

CV | Neelanjan Bhowmik

COMPUTER VISION | IMAGE PROCESSING

✉ nilus.mail@gmail.com | 🏠 bhmk.org/people/nb | 📷 neelbhowmik | 🌐 neelanjanbhowmik

Research Interests

Experienced Computer Vision and Machine Learning professional with 8+ Years of specialised expertise, collaborating with multiple Industrial Partners and Government Entities:

- ✓ Applied Computer Vision, Image Processing, Deep Learning, Machine Learning, Artificial Intelligence.
- ✓ Object Detection, Segmentation, Classification, Tracking in Visible & Non-Visible Spectrum.
- ✓ 2D/3D-CT X-ray imaging: Aviation Security, Anomaly/Threat Detection, Synthetic Image Generation/Projection, Medical Imaging.
- ✓ Visual Search & Surveillance: Infrared & Visible Modalities, Object Detection, Anomaly Detection, Behaviour Analysis.
- ✓ Statistical Data Analysis, Data Processing, Visualisation.
- ✓ Image Retrieval: Content-based Image Retrieval, Vision-based Image Localisation, Cross-domain matching.

Skills

- Python
- C++
- Shell-script
- SQL
- MATLAB
- LaTeX
- Linux
- PyTorch
- MMDetection
- MMtracking
- MMDeploy
- Anomalib
- ONNX/TensorRT
- GPU-cluster management
- OpenCV
- Numpy
- Scikit
- Vtk/Itk
- Matplotlib
- Plotly
- Pandas
- Project management
- Leadership
- Supervision
- Collaboration
- Agile
- Scrum
- Sprint

Work Experience

AutosOnShow | British Car Auctions

Cardiff/Durham, UK

AI & COMPUTER VISION ENGINEER (TEAM LEAD)

Nov. 2024 - Present

- **Flagship Product Development:** Leading the end-to-end, in-house development of flagship AI products, specialising in high-performance solutions for image and video understanding, detection, segmentation, classification, and synthetic image generation.
- **Technical Execution:** Leveraged in-depth expertise in algorithm design/development/deployment, including fine-tuning and customising deep learning models through rigorous training/testing/deployment on both local environments and cloud infrastructure (AWS).
- **Strategic Leadership & Innovation:** Executed complex R&D roadmaps and consistently delivered scalable AI solutions while fostering a culture of continuous innovation to capitalise on emerging industry trends.

Durham University

Durham, UK

POST-DOCTORAL RESEARCH ASSOCIATE

Jun. 2018 - Nov. 2024

- **Image Understanding:** Extensive expertise in visible and non-visible imagery, specialising in object detection, classification, segmentation, tracking, and anomaly/threat detection, with a focus on security & surveillance.
- **Image Generation:** Proficient in synthetic image generation/reconstruction in 2D/3D visible/non-visible spectrum modalities.
- **Algorithm Development:** In-depth experience in algorithm/code development, fine-tuning, and customising models via training, testing, and deployment using deep learning frameworks.
- **Platform Proficiency:** Skilled in operating on various platforms, ranging from servers to embedded & edge devices.
- **Research & Governance:** Integral part of Research Committee, Board of Studies, and Equality-Diversity-Inclusion Committee. Key member of the Athena Swan application team contributing to the achievement of the Silver Award (upgraded from Bronze).
- **Civic Engagements:** Regular involvement in civic engagement, University Open-day organisation, outreach activities, & promotional videos.
- **Clients:** Rapiscans Systems (UK), Gilardoni (Italy), Autonomous Devices (UK), Leonardo (UK), P&G (UK), Defence Science and Technology Laboratory (UK Govt.), Defence and Security Accelerator (UK Govt.), Nuclear Decommissioning Authority (UK Govt.)

Institut National de l'Information Géographique et Forestière

Paris, France

RESEARCHER

Jul. 2017 - Jun. 2018

- Adaptive feature selection for query-by-example image retrieval.
- Data linking, vision-based localisation by cross-domain retrieval.
- Implementation of an image retrieval system using Apache Spark on cloud infrastructure.
- Parallelisation of the algorithm to manage big multimedia data.

Tech Mahindra Limited

Mumbai/Bangalore, India

TECHNICAL ASSOCIATE

Jun. 2008 - Aug. 2011

- Proficient in software development, testing, and addressing environmental concerns for broadband provisioning systems (WBC – Wholesale broadband connect, FTTP – Fibre to the premises, IPex).
- Experience in reporting, analysing and prioritising defects.
- Highly experienced in resolving live issues by coordinating with multiple vendors/clients.
- Managing code repository and maintaining the Oracle database trouble-free.
- **Client:** British Telecom Plc.(UK)

Education

Université Paris-Est | Institut National de l'Information Géographique et Forestière

Paris, France

PHD IN IMAGE PROCESSING/COMPUTER VISION | FUNDED BY AGENCE NATIONALE DE LA RECHERCHE (ANR)

2017

- **Thesis:** Multi-descriptor retrieval in digitalised photographs collections

University of Sheffield

Sheffield, UK

MSC IN COMPUTER VISION ENGINEERING

2012

- **Thesis:** Efficient processing in coded-aperture imaging

RTM Nagpur University

Nagpur, India

BACHELOR OF ENGINEERING IN ELECTRONICS ENGINEERING

2008

- **Thesis:** Single-bit error correction and double-bit error detection

Engagements & Visibility

• Academic Review

- **Conferences** | CVPR, ICCV, ECCV, NeurIPS, BMVC, WACV, ACCV, ACM MM, IJCNN *etc.*
- **Journals** | Transactions on Image Processing, Transactions on Information Forensics and Security, Imaging Science Journal, Sensors, Fire Technology, Remote Sensing *etc.*

• Organisation

- **Conferences** | AIED-2022 (Durham, UK) | EDM-2022 (Durham, UK) | BMVC-2018 (Newcastle, UK)
- **Workshop** | VAND-CVPR-2023 (Vancouver, Canada)/ 2024 (Seattle, USA)

Honours & Awards

- ✓ *Discretionary Award*, Durham University (UK), 2023
 - *Contribution beyond the normal expectations of job responsibility.*
- ✓ *Highly Recommended* in Innovator of the Year award category, Dynamo (UK), 2021
 - *Development of threat image projection algorithm contributes to the security of over 500+ million air passengers annually.*
- ✓ *Best Student Paper Award* - Shortlisted, JURSE Conference (UAE), 2017
- ✓ *Merit Scholarship*, The University of Sheffield (UK), 2011
- ✓ *Appreciation Award*, Tech Mahindra Ltd. (India), 2010
 - *Significant contribution to team & project.*

Publication Summary

- **30+ Publications** in International Conferences & Journals |  GScholar: <https://bit.ly/nbgsc>

