

# Meem Arafat Manab

*Marie Skłodowska-Curie Doctoral Fellow,  
Law, Ethics, and Computer Science*

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## Research Overview

I am a Marie Skłodowska-Curie doctoral fellow and researcher based at Universidad Politécnica de Madrid in Spain. My research dwells in the intersection of law, artificial intelligence, and cybersecurity. I can bring multiple perspectives and research methods, both data-driven and empirical, to a research project.

## Research Career

- 2025– **Marie Skłodowska-Curie Doctoral Fellow**, *Harness Doctoral Network, focusing on law, artificial intelligence, ethics, and European Data Spaces*, Spain, *Coordinator: Dr. Victor Rodríguez-Doncel, Supervisor: Dr. Elena Montiel-Ponsoda*, Universidad Politécnica de Madrid
- 2024–2025 **Research Fellow**, *Panacea Cooperative Research and Universidad de León*, Spain, *Supervisors: Dr. Laura Robles, Dr. Victor Gonzalez Castro, Dr. Oscar Ibañez (Universidad da Coruña), and Dr. Guillermo Gomez Trenado (Universidad de Granada)*
- 2024–2025 **Editor**, *EMILDAI Blog*, *Supervisor: Dr. Edoardo Celeste, Co-Editor: Nauani Schades Benevides*
- 2024 – **Research Associate**, *School of Religion, Theology, and Peace Studies, Trinity College Dublin*, Ireland, *Supervisor: Dr. Maja Halilovic-Pastuovic*
- 2024 – 2025 **Contributor**, *AIAAIC Repository*, UK, *Supervisor: Charlie Pownall*
- Summer 2024 **Research Intern**, *ADAPT Center, Trinity College Dublin*, Ireland, *Supervisors: Dr. David Lewis and Delaram Golpayegani*
- Summer 2024 **Visiting Researcher**, *Insight SFI Research Centre, Dublin City University*, Ireland, *Supervisor: Dr. Alessandra Mileo*
- 2020–2023 **Lecturer**, *Department of Computer Science and Engineering, BRAC University*, Bangladesh
- 2022–2023 **Programme Manager**, *OSUN Science Shop, BRAC University*, Bangladesh, *Supervisors: Dr. Samia Huq, Andras Martoni*  
Joint project with Central European University in Austria, European Humanities University in Lithuania, and American University of Central Asia in Kyrgyzstan
- Spring 2023 **Affiliated Faculty**, *Bard College, New York, USA*, *Host: Dr. Jordan Ayala and the Levy Economics Institute of Bard College*
- 2021–2022 **Workshop Facilitator**, *Oboyob Diversity Circle*, Bangladesh, *Co-facilitator: Nazia Zebin*
- 2020–2021 **Short Term Consultant**, *The World Bank Group, Disaster Management Unit*, South Asia Region, *Supervisor: Partha Pratim Nath*
- Fall 2020 **Research Assistant**, *Oboyob Diversity Circle*, Bangladesh, *Supervisor: Nazia Zebin*  
In cooperation with ILGA Asia
- Fall 2019 **Graduate Trainee**, *Fujitsu Research Institute*, Tokyo, Japan
- 2013–2018 **Academic Team Member**, *Bangladesh Mathematics Olympiad Committee*, Bangladesh, *Supervisor: Dr. Mahbubul Alam Majumdar*
- Spring 2017 **Teaching Assistant**, *Department of Computer Science and Engineering, University of Dhaka*, Bangladesh  
Course: CSE3205: Mathematics for Computer Science, *Supervisor: Dr. Amin Ahsan Ali*

