Labs for Machine Learning and Computational Thinking, Ashoka University. — *Sonipat India*

Projects

(*Software, in progress*) **Kepler-AI** | 2023
Building a crowd-source annotation tool for cancer pathology in Indian cohorts

(*Dataset, in progress*) **Nuclei Segmentation Dataset** | 2023
Building one of the largest nucle segmentation datasets using crowd sourced annotation methods.

(*Official Submission*) **MFCC based neural network classifier to predict TB status from cough sound**
Official Submission to the CODA TB DREAM Challenge 2023. [write-up] [code]

(*Unofficial Implementation*) **Deep Spectral Segmentation for Object Detection** | 2023
An unofficial implementation of the 2022 CVPR paper titled 'Deep Spectral Methods: A Surprisingly Strong Baseline for Unsupervised Semantic Segmentation and Localization' [paper] [code]

(*Small Works*) **Differentiator: a pathology patch usability classifier** | 2023
A decision tree based classifier that predicts the usability of a histopathology patch in the modelling pipeline. Used in the ORCHID data pipeline [code]

Teaching

CSL2010: Introduction to Machine Learning — *Jun - Sep 2023*
Indian institute of Technology — *Jodhpur, India*

CS-2378: The New Georaphy of the Information Age — *Jan - May 2023*
Department of Computer Science, Ashoka University. — *Sonipat India*

Peer Tutor — *Sep 2022 - Sep 2023*
Department of Computer Science, Ashoka University. — *Sonipat India*

CS-1203: Data Structures I — *Sep - Dec 2022*
Department of Computer Science, Ashoka University. — *Sonipat India*

CS-2378: The New Georaphy of the Information Age — *Jan - May 2022*
Department of Computer Science, Ashoka University. — *Sonipat India*

Articles

(*Paper Under Review*) **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

(Poster Presentation) **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, France

(*Poster*) **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

(Paper) **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

Awards and Accomplishments

Student Travel Grant | *July 2023*
Ashoka University Centre for Supporting Students

Singapore International Pre-Graduate Award | *March 2023*
A-Star Laboratories and The Government of Singapore

6th place in the CODA TB DREAM Challenge DREAM | *March 2023*
Advisor: Prof. Rintu Kutum, Ashoka University

All Round Best Student Award | *May 2020*
Ryan International School

Leadership

President of the Computer Science Society
Ashoka University | *June 2022 - June 2023*
Advisor: Prof. Debayan Gupta and Prof. Manu Awasthi

Editorial Board for Healthcare x Computer Science
The Crossthing Journal | *June 2022 - Present*
Advisors: Prof. Debayan Gupta and Prof. Partho Pratim Chakrabarti

Volunteering

National Conclave: The Future of Disability Inclusion in Higher Education | *September 2023*
Office Of Learning Support | Ashoka University, Sonipat, India.

Peer Mentor | *Sep - Dec 2022*
Office Of Learning Support | Ashoka University, Sonipat, India.

Fundraising Volunteer | *May 2018 - Jun 2020*
Helpage India

Key Skills

Languages: C, Python, Java, R
Libraries: PyTorch, Tensorflow, sklearn, scikit-image, OpenCV, Tensorboard
Tools: Vim, Git, LATEX, VSCode, Inkscape, Adobe, AutoCAD