

Kountay Dwivedi

📍 Vienna, Austria

✉ kountay.dwivedi@meduniwien.ac.at

☎ +43 - 6608575227/ +91 - 9650220569

🔗 [Google Scholar](#)

🌐 [LinkedIn](#)

🔗 [GitHub](#)

Introduction

As a postdoctoral computational scientist at the Medical University of Vienna, Austria, I specialize in the fields of deep learning, medical image analysis, interpretable AI, and computational genomics.

With expertise in developing deep learning frameworks to advance medical imaging and cancer diagnostics, I envision to contribute meaningfully to the field of healthcare by developing industry-aligned products with a collaborative spirit and interdisciplinary approach.

Academic Profile

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|----------------|---|----------------|
| Postdoc | Medical University of Vienna, Austria Computational Scientist <ul style="list-style-type: none">• Project: Deep learning framework for analysis of oral dysplasia grades in H&E images | 2024 – Present |
| Ph.D. | University of Delhi, India UGC/SRF Research Scholar <ul style="list-style-type: none">• Thesis Title: An Explainable AI-driven Approach to Non-Small Cell Lung Cancer Biomarkers Discovery• Supervisors: Prof. Naveen Kumar and Dr. Ankit Rajpal, Department of Computer Science | 2019 – 2024 |
| MCA | Dr. A.P.J Abdul Kalam Technical University, India Master of Computer Applications <ul style="list-style-type: none">• First division (74.08%)• Dissertation Project: KMP – An android-based audio player with shake-to-change-music gesture control | 2013 – 2016 |
| BCA | University of Allahabad, India Bachelor of Computer Applications <ul style="list-style-type: none">• Batch topper, first division with distinction (76.44%).• Dissertation Project: Vision – A Struts framework-based online event organization and management system | 2010 – 2013 |

Technical Expertise

Machine/Deep Learning

- Experience ranging from vanilla feed-forward neural networks to the development of advanced frameworks integrating conv-nets, vision transformers (ViTs), and generative models. Expertise in designing and implementing diverse attention mechanisms, along with profound knowledge of interpretable and explainable artificial intelligence (XAI).
- Extensive hands-on experience with state-of-the-art machine learning algorithms, including gradient boosting methods, support vector machines, and unsupervised learning techniques such as nearest neighbor-based methods.
- In-depth knowledge of pattern recognition tasks, including feature selection and feature extraction. Hands-on expertise with techniques ranging from iterative feature selection (IFS), SVM-RFE, mutual information, and ReliefF, to deep learning-based autoencoders and interpretability toolkits such as PyTorch Captum and SHAP.

Medical Image Analysis

- Hands-on experience with state-of-the-art models for medical imaging such as (U-Net [↗](#), ViT [↗](#), HoVerNet [↗](#), Segment Anything [↗](#), and CTransPath [↗](#))
- Proficient in segmentation, classification and morphological attributions of nuclei and tissue in H&E, immunofluorescence (IF), and tissue microarray (TMA) images

Computational Biology & Bioinformatics

- Experience in omics/multiomics multimodal data-based biomarker discovery, survival analysis (PyCox, SurvPath, scikit-survival), protein-protein, gene-gene and gene-disease analyses, and AI-driven classification of various cancer subtypes.
- RNA-Seq and differential expression analysis via *deseq2*, *edgeR*, *limma* and *HTSeq*
- Pathway and network analysis using [STRING](#) [↗](#), [CytoScape](#) [↗](#), [DGIdb](#) [↗](#), [KEGG](#) [↗](#), [PANTHER](#) [↗](#), and [Reactome](#) [↗](#)

Programming & Frameworks

- Skilled in python and python-related libraries and tools, including PyTorch, Pytorch-lightning, OpenCV, Captum, SHAP, and scikit-learn for model development and interpretability.
- Hands-on experience with specialized libraries for medical and histopathological image analysis, particularly PathML, MONAI, and TIAToolkit.
- GitHub Utilization: Proficient in maintaining structured repositories and contributing to open-source projects.
- Working knowledge of R language, and Tensorflow and Keras frameworks.
- Skilled in C, C++, and Java programming languages

Scientific Writing, Research, & Collaboration

- Published multiple peer-reviewed articles in reputed machine learning and computational biology journals.
- Experienced in working on collaborative projects with pathologists, biologists, and clinicians to bridge computational science with medical applications.