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## Education

- 2025– **Ph.D. in Artificial Intelligence**, *Universidad Politécnica de Madrid*, Spain
- Topic: Risks and Opportunities of European Data Spaces
  - Supervisors: Dr. Elena Montiel-Ponsoda, Dr. Víctor Rodríguez Doncel, Dr. Monica Palmirani (University of Bologna) and Dr. Harshavardhan Pandit (Trinity College Dublin)
  - Professional development: Venice International University Winter School on Digital Rights, Theory and Practice (2026)
- 2023–2025 **European Master in Law, Data and AI**, *Dublin City University and University of León*, Ireland, Spain
- Award: Dean's Honor List from Dublin City University
  - Grade: 1H1 (Irish Standard), 8.72/10 (Spanish Standard)
  - Master thesis: Age detection from images and video streams applied to forensic analysis.
  - Key Modules: European Data Protection Law, AI and Information Seeking, Comparative Privacy Law, Data Governance, Data Management and Visualization, Cybercrime and Cyberdefense, Secure Design and Programming, Trustworthy Systems, Forensic Analysis.
  - Supervisors: Dr. Edoardo Celeste and Dr. Victor González Castro.
  - Erasmus Mundus Masters with Full Scholarship.
  - Internship: ADAPT Center, Trinity College Dublin (8 weeks) – Converted parts of the EU AI Act to industry standards.
  - Internship: Insight SFI Research Center, Dublin City University (12 weeks) – Extracted classification taxonomy from graph-like structure derived from SOTA neural network models.
- 2014–2018 **Bachelor of Science in Computer Science and Engineering**, *University of Dhaka*, Bangladesh
- Grade: 3.60/4.00.
  - Key Modules: Data Mining and Machine Learning, Data Structures, Algorithms, Object-Oriented Programming, Human-Computer Interaction.
  - Supervisors: Dr. Muhammad Asif Hossain Khan.

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## Awards and Honors

- 2026 Public Policy New Voices Europe Fellow, Cohort 5, Salzburg Global Seminar, Austria
- 2024 FGULEM Scholar, Institute of Business Competitiveness in Castille and Leon, Spain
- 2023 Erasmus Mundus Scholar, European Commission
- 2023 Economy of Tomorrow Fellow, Cohort 7, Friedrich-Ebert-Stiftung, Bangladesh
- 2022 OSUN Experiential Learning Institute Fellow, Cohort 1, Bard College, New York, USA
- 2021 CLASP Fellow, Cohort 1, Institute of Writing and Thinking, New York, USA

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## Publications, Editorials and Conferences

### Book Chapters

M.I. Rakib, S. Rahman, J.J. Mondal, X. Xiao, D. Lewis, A. Mileo and M.A. Manab. TWIG: Two-Step Image Generation Using Segmentation Masks as an Intermediary in Diffusion Models to Prevent Copyright Infringement. In *Privacy and Identity Management. Generating Futures. Privacy and Identity 2024. IFIP Advances in Information and Communication Technology*, vol 705 (Ed. F. Bieker, S. De Conca, J.M. Del Alamo, Y.S. Martín). Springer, Cham, Switzerland, 2025. ISBN: 978-3-031-91053-1.

M.A. Manab and N.S. Benevides. Barriers to geographic data in having a data cooperative: Satellites, privacy, and the dual monopoly of states and big techs. In *EU Data Cooperatives: L'ingresso delle cooperative di dati nell'ordinamento europeo* (Ed. F. Bravo), G. Giappichelli Editore, Torino, Italy, 2025. ISBN/EAN: 979-12-211-1146-0.

M.A. Manab. Mourning for my women. In *Himal Southasian*, vol. 29, no. 3. 2016.

### Journals

M.F. Islam, M.T. Reza, M.A. Manab, S. Zabeen, M.F.U. Islam, M.F. Shahriar, M. Kaykobad, M.G.Z.A. Husna, and J. Noor. Involution-based efficient autoencoder for denoising histopathological images with enhanced hybrid feature extraction *Computers in Biology and Medicine*, 192:110174, 2025.

M.F. Islam, M.A. Manab, J.J. Mondal, S. Zabeen, F.B. Rahman, M.Z. Hasan, F. Sadeque, and J. Noor. Involution fused convolution for classifying eye-tracking patterns of children with autism spectrum disorder. *Engineering Applications of Artificial Intelligence*, 139:109475, 2025.

S. Labib, J.J. Mondal, M.A. Manab, X. Xiao, and S. Newaz. Tailoring adversarial attacks on deep neural networks for targeted class manipulation using deepfool algorithm. *Scientific Reports*, 15:10790, 2025.

J.J. Mondal, M.F. Islam, R. Islam, N.K. Rhidi, S. Newaz, M.A. Manab, A.A.A. Islam, and J. Noor. Uncovering local aggregated air quality index with smartphone captured images leveraging efficient deep convolutional neural network. *Scientific Reports*, 14(1):1627, 2024.

