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Swarnendu Ghosh

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Email address: dr.swarnendu.ghosh@gmail.com

Website: swa-g.github.io **Website:** https://scholar.google.com/citations?user=B_44F14AAAAJ

LinkedIn: dr-swarnendu-ghosh

ABOUT ME

MSCA Postdoctoral Researcher invested in the advancement of autonomous driving ecosystem by building safer agents for complex scenarios. Past experience academic research and teaching in the field of artificial intelligence, machine learning, computer vision, and neural networks.

EDUCATION & TRAINING

[31 Mar 2022]

Doctor of Philosophy in Engineering

Jadavpur University, India

City: Kolkata | **Country:** India | **Level in EQF:** 8

Thesis: Graph Based Approach Towards Automatic Generation of Image Description

Department: Computer Science & Engineering.

Supervisors:

1) Dr. Nibaran Das, Prof., Dept. of CSE, Jadavpur University, India

2) Dr. Teresa Gonçalves, Assoc. Prof, Dept. of Informatics, Universidade de Évora, Portugal

[1 Aug 2012 - 31 May 2014]

Master of Engineering in Computer Science & Engineering

Jadavpur University, India

City: Kolkata | **Country:** India | **Level in EQF:** 7

Thesis: A Novel Graph-Based Approach for Comparison and Categorisation of Text Documents Using Semantic Analysis

Course Grade Point Average: 8.72 (out of 10.00); **Marks**: 81%; **Class**: First

Department: Computer Science & Engineering, 54 Credits.

Key Specializations: Artificial Intelligence, Machine Learning, Image Processing, Pattern Recognition, Soft Computing, Natural Language Processing

[1 Aug 2008 - 31 May 2012]

Bachelor of Technology in Computer Science & Engineering

West Bengal University of Technology

City: Kolkata | **Country:** India | **Level in EQF:** 6

Course Grade Point Average: 8.32 out of 10.00

Total Credits: 222

[31 May 2008]

Indian School Certificate

Council for the Indian School Certificate Examinations, New Delhi

City: Kolkata | **Country:** India | **Final grade:** 80% | **Level in EQF:** 4 | **National classification:** 4

Subjects: English, Environmental Education, Bengali, Mathematics, Physics, Chemistry, Biology

[31 May 2006]

Indian Certificate of Secondary Education

Council for the Indian School Certificate Examinations, New Delhi

City: Kolkata | **Country:** India | **Final grade:** 82% | **Level in EQF:** 3 | **National classification:** 3

Subjects - English, Bengali, History, Civics & Geography, Mathematics, Science, Computer Applications

WORK EXPERIENCE

University of Ljubljana

City: Ljubljana | **Country:** Slovenia

[5 Nov 2025 - 4 Nov 2027] **Postdoctoral Fellow - MSCA COFUND**

- **Project Title:** Learning Autonomous Navigation in Complex Environment using Reinforcement (LANCER)
- **Key Research Areas:** Deep Learning, Reinforcement Learning, Autonomous Driving
- **Employment Type:** Full-time (40 Hours/Week)
- **Funding Type:** Co-Funded by the European Union's Horizon Europe research and innovation program under the Marie Sklodowska-Curie COFUND Postdoctoral Programme grant agreement No. 101081355 – SMASH and by the Republic of Slovenia and the European Union from the European Regional Development Fund

Jadavpur University

City: Kolkata | **Country:** India

[4 Jul 2019 - 31 Mar 2020] **Project Assistant - RUSA 2.0, Govt. of India**

Project Title - A compact event-guided natural scene description framework for real-time applications on android based mobile devices.

Funded by - Ministry of Education , Government of India - under the RUSA 2.0 Scheme

Jadavpur University

City: Kolkata | **Country:** India

[4 Jul 2017 - 31 Mar 2019] **Junior Research Fellow - SERB, Govt. of India**

Project Title - Development of Knowledge Graph from Images using Deep Learning.

