

# Omprakash Chakraborty Google PhD Fellow

## Research Interests:

Computer Vision (Action Recognition, Vision and Language based multi-modal Learning, Object detection in videos and Semantic segmentation)  
 Deep Learning (Efficient learning, Learning with limited labels and Limited compute resources)

## Education:

PhD, Centre for Excellence in Artificial Intelligence(2019-Present) Indian Institute of Technology Kharagpur Topic: Semi and Un-Supervised Representation Learning for Efficient Video Understanding Guide: Prof. <i>Abir Das</i> , Department of Computer Science and Engg., IIT Kharagpur	ongoing
MS, Computer Science and Engineering(2015-2018) Indian Institute of Technology Kharagpur Topic: Multi-Criteria based Network Analysis for Disaster Mangement Guide: Prof. <i>Soumya K. Ghosh</i> , Department of Computer Science and Engg., IIT Kharagpur Prof. <i>Pabitra Mitra</i> , Department of Computer Science and Engg., IIT Kharagpur	9.44/10
B.Tech in Information Technology(IT)(2011-2015) Haldia Institute of Technology, Haldia, West Bengal University of Technology	8.67/10
Higher Secondary Examination (2009-2011) Kendriya Vidyalaya, Haldia, West Bengal CBSE-AISSCE	89.4 %
Secondary Examination (2008-2009) The Assembly Of God Church School, Haldia, West Bengal ICSE	93 % (best of 5)

## Selected Publications:

- XPL: A Cross-Model framework for Semi-Supervised Prompt Learning in Vision-Language Models**,  
*O Chakraborty*, Aadarsh Sahoo, Rameswar Panda, Abir Das  
 (Under Review), 2024.
- AnyDA: Anytime Domain Adaptation**,  
*O Chakraborty*, Aadarsh Sahoo, Rameswar Panda, Abir Das  
 International Conference on Learning Representations (ICLR), 2023.
- Semi-Supervised Action Recognition with Temporal Contrastive Learning**,  
*O Chakraborty*, Ankit Singh, Ashutosh Varshney, Rameswar Panda, Rogerio Feris, Kate Saenko, Abir Das  
 Computer Vision and Pattern Recognition (CVPR), 2021
- Multi-facilities based Road Network Analysis for Flood Hazard Management**,  
*O Chakraborty*, P Mitra, S K. Ghosh  
 Journal of Spatial Science, 2019
- Multi-objective based road-link grading for health-care access during flood hazard management** ,  
*O Chakraborty*, Yeshwanth V, P Mitra, S K. Ghosh  
 International Conference on Computational Science and Its Applications(ICCSA), 2018
- A Multi-objective Framework for Assessment of Road Network Vulnerability and Facility Location for Flood Hazard**,  
*O Chakraborty*, A Das, A Dasgupta, P Mitra, S K. Ghosh, T N. Mazumdar  
 Transactions in GIS, 2017

- (g) **A Geospatial Service Oriented Framework for Disaster Risk Zone Identification**,  
O Chakraborty, J Das, A Dasgupta, P Mitra, S K. Ghosh  
International Conference on Computational Science and Its Applications (ICCSA), 2016

## Selected Past Projects:

- (a) **Efficient Adaptation of VLMs in a dynamic setting** (June'18 - Jun'19)  
Research Internship Project under the guidance of **Prof. Bernard Ghanem**, (KAUST)
- Applying parameter-efficient transfer learning methods on an otherwise frozen VLM to finetune for downstream tasks in a dynamic setting.
  - Vary the depth and breadth of VLMs by scaling the number of layers and attention heads while recompensating the losses using efficient tuning strategies.
- (b) **Integrated Information System and Knowledge Discovery Platform for ONGC (IIS)** (June'18 - Jun'19)  
Project under **J. C. Bose Fellowship** Scheme, under the guidance of Prof. P. P. Chakrabarti, Prof. Jiaul H. Paik and Prof. Sudeshna Sarkar, IIT KGP
- Machine learning paradigms to aid various inference modules and evaluation policies for diverse seismic and oil extraction processes.
  - Self-Learning aids Knowledge Graph and Workflow development towards efficient distributed data management
- (c) **Multi-criteria based network analysis for disaster management** (June'15 - Jun'18)  
MS research work, under the guidance of Prof. Soumya K. Ghosh and Prof. Pabitra Mitra, IIT KGP and Prof. T. N. Mazumdar, in collaboration with Dept. of Architecture IIT KGP
- Analysis of spatial vulnerability of facility access links along with citizen mobility
  - Suitable facility-location prediction for efficient service provisioning during flood hazards

## Experience:

Aug'23 - Dec-'23	<b>Research Intern</b> at King Abdullah University of Science and Technology (KAUST) under <b>Prof. Bernard Ghanem</b>
Dec'19 - present	<b>Teaching Assistant</b> for Deep Learning(DL) with 70+ students for every semester in which the course was offered
Jun'16 - present	<b>Teaching Assistant</b> for Programming and Data Structure(PDS), with 90+ students for every semester in which the course was offered
Jun'18 - June'19	<b>Junior Research Fellow</b> at Department of Computer Science and Engg., IIT Kharagpur.
Jun'15 - June'18	<b>Junior Research Fellow</b> at Department of Computer Science and Engg., IIT Kharagpur.
Dec'16 - Jun'17	<b>Teaching Assistant</b> for Relational Database Management Systems(RDBMS) with 90+ students

## Awards and Achievements:

- (a) Recipient of the prestigious **Google PhD Fellowship**
- (b) Joint Runner's Up for **ACM Kolkata Chapter Best BTech (CS/IT) Dissertation Award**
- (c) **Topper of I.T. Department**, from 6<sup>th</sup> semester onwards (W.B.U.T.).

## Workshops Organized:

- The *Dynamic Neural Networks Meets Computer Vision* Workshop, CVPR (**2021, 2022**).
- Conducted yearly workshops on Geospatial Data Modeling, Registry Services and Mobile Apps for GI Application for Government Officials from sixteen National Agencies - Worked with a team of 6, and headed the GIS based Registry Service Development Session (July 2016). Organized an earlier phase of the same workshop in March 2016

## Professional Services:

- Reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), Association for the Advancement of Artificial Intelligence (AAAI), Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP)

## Extra Curricular Activities:

- Won many medals in various sports events which include basketball and athletics.
- Active part in Anti-Ragging Committee.
- Interested in singing and other music related activities.