Soumya Snigdha Kundu

+44-7436-215-187 | [Linkedin](#) | [G-Scholar](#) | [Github](#) | [Website](#) | [PyTorch-Forums](#) | [E-mail](#) | London, United Kingdom

EDUCATION

King's College London
PhD in Biomedical Engineering and Imaging Science Research
Advisors: Prof. Tom Vercauteren and Dr. Jonathan Shapey
Thesis Committee: Dr. Jorge Cardoso, Dr. Marc Modat and Prof. Andrew Reader
Thesis: Artificial Intelligence-driven Management of Brain Tumours

Queen Mary University of London
MSc (Distinction) in Machine Learning in Visual Data Analytics
Advisors: Prof. Greg Slabaugh and Dr. Vineet Batta
Thesis: Unveiling the Localization Advantage in Automated Orthopaedic Implant Identification

SRM Institute of Science and Technology
B.Tech (Distinction) in Computer Science and Engineering (Minor: Cloud Computing)
Advisor: Prof. Dhanalakshmi Samiappan
Thesis: On the Feasibility of Neural Network Pruning in Covid-19 Classification.

RESEARCH EXPERIENCE

University of Oxford — Prof. Bartek Papiez

[Fall 2023] Research Intern

Project: Pilot work on Spinal Osteophyte Identification

IIT-Gandhinagar — Prof. Tarun Gangwar

[Summer 2023] Research Intern

Project: Image to Simulation (Im2Sim) Software workflow for Patient-specific fully Autonomous Diagnostic Simulations

NepAl Applied Mathematics and Informatics Institute for research (NAAMII) — Prof. Bishesh Khanal

[Summer 2022] Research Intern

Project: Explainability in Automated Orthopaedic Implant Identification

TRIUMF: Canada's particle accelerator centre — Prof. Akira Konaka and Dr. Patrick De Perio

[Fall 2021] Research Intern

Project: Development of Advanced Deep Learning Methods for Neutrino Interaction Event Reconstruction in Hyper-Kamiokande Water Cherenkov Detectors

NIT-Durgapur — Prof. Debashis Nandi

[Spring & Summer 2021] Research Intern

Project: Multi-Modal Brain Lesion Segmentation

National Chung Cheng University — Prof. Pao-Ann Hsiung

[Fall 2020] Research Intern

Project: Automated Face-Mask Detection

Indian Statistical Institute — Prof. Bidyut Baran Chaudhuri

[Summer 2020] Research Intern

Project: Exploring Compound Normalisation techniques in Convolutional Neural Networks.

College of Engineering, Guindy — Prof. Saswathi Mukherjee

[Winter 2019] Research Intern

Project: Application of Machine Learning Tools and Techniques in Healthcare

INDUSTRY EXPERIENCE

IIIT-Hyderbad & TCS Research — Prof. Ranjitha Prasad and Mrs. Ramya Hebbalaguppe

[Summer 2024] Research Associate

Project: Trustworthy Out of Domain Machine Learning

Stealth Startup
[Jan 2022- Sept 2023] Founding Engineer
Project: Pilot deployment of Automated Orthopaedic Implant Identification

PUBLICATIONS

Journals

1. A. Kumar, P. Ghosal, **Kundu, Soumya Snigdha**, A. Mukherjee, and D. Nandi, "A lightweight asymmetric u-net framework for acute ischemic stroke lesion segmentation in ct and ctp images," Computer Methods and Programs in Biomedicine, vol. 226, p. 107157, 2022

2. S. Vineth Ligi, **Kundu, Soumya Snigdha**, R. Kumar, R. Narayanamoorthi, K. W. Lai, and S. Dhanalakshmi, "Radiological analysis of covid-19 using computational intelligence: A broad gauge study," Journal of Healthcare Engineering, vol. 2022, no. 1, p. 5998042, 2022

Conferences

1. **Kundu, Soumya Snigdha**, Y. Mo, N. Srikijkasemwat, and B. W. Papież, "Spinal osteophyte detection via robust patch extraction on minimally annotated x-rays," in 2024 IEEE International Symposium on Biomedical Imaging (ISBI). IEEE, 2024, pp. 1–5

2. A. Mishra, A. Ramanathan, V. Batta, C. Malathy, **Kundu, Soumya Snigdha**, M. Gayathri, D. Vathana, and S. Kamineni, "Harnessing the potential of deep learning for total shoulder implant classification: A comparative study," in Annual Conference on Medical Image Understanding and Analysis. Springer, 2023, pp. 119–132

3. **Kundu, Soumya Snigdha**, "A distributed deep learning framework for federated big medical image analysis," in 2021 IEEE International Conference on Big Data (Big Data). IEEE, 2021, pp. 5938–5940

4. P. Bhalla, **Kundu, Soumya Snigdha**, S. Deepanjali, G. Vadivu, and S. Utomo, "Automatic face mask detection using a hide and seek algorithm," in Iberoamerican Congress on Pattern Recognition. Springer, 2021, pp. 430–439

5. G. Sreenivasan, A. Bajpai, P. R. DS, G. K. TP, A. Shrivastava, S. N. Das, C. Jha, R. Hänsch, N. Chandra, R. R. Patil, (others), and **Kundu, Soumya Snigdha**, "Machine learning based extraction of electrical substations from high resolution satellite data: Outcome of the icetci 2021 challenge," in 2021 International Conference on Emerging Techniques in Computational Intelligence (ICETCI). IEEE, 2021, pp. 82–88

Posters/Workshops

1. **S. S. Kundu**, A. Kujawa, M Ivory, T. Barfoot, J. Shapey, and T. Vercauteren, "Cluster Dice: A simple and fast approach for instance based semantic segmentation evaluation via many-to-many matching", SPIE: Medical Imaging 2025.

