Pinaki Nath Chowdhury

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Education

2020 – Present
SketchX Lab of Center for Vision, Speech and Signal Processing
University of Surrey, United Kingdom.
Doctor of Philosophy (Ph.D) Write-up Phase.
Supervisors: Prof. Yi-Zhe Song and Prof. Tao Xiang

2014 – 2018
Kalyani Government Engineering College, Kalyani (India)
University: Maulana Abul Kalam Azad University of Technology
Formerly known as West Bengal University of Technology
Computer Science and Engineering
DGPA: 8.33/10 (Including all 8 semesters)
Graduated with Bachelor of Technology (Honors)
B.Tech Thesis: *Analysis and Comparison of Natural Shapes*.

Employment History

December 2023 – Present
Research Scientist Sony PlayStation, London, UK.

March 2023 – December 2023
Research Scientist iSize Technologies, London. (Acquired by Sony PlayStation, UK.)

January 2022
Visiting Scientist Indian Statistical Institute, Kolkata. Host: Prof. Umapada Pal (ex-Head CVPR Unit).

June 2021 – August 2021
Tech Intern PhD Adobe Systems Europe Limited. Project Title: Sketch-Based Multiview Garment Modeling. Guide: Tuanfeng Wang, Duygu Ceylan. Manager: Niloy J. Mitra. Published a paper in 3DV'22 Oral.

June 2018 – September 2020
Research Assistant Indian Statistical Institute, Kolkata. Worked on multiple problems related to computer vision and machine learning. Published 11 research papers. Guide: Prof. Umapada Pal (CVPR Unit at Indian Statistical Institute, Kolkata).

May 2018 – June 2018
Full Stack Developer Egnify Technologies, Hyderabad. GraphQL to help reduce development time and scale microservices. Restructured backend dataflow across multiple nodes/services to reduce latency (e.g., one-time data authentication via REST using one microservice scaled vertically).

February 2018 – April 2018
Full Stack Developer Intern MyAnatomy Integrations, Bangalore. Used MERN stack to restructure and build multiple microservices and reduce latency. Migrate DB from Firebase to MongoDB. Speed-up development (thanks to MQL) and used DB fragmentation to improve latency. Single-handedly built the payment service ground-up. Fix bugs in ReactJS.

Employment History (continued)

August 2017 – February 2018 — **Research Intern.** `Central Drug Research Institute, Lucknow.` Analyse the social awareness of multiple disease (Alzheimer, HIV etc.) in South Asia, at scale, using web scrapping from multiple News Articles and simple but fast ML tricks for Classification. Guide: Dr. Sukant Khuranna.

October 2016 – March 2017 — **Python Developer Intern.** `EduGorilla Community, Lucknow, India` Web Scrapping and creating microservices for data collection and validation. Created the largest and most accurate database in India with school addresses, phone numbers, and educational blogs/resources.

Miscellaneous Experience

Talks

2022 — The Computer Vision Center (CVC), Universitat Autònoma de Barcelona (UAB), Spain.

Teaching

2023 — EEEM071 Advanced Topics in Computer Vision and Deep Learning, University of Surrey

2021 — EEE1032 Mathematics II: Engineering Mathematics, University of Surrey

Volunteer

2021 – — Reviewer for IEEE-TPAMI, CVPR, ICCV, ECCV, AISTATS, NeurIPS, ICLR, ICML, IEEE-TMM, IEEE-TIST, Computer & Graphics, PR, PRL, ICPR, MIR, Pacific Graphics.

Awards and Achievements

2023 — **UK Global Talent Visa** Endorsement (exceptional promise) from Royal Academy of Engineering.

CVPR 2023 Best Paper Finalist Top 12 out of 9155 submissions and 2360 accepted papers.

2020 — **Ph.D. Scholarship** iFlyTek-Surrey Joint Research Centre on Artificial Intelligence

2014 — **West Bengal Joint Entrance Examination Rank: 960** out of 0.1 million candidates. Opening rank in Kalyani Government Engineering College, batch: 2014-2018

Tech used in my Current/Previous Roles

Coding — Python, C++, C, CUDA (very basic)

Databases — MongoDB, MySQL, PostgreSQL, SQLite, Google Datastore.

Web Dev — JavaScript, GCP, AWS (S3, EC2), Linode, Heroku.

Misc. — High Performance Computing (Slrum, Condor), Docker, Singularity, GIT, Tensorflow, Pytorch, TorchScript, Scrappy, MERN, GraphQL.

Selected Publications (see Google Scholar for a detailed list)

1 **Chowdhury, P. N.**, Bhunia, A. K., Sain, A., Koley, S., Xiang, T. & Song, Y.-Z. (2023a). Democratising 2D Sketch to 3D Shape Retrieval Through Pivoting. In *IEEE International Conference on Computer Vision (ICCV)*.

