Pinaki Nath Chowdhury

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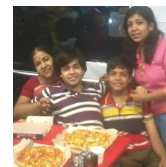
Education

2020 – Present 🔖 **SketchX Lab of Center for Vision, Speech and Signal Processing**
University of Surrey, United Kingdom.
Doctor of Philosophy (Ph.D)
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

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

June 2018 – September 2020 🔖 **Research Assistant** Indian Statistical Institute, Kolkata. Working on problems related to computer vision and machine learning. Published 11 research papers. Guide: Prof. Umapada Pal (former Head and Professor, CVPR Unit Indian Statistical Institute, Kolkata).

May 2018 – June 2018 🔖 **Full Stack Developer** Egnify Technologies, Hyderabad. Use MERN stack and GraphQL for building and integrating multiple microservices.

February 2018 – April 2018 🔖 **Full Stack Developer intern.** MyAnatomy Integrations, Bangalore. Scaled up the student placement service used in multiple universities in India. Used MERN stack to restructure and build multiple microservices and reduce latency. Built the payment service ground-up.

August 2017 – February 2018 🔖 **Research Intern.** CSIR - Central Drug Research Institute, Lucknow. Lead a team of 15 people to analyse awareness of multiple disease (Alzheimer, HIV, Parkinson etc.) at scale using web scrapping and simple ML tricks for categorisation. Guide: Dr. Sukant Khuranna.

October 2016 – March 2017 🔖 **Python Developer Intern.** EduGorilla Community, Lucknow Web Scrapping and integrating several APIs for validation of data. Created the largest and most accurate database in India, helping millions of school students to easily find educational resources.

Publications

1 Bhunia, A. K., Koley, S., Khilji, A. F. U. R., Sain, A., **Chowdhury**, **P. N.**, Xiang, T. & Song, Y.-Z. (2022). Sketching without worrying: Noise-tolerant sketch-based image retrieval. *In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.*

2 **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), 2022.*

3 **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. *European Conference on Computer Vision (ECCV), 2022.*

4 **Chowdhury**, **P. N.**, Wang, T., Ceylan, D., Song, Y.-Z. & Gryaditskaya, Y. (2022). Garment ideation: Iterative view-aware sketch-based garment modeling. *International Conference on 3D Vision (3DV)* *ORAL 2022.*

5 Sain, A., Bhunia, A. K., Potlapalli, V., **Chowdhury**, **P. N.**, Xiang, T. & Song, Y.-Z. (2022). Sketch3t: Test-time training for zero-shot sbir. *In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.*

6 *Qi, Y., *Su, G.*, **Chowdhury**, **P. N.**, Li, M. & Song, Y.-Z. (2021). Sketchlattice: Latticed representation for sketch manipulation. *In IEEE International Conference on Computer Vision (ICCV), 2021.*

7 Bhunia, A. K., **Chowdhury**, **P. N.**, Sain, A. & Song, Y.-Z. (2021). Towards the unseen: Iterative text recognition by distilling from errors. *In IEEE International Conference on Computer Vision (ICCV), 2021.*

8 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), 2021.*

9 Bhunia, A. K., **Chowdhury**, **P. N.**, Yang, Y., Hospedales, T., 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), 2021.*

10 Bhunia, A. K., Ghose, S., Kumar, A., **Chowdhury**, **P. N.**, Sain, A. & Song, Y.-Z. (2021). Metahtr: Towards writer-adaptive handwritten text recognition. *In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.*

11 Bhunia, A. K., Sain, A., Kumar, A., Ghose, S., **Chowdhury**, **P. N.** & Song, Y.-Z. (2021). Joint visual semantic reasoning: Multi-stage decoder for text recognition. *In IEEE International Conference on Computer Vision (ICCV), 2021.*

12 Bhunia, A. K., Sain, A., **Chowdhury**, **P. N.** & Song, Y.-Z. (2021). Text is text, no matter what: Unifying text recognition using knowledge distillation. *In IEEE International Conference on Computer Vision (ICCV), 2021.*

