

# Jimut Bahan Pal

## Research Fellow

Centre for Machine Intelligence and Data Science (C-MInDS)  
Indian Institute of Technology Bombay

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## Research Interests

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Conducting research in Deep Learning methodologies for medical image segmentation, with a focus on developing statistically grounded and interpretable supervised algorithms. My work emphasizes model robustness under constraints such as limited data availability, incorporation of mathematical priors, low computational budgets, and the presence of outliers across diverse imaging modalities.

Currently, my research explores the integration of visual data and Natural Language Processing (NLP) of clinical reports to develop unified diagnostic systems that enhance accuracy and provide deeper clinical insights.

## Education

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### Ph.D. in Machine Intelligence and Data Science

2022 – Present

Indian Institute of Technology Bombay, Mumbai

### M.Sc. in Computer Science

2019 – 2021

Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, Howrah

Thesis: [Instance Segmentation of Peripheral Blood Smear and Refining Classification via Domain Adaptation](#)

### B.Sc. (Hons.) Computer Science

2016 – 2019

St. Xavier's College, Kolkata

Dissertation: [Wisp: A Preference Based Location Finder Application](#)

## Awards & Honors

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### Prime Minister's Research Fellowship (PMRF)

October 2023

Awarded as a Lateral Fellow of Cycle 11

### C-MInDS Fellowship

June 2022

For securing highest scores in C-MInDS entrance, IIT Bombay

### MICCAI-2024 RISE Registration Grant

2024

Travel grant for international conference participation

### 1st Runner Up - Generative AI Art Competition

ICIP 2024

International Conference on Image Processing

### Google Cloud Arcade Champion

2025

Google Cloud competition winner

## Publications

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### Refereed Journal Publications

- **[Core-B, Q1, IF: 8.5]** Pal, J. B., Bhattacharyea, A., Banerjee, D., & Maharaj, B. T. (2024). Advancing instance segmentation and WBC classification in peripheral blood smear through domain adaptation: A study on PBC and the novel RV-PBS datasets. *Expert Systems with Applications*, 123660.

- **[Q2, IF: 1.175]** Pal, J. B., & Mj, D. (2023). Improving multi-scale attention networks: Bayesian optimization for segmenting medical images. *The Imaging Science Journal*, 71(1), 33-49.

## Refereed Conference Publications

- **[Core-A, WACV 2025]** Pal, J. B., Welling, S., Saini, H., & Awate, S. (2025). Reviving Poor Object Segmentations in OOD Medical Images using Variational Deep-PCA Modeling on Segmentation Maps with Sampling-Free Learning. *IEEE/CVF Winter Conference on Applications of Computer Vision*, 9364-9373.
- **[Core-A, MICCAI 2024]** Pal, J. B., & Awate, S. (2024). Convex Segments for Convex Objects Using DNN Boundary Tracing and Graduated Optimization. *International Conference on Medical Image Computing and Computer-Assisted Intervention*, 91-101.
- **[Core-B, ICIP 2024]** Pal, J. B., & Awate, S. (2024). A hard convex-shape constraint in DNNs for object segmentation. *IEEE International Conference on Image Processing*, 2074-2080.
- **[IEEE 2022]** Pal, J. B., & Paul, N. (2022). Classifying Chest X-Ray COVID-19 images via Transfer Learning. *Ethics and Explainability for Responsible Data Science*, 1-8.

## Workshop Papers & Preprints

- **[MICCAI Workshop 2022]** Pal, J. B. (2022). Holistic Network for Quantifying Uncertainties in Medical Images. In: Crimi, A., Bakas, S. (eds) *Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries. BrainLes 2021. Lecture Notes in Computer Science*, vol 12963. Springer.
- **[2024]** Bran, H., ... Pal, J. B., ... Menze, B. (2024). QUBIQ: Uncertainty Quantification for Biomedical Image Segmentation Challenge. *CoRR*, abs/2405.18435.
- **[2022]** Eisenmann, M., Reinke, A., ... Pal, J. B., ... Maier-Hein, L. (2022). Biomedical image analysis competitions: The state of current participation practice. *arXiv:2212.08568*.
- **[2020]** Pal, J. B. (2020). How to cluster nearest unique nodes from different classes using jjcluster in wisp application? *CoRR*, abs/2002.05886.