Funded by - Science and Engineering Research Board, Department of Science and Technology, Government of India

RCC Institute of Technology

City: Kolkata | **Country:** India

[27 Sep 2016 - 31 Dec 2016] **Guest Lecturer**

Part Time Position.

Subjects Taught: Compiler Design for MTech in Computer Science and Engineering

Adamas University

City: Kolkata | **Country:** India

[8 Sep 2020 - 10 Jul 2022] **Assistant Professor**

Subjects Taught: Theory of Computation, Compiler Design, Pattern Recognition

Department: Computer Science & Engineering

Institute of Engineering & Management

[20 Jul 2022 - 16 Oct 2025] **Associate Professor**

Subjects: Artificial Intelligence, Machine Learning, Deep Learning, Pattern Recognition

[1 Jan 2024 - 1 Sep 2024] **Assistant Head of the Department, Dept. CSE(AIML), CSBS**

Department: Computer Science & Engineering (Artificial Intelligence & Machine Learning and Computer Science for Business Systems.

Role: co-lead in academic and administrative management across the two departments.

[1 Oct 2024 - 16 Oct 2025] **Program-in-Charge, Dept. of CSE(AIML)**

Department: Computer Science & Engineering (Artificial Intelligence & Machine Learning)

Role: Full coordination of all academic and administrative duties in the department including matters of pedagogy, accreditations, research and so on.

[1 Mar 2023 - 16 Oct 2025]

Centre-in-Charge, IEM CEDS

Designation: Founder and Centre-in-Charge of the IEM Centre of Excellence for Data Science.

Role: Management of the centre of excellence with the goal of exploring cutting edge technologies in the field AI, Machine Learning and Data Science.

[1 Dec 2023 - 16 Oct 2025]

Coordinator - IEDC(CSE)

Description: Coordinator of the Innovation and Entrepreneurship Development Cell for the department Computer Science & Engineering

Role: Fostering innovation, creativity, and entrepreneurial thinking within the computer science & engineering and allied departments through workshops, hackathons, mentorship programs, and industry interactions

SKILLS

Programming

MATLAB | Java (computer programming) | Python (computer programming) | C++

Scientific

deep learning | machine learning | computer vision | data science | principles of artificial intelligence | emergent technologies | artificial neural networks

Research

apply for research funding | identify research topics | conduct scholarly research | publish academic research | manage research and development projects

Academic

teach computer science | manage educational institution's administration | pedagogy | analyse curriculum

Communication

English | Hindi | Bengali | use office systems | lead a team | prepare presentation material | team building | conduct public presentations

LANGUAGE SKILLS

Mother tongue(s): Bengali

Other language(s):

English

LISTENING: C2 **READING:** C2 **WRITING:** C2

SPOKEN PRODUCTION: C2 **SPOKEN INTERACTION:** C2

Hindi

LISTENING: C2 **READING:** B2 **WRITING:** A2

SPOKEN PRODUCTION: B2 **SPOKEN INTERACTION:** B2

Portuguese

LISTENING: A1 **READING:** A1 **WRITING:** A1

SPOKEN PRODUCTION: A1 **SPOKEN INTERACTION:** A1

PUBLICATIONS

[2021]

Book - Deep Learning Models for Medical Imaging

Authors: KC Santosh, N Das, Swarnendu Ghosh | **Journal Name:** Series: Primers in Biomedical Imaging Devices and Systems | **Publisher:** Academic Press (Elsevier)

[2021]

Chapter - Introduction (Deep Learning Models for Medical Imaging)

Authors: KC Santosh, N Das, Swarnendu Ghosh | **Journal Name:** Deep Learning Models for Medical Imaging | **Volume, Issue and Pages:** pp. 1-27 | **Publisher:** Academic Press (Elsevier)

[2021]

Chapter - Deep learning: a review (Deep Learning Models for Medical Imaging)