Publications

A multimodal cross-attention pathotranscriptome integration for enhanced survival prediction of oral squamous cell carcinoma [↗](#) 2025 preprint

Kountay Dwivedi, Amirreza Mahbod, Rupert C. Ecker, Klara Janjic
medRxiv

A Fusion-Based Multiomics Classification Approach for Enhanced Gene Discovery in Non-Small Cell Lung Cancer [↗](#) 2025 preprint

Kountay Dwivedi, Amirreza Mahbod, Rupert C. Ecker, Klara Janjic
medRxiv

Identification and validation of a metabolic-related gene risk model predicting the prognosis of lung, colon, and breast cancers [↗](#) 2025 I.F.: 3.8

Jiyauddin Khan, Chanchal Bareja, **Kountay Dwivedi**, Ankit Mathur, Naveen Kumar, Daman Saluja
Scientific Reports

Enlightening the path to NSCLC biomarkers: Utilizing the power of XAI-guided deep learning [↗](#) 2024 I.F.: 4.9

Kountay Dwivedi, Ankit Rajpal, Sheetal Rajpal, Virendra Kumar, Manoj Agarwal, Naveen Kumar
Computer Methods and Programs in Biomedicine

XL₁ R-Net: Explainable AI-driven improved L₁-regularized deep neural architecture for NSCLC biomarker identification [↗](#) 2024 I.F.: 2.6

Kountay Dwivedi, Ankit Rajpal, Sheetal Rajpal, Virendra Kumar, Manoj Agarwal, Naveen Kumar
Computer Methods and Programs in Biomedicine

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|--|------------------------|
| Deep Learning-based NSCLC Classification from Whole-Slide Images: Leveraging Expectation-Maximization and InceptionV3 ↗ | 2024 CiteScore: 4.5 |
| Kountay Dwivedi , Anshuman Gupta, Ankit Rajpal, Naveen Kumar <i>Procedia Computer Science</i> | |
| Identification and clinicopathological analysis of potential p73-regulated biomarkers in colorectal cancer via integrative bioinformatics ↗ | 2024 I.F.: 3.8 |
| Chanchal Bareja, Kountay Dwivedi , Apoorva Uboveja, Ankit Mathur, Naveen Kumar, Daman Saluja <i>Scientific Reports</i> | |
| Integrated analysis of cell cycle and p53 signaling pathways related genes in breast, colorectal, lung, and pancreatic cancers: implications for prognosis and drug sensitivity for therapeutic potential ↗ | 2024 I.F.: 2.8 |
| Jiyauddin Khan, Priyanjana Ghosh, Urmi Bajpai, Kountay Dwivedi , Daman Saluja <i>Discover Oncology</i> | |
| An explainable AI-driven biomarker discovery framework for Non-Small Cell Lung Cancer classification ↗ | 2023 I.F.: 7.0 |
| Kountay Dwivedi , Ankit Rajpal, Sheetal Rajpal, Manoj Agarwal, Virendra Kumar, Naveen Kumar <i>Computers in Biology and Medicine</i> | |
| An Explainable Ensemble of Neural Networks Precisely Discovers NSCLC Signature Biomarkers ↗ | 2023 preprint |
| Kountay Dwivedi , Akshat Kishore, Ankit Rajpal, and Naveen Kumar <i>ResearchSquare</i> | |