2. **S. S. Kundu** and P. Ganesh, "Promptly-Cited: Citation based Prompting via Pseudo-Retrieval-Augmented Generation", in Women in Machine Learning Workshop @ Conference on Neural Information Processing Systems (NeurIPS), 2024.

3. R. Naidu and **S. S. Kundu**, "Improved variants of Score-CAM via Smoothing and Integrating", Responsible Computer Vision Workshop @ Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

Clinical - Posters

1. **S. S. Kundu**, S. Patel, A. Ramanathan, D. Chonko, A. Kurmis, and V. Batta, "Data constrained deep learning to improve scenarios in revision arthroplasty where preoperative identification of the make and model of the primary (in-situ) implant is critical", in 2023 IEEE International Symposium on Biomedical Imaging (ISBI).

2. **S. S. Kundu**., Kartik M. V., Paul Y., S. Kaminei, C. Malathy, S. Patil, Ravi P., D. Elson and Batta V, "Automated identification of orthopaedic implants on radiographs using AI", AI in Orthopaedics Confernece, 2022.

3. **S. S. Kundu**, S. Baldota, G. Mani, M. Chidambaranathan, K. Mohan, M. Prabhakaran, R. Takad, B. Datta, S. Kamineni, G. Reddy, S. Masilamani A. B, S. Vijayan, D. Amantullah, and V. Batta, "Analysis of Anteroposterior and Lateral views in Total Hip Arthroplasty Implant Identification.", 66th Annual Conference of Indian Orthopaedic Association, 2021.

4. S. Baldota, **S. S. Kundu**, S. Sharma, V. Batta, M. Kiruthika, M. Chidambaranathan, G. Mani, Prabhakaran M., R. Takad, B. Datta, S. Kamineni, G. Reddy, S. Masilamini, S. Vijayan, and D. Amanatulla., "Automated Recognition of Total Hip Arthroplasty Implants", 41st SICOT Orthopaedic World Congress, 2021.

Reviewing

Conferences: ICLR, NeurIPS, and IEEE ISBI.
Workshops: ICML-ML4LMS, MICCAI-CaPTion, NeurIPS-WiML and MICCAI-FAIMI.

Talks

1. "Exploring Instance Imbalance in Medical Semantic Segmentation" for Voxel 51

ACHEIVEMENTS

Scholarships

MRC DTP Postgraduate *Studentship*   — King's College London || 2023 Cohort || < 2% Selection rate

BDI Summer *Internship* Programme   — University of Oxford || 2023 Cohort || 1 of 4 selected applicants

Summer Research *Internship* Program   — IIT - Gandhinagar || 2023 Cohort || < 0.008% Selection rate.

MITACS Globalink Research *Internship* — TRIUMF (UVic) || 2021 Cohort || < 3% Selection rate

Grants

UKRI Fast Start: Innovation *Grant*   — Co-Applicant || 2022 Cohort || $\sim$ £50000

Coding/Conference Competitions

IEEE ISBI'24   — Best Student Poster Award Finalist. (Top 8 out 717 Acceptances)

Anthropic Hackathon London — Top 8 Finalist

IEEE ICETCI'21 *Competition* — 3rd Place (Electronic Substation Detection)

PROGRAMMING

Languages (Primary): Python, C++, Bash, Git.

Libraries: PyTorch, JAX, NumPy, OpenCV, pandas, LaTeX

Softwares: CUDA, Docker, Github, SLURM.

Languages (Secondary): HTML, CSS, JavaScript.

SUMMER SCHOOLS

2024 Summer Workshop on Surgical and Interventional Engineering

2023 Oxford Machine Learning Summer School (Healthcare Track)

2022 Intelligent Sensing Winter School

2021 ACM Europe Summer School on HPC Computer Architectures for AI and Dedicated Applications

2021 5th Summer School on AI With focus on Computer Vision & Machine Learning

SUPERVISION

[Fall 2024] Aarav Kannar - M.B.B.S Student at University of Lancanshire

VOLUNTEERING

National Medical Research Council Doctoral Training Programme (MRC DTP) Representative

Host - In2Stem Programme

REFERENCES

Prof. Tom Vercauteren
Professor of Interventional Image Computing
King's College London
Advisor (Ph.D.)

Mr. Jonathan Shapey
Clinical Reader in Neurosurgery
King's College London and King's College Hospital
Advisor (Ph.D.)

Prof. Greg Slabaugh
Professor of Computer Vision and AI
Queen Mary University of London
Advisor (MSc)

Mr. Vineet Batta
Senior Clinical Fellow Trauma & Orthopaedics
Luton and Dunstable University Hospital
Advisor (MSc)

Prof. Bartek Papiez
Associate Professor
Unversity of Oxford
Mentor

EXTRA-CURRICULARS

Team India — Futsal (2017)

Team Tamil Nadu — Futsal (2016) (Nationals Silver Medal)

Middle/High School Football Team Captain [2014-17]