### Conference Proceedings

R. Rabbi, F.A. Sarwar, M.F. Islam, T. Ahmed, S. Rudro, M.M. Rahman, M.A. Manab, and J.N. Mukta. Contrast then Confidence (C2): Contrastive Pretraining for Uncertainty-Aware Out-of-Distribution Detection in Satellite Imagery. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops*, pages 877–885. IEEE, 2026.

M.A. Manab and A. Nowshin. Return of the headless king: Panopticon, surveillance, and machine intelligence. In *Building Trust in CUIs: A Hybrid Workshop at the ACM CHI 2024 Conference*, 2024.

M.F. Islam, S. Zabeen, F.B. Rahman, M.A. Islam, F.B. Kibria, M.A. Manab, D.Z. Karim, and A.A. Rasel. Unic-net: Uncertainty aware involution-convolution hybrid network for two-level disease identification. In *Proceedings of IEEE Region 3 Technical, Professional, and Student Conference SoutheastCon 2023*, pages 305–312. IEEE, 2023.

M.F. Islam, S. Zabeen, F.B. Rahman, M.A. Islam, F.B. Kibria, M.A. Manab, D.Z. Karim, and A.A. Rasel. Exploring node classification uncertainty in graph neural networks. In *Proceedings of the 2023 ACM Southeast Conference*, pages 186–190, 2023.

M.F. Islam, S. Zabeen, M.A. Islam, F.B. Rahman, A. Ahmed, D.Z. Karim, A.A. Rasel, and M.A. Manab. How certain are transformers in image classification: Uncertainty analysis with Monte Carlo dropout. In *Fifteenth International Conference on Machine Vision (ICMV 2022)*, volume 12701, pages 158–165. SPIE, 2022.

J.J. Mondal, A. Zahin, M.A. Manab, and M.Z. Hasan. Does a support role player really create difference towards triumph? Analyzing individual performances of specific role players to predict victory in League of Legends. In *2022 25th International Conference on Computer and Information Technology (ICCIT)*, pages 768–773. IEEE, 2022.

J.J. Mondal, M.F. Islam, S. Zabeen, and M.A. Manab. Invopotnet: Detecting pothole from images through leveraging lightweight involutorial neural network. In *2022 25th International Conference on Computer and Information Technology (ICCIT)*, pages 599–604. IEEE, 2022.

M.F. Islam, F.B. Rahman, S. Zabeen, M.A. Islam, M.S. Hossain, M.H.K. Mehedi, M.A. Manab, and A.A. Rasel. RNN variants vs transformer variants: Uncertainty in text classification with Monte Carlo dropout. In *2022 25th International Conference on Computer and Information Technology (ICCIT)*, pages 7–12. IEEE, 2022.

### Preprints

M.A. Manab. Eternal sunshine of the mechanical mind: The irreconcilability of machine learning and the right to be forgotten. *arXiv preprint arXiv:2403.05592*, 2024.

M.F. Islam, S. Zabeen, M.A. Manab, M.R. H. Mahin, J.J. Mondal, M.T. Reza, M.Z. Hasan, M. Haque, F. Sadeque, and J. Noor. Med-ic: Fusing a single layer involution with convolutions for enhanced medical image classification and segmentation. *arXiv preprint arXiv:2409.18506*, 2024.

M.F. Islam, M.T. Reza, M.A. Manab, M.R.H. Mahin, S. Zabeen, and J. Noor. Spatially optimized compact deep metric learning model for similarity search. *arXiv preprint arXiv:2404.06593*, 2024.

I. Hassan, A. Mujahid, A.A. Hasib, A.R. Shagoto, J.J. Mondal, M.A. Manab, and J. Noor. Aerial flood scene classification using fine-tuned attention-based architecture for flood-prone countries in South Asia. *arXiv preprint arXiv:2411.00169*, 2024.

M.F. Islam, M.A. Manab, J.J. Mondal, S. Zabeen, F.B. Rahman, M.Z. Hasan, F. Sadeque, and J. Noor. Involution fused ConvNet for classifying eye-tracking patterns of children with autism spectrum disorder. *arXiv preprint arXiv:2401.03575*, 2024.

J.J. Mondal, M. F. Islam, R. Islam, N. K. Rhidi, A. Islam, M.A. Manab, and J. Noor. Unmasking the invisible: Finding location-specific aggregated air quality index with smartphone-captured images. *arXiv preprint arXiv:2308.03200*, 2023.