2. **Chowdhury**, **P. N.**, Bhunia, A. K., Sain, A., Koley, S., Xiang, T. & Song, Y.-Z. (2023b). SceneTrilogy: On Human Scene-Sketch and its Complementarity with Photo and Text. In *IEEE Conference on Computer Vision and Pattern Recognition* ***(CVPR)***.

3. **Chowdhury**, **P. N.**, Bhunia, A. K., Sain, A., Koley, S., Xiang, T. & Song, Y.-Z. (2023c). What Can Human Sketches Do for Object Detection? In *IEEE Conference on Computer Vision and Pattern Recognition* ***(CVPR)*** *Best Paper Finalist (Award Candidate, Top 12 out of 9155 papers)*.

4. Luo, L., **Chowdhury**, **P. N.**, Gryaditskaya, Y., Xiang, T. & Song, Y.-Z. (2023). 3D VR Sketch Guided 3D Shape Prototyping and Exploration. In *IEEE International Conference on Computer Vision* ***(ICCV)***.

5. **Chowdhury**, **P. N.**, Bhunia, A. K., Gajjala, V. R., Sain, A., Xiang, T. & Song, Y.-Z. (2022). Partially Does It: Towards Scene-Level FG-SBIR with Partial Input. In *IEEE Conference on Computer Vision and Pattern Recognition* ***(CVPR)***.

6. **Chowdhury**, **P. N.**, Sain, A., Bhunia, A. K., Xiang, T., Gryaditskaya, Y. & Song, Y.-Z. (2022). FS-COCO: Towards Understanding of Freehand Sketches of Common Objects in Context. In *European Conference on Computer Vision* ***(ECCV)***.

7. **Chowdhury**, **P. N.**, Shivakumara, P., Nandanwar, L., Samiron, F., Pal, U. & Lu, T. (2022). Oil palm tree counting in drone images. *Pattern Recognition Letters* ***(PRL)***.

8. **Chowdhury**, **P. N.**, Shivakumara, P., Raghavendra, R., Nag, S., Pal, U., Lu, T. & Lopresti, D. (2022). An Episodic Learning Network for Text Detection on Human Bodies in Sports Images. *IEEE Transactions on Circuits and Systems for Video Technology* ***(TCSVT)***.

9. **Chowdhury**, **P. N.**, Wang, T. Y., Ceylan, D., Song, Y.-Z. & Gryaditskaya, Y. (2022). Garment Ideation: Iterative View-Aware Sketch-Based Garment Modeling. In *International Conference on 3D Vision* ***(3DV)*** *ORAL*.

10. Bhunia, A. K., **Chowdhury**, **P. N.**, Sain, A. & Song, Y.-Z. (2021). Towards the Unseen: Iterative Text Recognition by Distilling from Errors. In *IEEE Conference on Computer Vision and Pattern Recognition* ***(CVPR)***.

11. Bhunia, A. K., **Chowdhury**, **P. N.**, Sain, A., Yang, Y., Xiang, T. & Song, Y.-Z. (2021). More Photos Are All You Need: Semi-Supervised Learning for Fine-Grained Sketch Based Image Retrieval. In *IEEE Conference on Computer Vision and Pattern Recognition* ***(CVPR)***.

12. Bhunia, A. K., **Chowdhury**, **P. N.**, Yang, Y., Hospedales, T. M., Xiang, T. & Song, Y.-Z. (2021). Vectorization and Rasterization: Self-Supervised Learning for Sketch and Handwriting. In *IEEE Conference on Computer Vision and Pattern Recognition* ***(CVPR)***.

13. **Chowdhury**, **P. N.**, Shivakumara, P., Jalab, H. A., Ibrahim, R. W., Pal, U. & Lu, T. (2020). A new Fractal Series Expansion based enhancement model for license plate recognition. *Signal Processing Image Communication* ***(SPIC)***.

14. **Chowdhury**, **P. N.**, Shivakumara, P., Kanchan, S., Raghavendra, R., Pal, U., Lu, T. & Lopresti, D. (2020). Graph attention network for detecting license plates in crowded street scenes. *Pattern Recognition Letters* ***(PRL)***.

15. Nayef, N., Liu, C.-L., Ogier, J.-M., Patel, Y., Busta, M., **Chowdhury**, **P. N.**, ... Burie, J.-C. (2019). ICDAR2019 Robust Reading Challenge on Multi-lingual Scene Text Detection and Recognition - RRC-MLT-2019. In *International Conference on Document Analysis and Recognition* ***(ICDAR)***.