## Teaching Experience

<b>Instructor: CS/BDA 411</b>	<i>2024 – 2025</i>
Applications of Computer Vision and Deep Learning (3 credits), RKMVERI	
Course Websites: <a href="#">2025</a>   <a href="#">2024</a>	
<b>Teaching Assistant: CS 663</b>	<i>2025</i>
Digital Image Processing (6 credits), IIT Bombay	
<b>Teaching Assistant: DS 203</b>	<i>2023</i>
Programming for Data Science (6 credits), IIT Bombay	
<b>Computer Application Teacher</b>	<i>2020</i>
<a href="#">RKMVERI</a> , <a href="#">Belur</a> , <a href="#">Howrah</a>	
Taught PGDY (2020-21) class of 12 students about computer applications	

## Professional Activities

<b>Guest Lecturer</b>	<i>2025</i>
Convolutional Neural Networks for CS772 DL-NLP, IIT Bombay	
Resources: <a href="#">Slides</a>   <a href="#">Recording</a>   <a href="#">Demo</a>   <a href="#">Code</a>	
<b>Conference Reviewer</b>	<i>2025</i>
International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2025	
<b>Journal Reviewer</b>	
Multimedia Tools and Applications	

<b>Committee Member</b> Internal Quality Assurance Cell (IQAC), RKMVERI	<i>2024 – Present</i>
<b>Interview Panel Member</b> MSR admissions at C-MInDS, IIT Bombay, with Prof. Pushpak Bhattacharyya	<i>April 2024</i>

## Professional Experience

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<b>Project Intern</b> Data Sutram, Kolkata Analyzed, visualized and gained valuable insights from data	<i>Jan – March 2019</i>
<b>Key-note Speaker</b> Machine Learning Crash Course (Google Sponsored), St. Xavier's College, Kolkata Created coursework and delivered lectures for ML seminars	<i>September 2018</i>
<b>Developer</b> Xavotsav 2018 Website, St. Xavier's College, Kolkata Designed website for cultural fest of St. Xavier's College, Kolkata	<i>Nov 2017 – Jan 2018</i>

## Leadership & Volunteering

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<b>Coordinator &amp; Teacher, NSS</b> National Service Scheme, St. Xavier's College Coordinated and organized educational tours for underprivileged communities	<i>Aug 2018 – Jan 2019</i>
<b>Event Head</b> ENIGMA Coding Event, Science Association, St. Xavier's College Planned, organized and executed the annual coding event	<i>February 2019</i>
<b>Head of Graphics Design Team</b> Analytica, Department of Mathematics, St. Xavier's College Led team of 5 designers to create graphics content for the event	<i>July – Sep 2018</i>

## Open Source Contributions

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<b>Jimutmap</b> Python tool for downloading satellite images and road maps Over 20K total downloads from PyPI	<i>February 2019</i>
<b>Jimner</b> Python library for creating ASCII art in terminal 314 unique text styling samples	<i>January 2019</i>
<b>Management Information System</b> CRUD system built using Python3 and Tkinter from scratch	<i>November 2018</i>

## Technical Skills

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<b>Programming:</b>	Python, LaTeX, Java, C/C++
<b>Deep Learning:</b>	PyTorch, Keras, TensorFlow, Computer Vision, Medical Imaging
<b>Tools:</b>	Linux, Git
<b>Web Development:</b>	HTML, CSS, JavaScript, Jekyll

## Certifications & Specializations

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### Deep Learning Specialization

2019

DeepLearning.AI, Coursera

### TensorFlow in Practice Specialization

2019

DeepLearning.AI, Coursera

### Applied Data Science Specialization

2018

IBM, Coursera

### Python for Everybody Specialization

2018

University of Michigan, Coursera

## Additional Information

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- **Research Blog:** Maintain active technical blog at [jimut123.github.io/blog.html](https://jimut123.github.io/blog.html)
- **Projects Portfolio:** Developed several [interactive games and applications](#)
- **Misc:** Selected in second phase of [Service Selection Board \(SSB\)](#), Indian Army (2016)
- **Social Work:** Participant in NSS, organizing educational tours for underprivileged communities
- **Academic Networks:** Erdős Number: 4, Dijkstra Number: 4