Authors: KC Santosh, N Das, Swarnendu Ghosh | **Journal Name:** Deep Learning Models for Medical Imaging | **Volume, Issue and Pages:** pp. 29-63 | **Publisher:** Academic Press (Elsevier)

[2021] **Chapter - Deep learning models (Deep Learning Models for Medical Imaging)**

Authors: KC Santosh, N Das, Swarnendu Ghosh | **Journal Name:** Deep Learning Models for Medical Imaging | **Volume, Issue and Pages:** pp. 65-97 | **Publisher:** Academic Press (Elsevier)

[2021] **Chapter - Cytology image analysis (Deep Learning Models for Medical Imaging)**

Authors: KC Santosh, N Das, Swarnendu Ghosh | **Journal Name:** Deep Learning Models for Medical Imaging | **Volume, Issue and Pages:** pp. 99-123 | **Publisher:** Academic Press

[2021] **Chapter - COVID-19: prediction, screening, and decision-making (Deep Learning Models for Medical Imaging)**

Authors: KC Santosh, N Das, Swarnendu Ghosh | **Journal Name:** Deep Learning Models for Medical Imaging | **Volume, Issue and Pages:** pp. 125-145 | **Publisher:** Academic Press (Elsevier)

[2023] **Journal - Im2graph: A weakly supervised approach for generating holistic scene graphs from regional dependencies**

Authors: Swarnendu Ghosh, T Gonçalves, N Das | **Journal Name:** Future Internet | **Volume, Issue and Pages:** Vol. 15, No. 2, p. 70 | **Publisher:** MDPI

[2021] **Journal - Two-phase dynamic routing for micro and macro-level equivariance in multi-column capsule networks**

Authors: B Mandal, R Sarkhel, Swarnendu Ghosh, N Das, M Nasipuri | **Journal Name:** Pattern Recognition | **Volume, Issue and Pages:** Vol. 109, p. 107595 | **Publisher:** Elsevier

[2021] **Journal - JU-VNT: a multi-spectral dataset of indoor object recognition using visible, near-infrared and thermalspectrum**

Authors: Swarnendu Ghosh, N Das, P Sarkar, M Nasipuri | **Journal Name:** Multimedia Tools and Applications | **Volume, Issue and Pages:** Vol. 80, No. 12, pp. 17807-17826 | **Publisher:** Springer

[2020] **Journal - Improved word-level handwritten Indic script identification by integrating small convolutionalneural networks**

Authors: S Ukil, Swarnendu Ghosh, SM Obaidullah, KC Santosh, K Roy, N Das | **Journal Name:** Neural Computing and Applications | **Volume, Issue and Pages:** Vol. 32, No. 7, pp. 2829-2844 | **Publisher:** Springer

[2020] **Journal - Multi scale mirror connection based encoder decoder network for text localization**

Authors: K Dutta, M Bal, A Basak, Swarnendu Ghosh, N Das, M Kundu, M Nasipuri | **Journal Name:** Pattern Recognition Letters | **Volume, Issue and Pages:** Vol. 135, pp. 64-71 | **Publisher:** Elsevier

[2019] **Journal - SegFast-V2: Semantic image segmentation with less parameters in deep learning for autonomousdriving**

Authors: Swarnendu Ghosh, A Pal, S Jaiswal, KC Santosh, N Das, M Nasipuri | **Journal Name:** International Journal of Machine Learning and Cybernetics | **Volume, Issue and Pages:** Vol. 10, No. 11, pp. 3145-3154 | **Publisher:** Springer

[2019] **Journal - Reshaping inputs for convolutional neural network: Some common and uncommon methods**

Authors: Swarnendu Ghosh, N Das, M Nasipuri | **Journal Name:** Pattern Recognition | **Volume, Issue and Pages:** Vol. 93, pp. 79-94 | **Publisher:** Elsevier

[2019] **Journal - Understanding deep learning techniques for image segmentation**