F. Islam and M.A. Manab. Investigating global venture capital investment: Literature review, cross-country insights, and a Bangladesh case study. *Social Science Research Network*, 2023.

### Symposiums, Talks, and Conference Presentations

M.A. Manab. Formalizing Institutional Data Custody: A Legal-Informatics Approach to Multi-Tier Data Governance in European Data Spaces. 38th International Conference on Legal Knowledge and Information Systems (JURIX) Doctoral Consortium, Università degli Studi di Torino, Turin, Italy, December 2025.

M.A. Manab, E. Montiel-Ponsoda, and V. Rodríguez-Doncel. Free Flow of Data and the Geography of Policies: Detecting Data Localisation Restrictions with Forward-Compatible Ontologies. *Fifth Workshop of AI4Legs-V: AI for Legislation*, Collocated with the 38th International Conference on Legal Knowledge and Information Systems (JURIX 2025), Università degli Studi di Torino, Turin, Italy, December 2025.

S. Leyva-Sánchez, F. Linde, M.A. Manab, M. Poveda-Villalón, and V. Rodríguez-Doncel. DAOnt: A Formal Ontology for EU Data Act Compliance. *CLAIRvoyantS 3° Conventicle on Artificial Intelligence Regulation and Safety*, Collocated with the 38th International Conference on Legal Knowledge and Information Systems (JURIX 2025), Università degli Studi di Torino, Turin, Italy, December 2025.

M.A. Manab. Siliconwashing: How Tech Ethics Discourse undermines Human Rights for the Marginalized. *Congresso Internacional de Direitos Humanos de Coimbra*, Universidade de Coimbra, Portugal, October 2025.

M.A. Manab and V.G. Castro. Private Information is Language Knowledge: GDPR Compliance, Privacy Rights, and the Catastrophe of Systematic Linguistic Degradation. *20th IFIP Summer School on Privacy and Identity Management*, Technical University of Denmark, Copenhagen, Denmark, August 2025.

M.A. Manab. Eternal sunshine of the mechanical mind: How the right to privacy and the right to be forgotten is subsumed by generative AI. *DPSN International Data Protection Day work-in-progress event*, Online. January 2025.

M. Mahmud and M. A. Manab. Analyzing University Reactions to Student Movements in the Palestinian Conflict: The Response-Counter-Response of Higher Education Institutions. *Annual Postgraduate Research Conference, Senator George Mitchell Institute*, Queen's University Belfast, June 2024

M.A. Manab and M.F. Islam. Adversarial Attack against A.I. for Pedagogical Purposes: Designing Prompts for Students and not ChatGPT. *First Elkana Symposium on Reimagining Teaching and Learning*, Central European University, Austria, June 2023

A.A. Chowdhury and M.A. Manab. The New Path to – or the New Face of – Domination? Some Emerging Technologies that Show Signs of a Growing Cold/Closed Society. *Workshop on "The Road to Domination? The Open Society and New Technologies"*, Open Society Research Platform, Central European University, Austria, April 2022

## Editorials

M.A. Manab. La UE quiere que la IA escanee nuestros mensajes privados en busca de abuso sexual infantil: ¿a qué precio? (in Spanish, *The European Union, to prevent Child Sexual Abuse, wants your Messages to be scanned by AI, but at what cost?*) In *The Conversation España*, 7 April 2026.

M.A. Manab and N. Benevides. EDITORIAL: Two Years of ChatGPT Chaos: How AI Detection Keeps Gaslighting the Bible. In *EMILDAI Blog*, 2 December 2024

M.A. Manab and M. Mahmud. Gonodholai theke Gonopituni: Mob-tantrik Bangladesh (in Bengali, *From Mass Lynching to Mass Execution: Mob-ocratic Bangladesh*). In *Netra News*, 13 October 2024.