13 Chaudhuri, A., Shivakumara, P., **Chowdhury**, **P. N.**, Roy, S., Pal, U. & Kumar, H. (2021). Deep multi-modal net based action image classification for text detection and recognition in video images. *Expert System with Applications (ESWA), 2021.*

14 **Chowdhury**, **P. N.**, Shivakumara, P., Nandanwar, L., Samiron, F., Pal, U. & Lu, T. (2021). Oil palm tree counting in drone images. *Pattern Recognition Letters (PRL), 2021.*

15 **Chowdhury**, **P. N.**, Shivakumara, P., Raghavendra, R., Nag, S., Pal, U., Lu, T. & Lopresti, D. (2021). An episodic learning network for text detection on human bodies in sports images. *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT) 2021.*

16   **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), 2020*.

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

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

19   **Chowdhury**, **P. N.**, Shivakumara, P., Pal, U., Lu, T. & Blumenstein, M. (2020). A new augmentation-based method for text detection in night and day license plate images. *Multimedia Tools and Applications (MTAP), 2020*.

20   Ghose, S., **Chowdhury**, **P. N.**, Roy, P. P. & Pal, U. (2020). Modeling extent-of-texture information for ground terrain recognition. *In 25th International Conference on Pattern Recognition (ICPR), 2020*.

21   Kumar, A., Ghose, S., **Chowdhury**, **P. N.**, Roy, P. P. & Pal, U. (2020). Udbnet: Unsupervised document binarization network via adversarial game. *In 25th International Conference on Pattern Recognition (ICPR) 2020*.

22   **Chowdhury**, **P. N.**, Shivakumara, P., Ramachandra, R., Pal, U., Lu, T. & Blumenstein, M. (2019). A new u-net based enhancement model for license plate detection in night and day images. *In 5th Asian Conference on Pattern Recognition (ACPR), 2019*.

23   Nayef, N., Patel, Y., Busta, M., **Chowdhury**, **P. N.**, Karatzas, D., Khlif, W., … Ogier, J.-M. (2019). Icdar2019 robust reading challenge on multi-lingual scene text detection and recognition – rrc-mlt-2019. *In 15th International Conference on Document Analysis and Recognition (ICDAR), 2019*.

24   Zhan, H., **Chowdhury**, **P. N.**, Pal, U. & Lu, Y. (2019). Handwritten numeral string recognition for indian scripts. *In 5th Asian Conference on Pattern Recognition (ACPR), 2019*.

Skills

Languages	▌ Strong reading, writing and speaking competencies for English, Bengali, Hindi.
Coding	▌ Python, C++, C
Databases	▌ MongoDB, MySQL, PostgreSQL, SQLite, Google Datastore.
Web Dev	▌ Html, css, JavaScript, GCP, AWS, Linode, Heroku.
Misc.	▌ High Performance Computing (Slrum, Condor), GIT, Tensorflow, Pytorch, Scrappy, MERN Stack, GraphQL, Academic research.

Miscellaneous Experience

Talks

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

Teaching

2021   ▌ EEE1032 Mathematics II: Engineering Maths (Teaching Assistant 21'), University of Surrey

Volunteer

2022   ▌ Reviewer for CVPR, ECCV, AISTATS, Transactions on Multimedia, Computer & Graphics, PR, PRL, ICPR, Machine Intelligence Research, Transaction on Intelligent Systems and Technology

Miscellaneous Experience (continued)

2021   🔖 Reviewer for International Conference on Computer Vision (ICCV)

Awards and Achievements

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

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

Competitive Coding

2018   🔖 **Google CodeJam 2018 Qualifying Round** Global Rank: 6767. Solved 2.5 problems out of 4.

2017   🔖 **CodeChef Snackdown Pre-Elimination Round** Global Rank 729