Authors: Swarnendu Ghosh, N Das, I Das, U Maulik | **Journal Name:** ACM Computing Surveys (CSUR) | **Volume, Issue and Pages:** Vol. 52, No. 4, pp. 1-35 | **Publisher:** ACM

[2018] **Journal - The journey of graph kernels through two decades**

Authors: Swarnendu Ghosh, N Das, T Gonçalves, P Quaresma, M Kundu | **Journal Name:** Computer Science Review | **Volume, Issue and Pages:** Vol. 27, pp. 88-111 | **Publisher:** Elsevier

[2014] **Journal - Comparison of different graph distance metrics for semantic text based classification**

Authors: N Das, Swarnendu Ghosh, T Gonçalves, P Quaresma | **Journal Name:** Polibits | **Volume, Issue and Pages:** Vol. 49

[2024] **Patent - AI Based Wrist Band for Heart Attack Detection**

Authors: P Maiti, S Chanda, S Chandra, Swarnendu Ghosh, D Guha Roy | **Journal Name:** 6391276 | **Publisher:** UK Design Patent

[2024] **Symposium - MADS: A Multi-modal Academic Document Segmentation Dataset for Smart Question BankManagement**

Authors: U Aich, Swarnendu Ghosh, T Saha | **Journal Name:** 2nd Symposium on NLP for Social Good (NSG) | **Volume, Issue and Pages:** Vol. 3764 | **Publisher:** CEUR-WS

[2024] **Talk - Digital Twins in Healthcare: A forefront for knowledge representation techniques**

Authors: Swarnendu Ghosh | **Journal Name:** 2nd Symposium on NLP for Social Good (NSG) | **Volume, Issue and Pages:** 3764 | **Publisher:** CEUR-WS

[2025] **Conference Workshop - HiLEx: Image-Based Hierarchical Layout Extraction from Question Papers**

Authors: U Aich, Swarnendu Ghosh, T Saha | **Journal Name:** International Conference on Document Analysis and Recognition (ICDAR) | **Volume, Issue and Pages:** pp. 485-505 | **Publisher:** ACM

[2023] **Conference - Acute Lymphoblastic Leukemia Classification using Compact Channel Specific Multi-columnCNNs**

Authors: R Satpathi, S Das, M Laha, Swarnendu Ghosh | **Journal Name:** 8th International Conference on Computers and Devices for Communication (CODEC) | **Publisher:** IEEE

[2024] **Conference - RavNet: Conditioning Retinal Vessel Identification Using a Cascaded Multi-objective U-Net**

Authors: Swarnendu Ghosh, C Das | **Journal Name:** 5th International Conference on Frontiers in Computing and Systems (Comsys 2024) | **Volume, Issue and Pages:** vol 1, pp 75–87 | **Publisher:** Springer

[2023] **Conference - GuideBP: Guided Backpropagation in Multi-output Neural Networks by Channeling GradientsThrough Weaker Logits**

Authors: Swarnendu Ghosh, B Mandal, T Gonçalves, P Quaresma, M Nasipuri, N Das | **Journal Name:** 4th International Conference on Frontiers in Computing and Systems (FICONSYS) | **Volume, Issue and Pages:** pp. 165-183 | **Publisher:** IEEE

[2020] **Conference - Deep learning for word-level handwritten Indic script identification**

Authors: S Ukil, Swarnendu Ghosh, SM Obaidullah, KC Santosh, K Roy, N Das | **Journal Name:** International Conference on Recent Trends in Image Processing and Pattern Recognition (RTIP2R) | **Volume, Issue and Pages:** pp 499–510 | **Publisher:** Springer

[2020] **Conference - Using thermal intensities to build conditional random fields for object segmentation at night**

Authors: A Dutta, B Mandal, Swarnendu Ghosh, N Das | **Journal Name:** 4th International Conference on Computational Intelligence and Networks (CINE 2020)

[2019] **Conference - SynCGAN: Using learnable class specific priors to generate synthetic data for improving classifierperformance on cytological images**