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## Community Services

**External reviewer** IEEE TNNLS (Transactions on Neural Networks and Learning Systems, 2025), IJCCE (International Journal of Cognitive Computing in Engineering, 2025), CSCW (ACM SIGCHI Conference on Computer-Supported Cooperative Work and Social Computing, 2025), WACV Workshop on Vision-Based Understanding for Low-Resource Languages (2024), ACM Journal on Computing and Sustainable Societies (2024, 2023), NeurIPS (ethics review, 2025, 2023)

**Volunteer** Democratic Odyssey at the European University Institute, Florence, Italy (2025), British and Irish Law, Education and Technology Association (BILETA) Annual Conference, Dublin, Ireland (2024)

**Member** International Federation for Information Processing (IFIP) Working Group 9.6/11.7 on Information Technology: Misuse & the Law (2024–)

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## Teaching

Undergraduate Courses: Theory

SU 2022–SU 2023 **CSE422: Artificial Intelligence**, BRAC University, Bangladesh, Topics: Search algorithms, optimization problems, heuristic algorithms

- SP 2023 **GIS for Environmental Justice**, *Bard College, NY, USA*, Topics: Spatial data analysis to explore economic inequalities, co-taught with Dr. Jordan Ayala
- SU 2021–SP 2023 **CSE474: Simulation and Modeling**, *BRAC University, Bangladesh*, Topics: Agent-based simulation, probabilistic graphical models, compartmental models, dynamic network analysis
- F 2022–SP 2023 **CSE490.18: Geospatial Data Analysis**, *BRAC University, Bangladesh*, Topics: Geospatial data manipulation using ArcGIS, QGIS, Geopandas
- F 2021–SU 2022 **MAT 216: Linear Algebra and Fourier Analysis**, *BRAC University, Bangladesh*, Topics: Vector spaces, Fourier analysis, Fourier transform
- SP 2022 **MAT 215: Complex Variables and Laplace Transforms**, *BRAC University, Bangladesh*, Topics: Complex analysis, line integrals, Laplace transformations
- SU 2021–SP 2022 **CSE 423: Computer Graphics**, *BRAC University, Bangladesh*, Topics: Clipping and transformations, raster graphics concepts
- SU 2021 **CSE 331: Automata and Computability**, *BRAC University, Bangladesh*, Topics: Mathematical models of computation, Turing machines, NP-completeness, time complexity
- SP 2021 **CSE 230: Discrete Mathematics**, *BRAC University, Bangladesh*, Topics: Discrete probability, mathematical logic, graph theory, algebraic groups
- F 2020 **CSE 260: Digital Logic Design**, *BRAC University, Bangladesh*, Topics: Boolean algebra, combinational and sequential circuit analysis
- Undergraduate Courses: Lab
- SU 2023 **CSE472L: Human Computer Interface Lab**, *BRAC University, Bangladesh*, Topics: User-centered design, human-computer interaction
- SU 2023 **CSE421L: Computer Networks Lab**, *BRAC University, Bangladesh*, Topics: Wireless networks, fault tolerance, network security
- SU 2023 **CSE370L: Database Systems Lab**, *BRAC University, Bangladesh*, Topics: Database design, SQL and its variants
- SU 2023 **CSE427L: Machine Learning Lab**, *BRAC University, Bangladesh*, Topics: Neural networks, semi-supervised learning, reinforcement learning
- SU 2023 **CSE427L: Cloud Computing Lab**, *BRAC University, Bangladesh*, Topics: Containerization and parallelization, secure networking, synchronization control in distributed systems
- SU 2021–SP 2023 **CSE474L: Simulation and Modeling Lab**, *BRAC University, Bangladesh*, Topics: Epidemic modeling, scientific computing, synthetic data generation
- Undergraduate Courses: Teaching Assistant
- SP 2017 **CSE3205: Mathematics for Computer Science**, *University of Dhaka, Bangladesh*, Topics: Scientific computing, classification and regression, interpolation

## Languages

|         |                           |                                                              |
|---------|---------------------------|--------------------------------------------------------------|
| Bengali | Mother tongue             |                                                              |
| English | Bilingual proficiency,    | <i>IELTS Score: 8.5 (2020); lived in Ireland 2023 – 2024</i> |
| Spanish | Professional proficiency, | <i>B2 Certificate (2021); lives in Spain 2024 onwards</i>    |
| German  | Limited proficiency,      | <i>A2 (2023)</i>                                             |

## Additional Skills

|              |                                                                     |
|--------------|---------------------------------------------------------------------|
| Programming  | Python, R, Bash Scripting, Java, C, C++, MATLAB                     |
| Data Science | TensorFlow, Pytorch, Keras, OpenCV, PCL, Geopandas, QGIS, Langchain |
| Development  | Git, Docker, Kubernetes, AWS, Flask                                 |
| Blockchain   | Smart Contracts (Solidity)                                          |