International/National Conferences/Symposia Presentation: _____

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|--|-------------------------|
| Revolutionizing Lung Cancer Diagnosis: An AI-Driven Path to Uncovering NSCLC Biomarkers | November 2023 (oral) |
| <i>The 22nd International Conference on Bioinformatics (InCoB 2023)</i> Translational Research Institute (TRI), Brisbane, Australia | |
| Deep Learning-based NSCLC Classification from Whole-Slide Images: Leveraging Expectation-Maximization and InceptionV3 | November 2023 (oral) |
| <i>The International Conference on Machine Learning and Data Engineering (ICMLDE 2.0)</i> UPES, Dehradun, India | |

Certifications: _____

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|---|-------------|
| DeepLearning.AI: Sequence Models | July 2023 |
| <i>Coursera (license no.: CH4DX983638L)</i> | |
| DeepLearning.AI: Neural Networks and Deep Learning | August 2022 |
| <i>Coursera (license no.: VWYVBNZS2AWL)</i> | |
| Foundations of Data Science | June 2022 |
| <i>One-Fourth Labs (an IIT-Madras initiative) (license no.: aqmqi34hgw)</i> | |
| GUVI Certificate of Completion: Neurons | June 2022 |
| <i>GUVI Geek Networks, IITM Research Park (license no.: 0q5M192g75251z8lv2)</i> | |
| Faculty Development Program: Digital Image Processing and Analysis: Applications with Practicals | April 2022 |
| <i>University of Delhi</i> | |

Collaborative Projects

Collaborative research with **Dr. B. R. Ambedkar Center for Biomedical Research (ACBR), University of Delhi** (under the supervision of Prof. Daman Saluja)

- Successfully completed **three** research projects leading to three peer-reviewed publications in reputed journals.
- Focus areas: machine/deep learning-based approaches to discover key molecular biomarkers in lung, breast, colorectal, and pancreatic cancers.

Awards and Recognition

International Travel Support Award

by Science and Engineering Research Board (SERB) for oral presentation at InCoB2023 held at Translational Research Institute (TRI), Brisbane, Australia (November '23).

UGC-NET/JRF Fellowship

awarded by University Grants Commission, India (June '19).

Work Experience

Resource person

in the workshop **Explaining Machine Learning Decision** at the *International Joint Conference on Neural Networks (IJCNN, 2023)*

Queensland, Australia.
2023

Teaching Assistant

for the course **Convolutional Neural Networks and Sequence Models**

University of Delhi, India
2022-2023

Teaching Assistant

for the course **Deep Learning Specialization and Building Basic Generative Adversarial Networks**

University of Delhi, India
2022-2023

Resource person

in the workshop **Explaining Machine Learning Decision** at the *Faculty Development Program*

University of Allahabad,
India
2021

Programmer Analyst

employed as SAP BASIS consultant at **Cognizant Technology Solutions.**

Chennai, India
2016-2017

Referees

Klara Janjic

- Postdoc and Principal Investigator, Competence Center Periodontal Research, University Clinic of Dentistry, Medical University of Vienna, Vienna, Austria.
- ✉ klara.janjic@meduniwien.ac.at
- ☎ +43 (0)1 40070-2825

Rupert Ecker

- CEO TissueGnostics GmbH, Vienna, Austria, and Adjunct Professor, Queensland University of Technology, Brisbane, Australia
- ✉ rupert.ecker@tissuegnostics.com

Amirreza Mahbod

- Assistant Professor, Center for Pathophysiology, Infectiology and Immunology (Institute of Pathophysiology and Allergy Research), Danube Private University, Krems an der Donau, Austria
- ✉ amirreza.mahbod@dp-uni.ac.at

Daman Saluja

- Senior Professor, Medical Biotechnology Laboratory, Dr. B. R. Ambedkar Center for Biomedical Research, University of Delhi, Delhi, India
- ✉ dsalujach59@gmail.com
- ☎ +91-93100 18699

Virendra Kumar

- Professor, Department of NMR and MRI Facility, All India Institute of Medical Sciences (AIIMS), New Delhi, India
- ✉ virendrakumar@aiims.edu
- ☎ +91-99685 72912

Declaration

I declare that all the statements mentioned above are true and authentic to the best of my knowledge.

Kountay Dwivedi

December 2025