Authors: S Dey, S Das, Swarnendu Ghosh, S Mitra, S Chakrabarty, N Das | **Journal Name:** 8th National Conf. on Computer Vision, Pattern Recognition, Image Processing & Graphics (NCVPRIPG) | **Volume, Issue and Pages:** pp 32-42 | **Publisher:** Springer

[2019] **Conference - Using dynamic routing to extract intermediate features for developing scalable capsule networks**

Authors: B Mandal, Swarnendu Ghosh, R Sarkhel, N Das, M Nasipuri | **Journal Name:** 2nd International Conference on Advanced Computational and Communication Paradigms (ICACCP) | **Volume, Issue and Pages:** pp 1-6 | **Publisher:** IEEE

[2019] **Conference - GSD-Net: compact network for pixel-level graphical symbol detection**

Authors: Swarnendu Ghosh, P Shaw, N Das, KC Santosh | **Journal Name:** International Conference on Document Analysis and Recognition Workshops (ICDARW) | **Volume, Issue and Pages:** pp. 68-73 | **Publisher:** IEEE

[2019] **Conference - Caption Generation from Keywords using Probabilistic Dual-LSTM Networks and Dynamic Programming**

Authors: D Suvam, Swarnendu Ghosh, C Sharod, N Das, T Gonçalves, P Quaresma | **Journal Name:**

International Conference on Emerging Technologies for Sustainable Development (ICETSD)

[2018] **Conference - Combining multilevel contexts of superpixel using convolutional neural networks to performnatural scene labeling**

Authors: A Das, Swarnendu Ghosh, R Sarkhel, S Choudhuri, N Das, M Nasipuri | **Journal Name:** Recent Developments in Machine Learning and Data Analytics (IC3) | **Volume, Issue and Pages:** pp. 297-306 | **Publisher:** Springer

[2018] **Conference - Segfast: A faster squeezenet based semantic image segmentation technique using depth-wiseseparable convolutions**

Authors: A Pal, S Jaiswal, Swarnendu Ghosh, N Das, M Nasipuri | **Journal Name:** 11th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) | **Volume, Issue and Pages:** pp 1-7 | **Publisher:** ACM

[2018] **Conference - Handwritten Indic character recognition using capsule networks**

Authors: B Mandal, S Dubey, Swarnendu Ghosh, R Sarkhel, N Das | **Journal Name:** 2018 IEEE Applied Signal Processing Conference (ASPCON) | **Volume, Issue and Pages:** pp. 304-308 | **Publisher:** IEEE

[2016] **Conference - Handwritten Oriya digit recognition using maximum common subgraph based similarity measures**

Authors: Swarnendu Ghosh, N Das, M Kundu, M Nasipuri | **Journal Name:** Information Systems Design and Intelligent Applications. | **Volume, Issue and Pages:** Advances in Intelligent Systems and Computing, vol 435. pp 165–173 | **Publisher:** Springer

[2016] **Conference - Representing image captions as concept graphs using semantic information**

Authors: Swarnendu Ghosh, N Das, T Gonçalves, P Quaresma | **Journal Name:** International Conference on Advances in Computing, Communications and Informatics (ICACCI) | **Volume, Issue and Pages:** pp. 162-167 | **Publisher:** IEEE

[2016] **Conference - A multi-cue information based approach to contour detection by utilizing superpixel segmentation**

Authors: S Choudhuri, N Das, Swarnendu Ghosh, M Nasipuri | **Journal Name:** International Conference on Advances in Computing, Communications and Informatics (ICACCI) | **Volume, Issue and Pages:** pp. 1057-1063 | **Publisher:** IEEE

[2014] **Conference - Using graphs and semantic information to improve text classifiers**

Authors: N Das, Swarnendu Ghosh, T Gonçalves, P Quaresma | **Journal Name:** International Conference on Natural Language Processing (ICON) | **Volume, Issue and Pages:** pp. 324-336 | **Publisher:** Springer Nature

[2014] **Competition - JU-Evora: A graph based cross-level semantic similarity analysis using discourse information**

Authors: Swarnendu Ghosh, N Das, T Gonçalves, P Quaresma | **Journal Name:** 8th International Workshop on Semantic Evaluation (SemEval 2014) | **Publisher:** ACL

[2026] **Conference - RocketSim: Benchmarking Reinforcement-Learning Hover Control of a Reusable Booster**

Authors: Swarnendu Ghosh, David Muhič, Branko Šter | **Journal Name:** 29th International Multiconference, Information Society 2026 (IS 2026) | **Volume, Issue and Pages:** Vol 1., pp - 64-67

[2026] **Conference - Questioning Post-hoc Image Corruptions as a Proxy for Environmental Variation in Autonomous Driving**

Authors: Swarnendu Ghosh, Branko Šter | **Journal Name:** 29th International Multiconference, Information Society 2026 (IS 2026) | **Volume, Issue and Pages:** Vol1, pp: 60-63

[2026] **Conference - Multimodal Survival Transformer for Progression Window Estimation of Time to Dementia**

Authors: David Calhas, Swarnendu Ghosh, Branko Šter, Vida Groznik, Dejan Georgiev, Aleksander Sadikov | **Journal Name:** 2nd International Conference on Health Medical Systems and Services and Services, HMSS 2026 | **Volume, Issue and Pages:** In Press | **Publisher:** IEEE Xplore

CONFERENCES & SEMINARS

[21 Feb 2025 - 22 Feb 2025] **WIN 6.0 2025 - 1st International Conference on Web 6.0 and Industry 6.0** Kolkata

Publication and Web Chair

[1 Jul 2026 - 3 Jul 2026] **WIN 6.0 2026 - 2nd International Conference on Web 6.0 and Industry 6.0** Kolkata
TPC Member

[23 Feb 2024 - 23 Feb 2024] **ICACA 2024 - 3rd International Conference on Advanced Computing and Applications** Kolkata
TPC Member

[18 Dec 2018 - 22 Dec 2018] **ICVGIP 2018 - 11th Indian Conference on Computer Vision, Graphics and Image Processing** IIIT Hyderabad
Presentor and Participant

[27 Feb 2020 - 29 Feb 2020] **CINE 2020 - 4th International Conference on Computational Intelligence and Networks** ISI Kolkata
Presentor and Participant

[16 Oct 2023 - 17 Oct 2023] **COMSYS 2023 - 4th International Conference on Frontiers in Computing and System** IIT Mandi
Presenter

HONOURS AND AWARDS

[5 Nov 2025] **Marie Skłodowska-Curie Postdoctoral Fellow Awarding institution:** University of Ljubljana, Slovenia.
Funded by the SMASH MSCA COFUND program
Machine Learning for Science and Humanities

[10 Oct 2014] **Erasmus Mundus Fellow Awarding institution:** EMMASia 2013 - University of Evora
Funded by Erasmus Mundus Mobility with Asia 2013.

[6 Jul 2017] **Runners Up in DLVC Workshop 2017 Awarding institution:** IIT Kharagpur

[15 Mar 2012] **GATE Score and Fellowship Awarding institution:** IIT Delhi & University Grants Commission
All India Rank - 872 (out of 156780)
Gate Score: 670; **Marks**: 58 out of 100

[1 Jul 2014] **NET Score Awarding institution:** Council of Scientific and Industrial Research
All India Rank: 213

CERTIFICATIONS

[IIT Kharagpur, 6 Jul 2017] **Deep Learning for Visual Computing Workshop**
Mode of Learning: Project Based

NETWORKS AND MEMBERSHIPS

[Current] **IUPRAI Life Member**
Indian Unit for Pattern Recognition and Artificial Intelligence
Country affiliate to International Association for Pattern Recognition (IAPR)
Membership ID - L-256