

Education

KAIST, Republic of Korea

Masters, Graduate School of AI

2020-2022

CGPA: 4.05/4.3

- Thesis Topic: [Task agnostic and post-hoc unseen distribution detection](#).
- Advisor: [Professor Edward Choi](#).
- Committee: [Professor Jaegul Choo](#), [Professor Jaesik Choi](#).

Panjab University, Chandigarh, India

Bachelor of Engineering With Honours, Information Technology

2015-2019

CGPA: 9.24/10

- Third position** in B.E. program in Information Technology Department (120 students).

Research Experience

Google Research

Predoctoral Researcher

Sept 2022 - Present

- Mentors: [Dr. Gaurav Aggarwal](#), [Alok Talekar](#), [Ishan Deshpande](#), [Dr. Sujoy Paul](#)
- Agricultural Landscape Understanding (ALU)**
 - Leading the **ALU Project**, which aims to segment agriculture-related feature types by utilizing satellite imagery.
 - Enhanced data handling by addressing **class imbalance**, **scarcity of unlabeled data**, and **domain generalization** challenges due to geographic and temporal distribution shifts.
 - The project was presented in [AGU 2023](#) as an oral presentation, Google Research Conference 2023, Google I/O 2023 [[demo](#)], Google I/O Connect India 2023 [[video](#)], Google For India 2022 [[video](#), [G4I blog](#), [project blog](#)].
- One Shot Segmentation**
 - Developing an innovative segmentation technique capable of **learning effectively from a single labeled instance**.
 - Objective is to **circumvent the conventional model training process** for segmentation tasks, which typically requires the annotation of extensive datasets.
 - Performance **comparable to Visual Prompting methods** that are trained on tasks relevant for segmentation.

EdLab, KAIST

Student Researcher

Aug 2020 - Aug 2022

- Mentors: [Professor Edward Choi](#)
- Reliability of Deep Neural Networks**
 - Developed a simple yet effective, [task-agnostic and post-hoc unseen distribution detection method](#), which was accepted at **WACV 2023** and the **ARROW workshop in ECCV 2022**.
 - Designed a novel task for [detecting attribute-based shifts](#), developed a dedicated dataset, and formulated an innovative approach, **currently under review at an A* conference**.
- ML for Healthcare**
 - Investigated [Federated Learning's practical applications in healthcare](#), which was accepted at **CHIL 2023**.
 - Proposed a [method for detecting noisy ECG signals](#), enhancing precision in cardiology, presented at **ICPR 2022**.

Brown University

Summer Intern

July 2020 - Sept 2020

- Mentors: [Professor Srinath Sridhar](#) (Brown Univ) and [Professor Leonidas Guibas](#) (Stanford Univ)
- Canonicalization of 3D Pose**
 - Conducted research on [self-supervised canonicalization of 3D pose](#) for full and partial shapes.
 - Paper accepted for a poster presentation to **CVPR 2022**.

Indian Institute of Technology Hyderabad, India

Visiting Researcher

Jan 2019 - June 2020

- Mentor: [Professor Vineeth N Balasubramanian](#)
- ViQAR: Visual Question Answering and Reasoning**
 - Conducted research in Vision and Language applications and introduced a new task, [ViQAR: Visual Question Answering and Reasoning](#), which focuses on automatic generation of the answer, and of a rationale, given a visual query.
 - Paper accepted for a poster presentation to **MULA workshop, CVPR 2021**.

Publications

Conference Publications

- Radhika Dua, Seongjun Yang, Yixuan Li, Edward Choi. TAPUDD: Task Agnostic and Post-hoc Unseen Distribution Detection, **WACV 2023**. [\[paper\]](#)
- Seongjun Yang, Hyeonji Hwang, Daeyoung Kim, Radhika Dua, Jongyeup Kim, Eunho Yang, Edward Choi. Towards a Practical Utility of Federated Learning in the Medical Domain, **Conference on Health, Inference, and Learning (CHIL) 2023**. [\[paper\]](#)
- Rahul Sajnani, Adrien Poulénard, Jivitesh Jain, Radhika Dua, Leonidas Guibas, Srinath Sridhar. ConDor: Self-Supervised Canonicalization of 3D Pose for Partial Shapes, **CVPR 2022**. [\[paper\]](#), [website](#)
- Taehee Kim, ChaeHun Park, Jimin Hong, Radhika Dua, Edward Choi, Jaegul Choo. Reweighting Strategy based on Synthetic Data Identification for Sentence Similarity Comparison, **COLING 2022**. [\[paper\]](#)
- Radhika Dua*, Divyam Madaan*, Prerana Mukherjee, Brejesh Lall. VayuAnukulani: Adaptive Memory Networks for Air Pollution Forecasting, **GlobalSIP2019**. [\[code\]](#), [paper](#), [slides](#)

Workshops

- Radhika Dua, Seongjun Yang, Yixuan Li, Edward Choi. TAPUDD: Task Agnostic and Post-hoc Unseen Distribution Detection, **ARROW Workshop, ECCV 2022**. [\[paper\]](#)
- Radhika Dua, Jiyoung Lee, Joon-myung Kwon, Edward Choi. Automatic Detection of Noisy Electrocardiogram Signals, **International Workshop on Pattern Recognition in Healthcare Analytics, ICPR 2022**. [\[paper\]](#)
- Radhika Dua*, Sai Srinivas*, Vineeth N Balasubramanian. Beyond VQA: Generating Multi-word Answer and Rationale to Visual Questions, **MULA Workshop, CVPR 2021**. [\[paper\]](#), [video](#), [slides](#), [poster](#)

Abstract Presentations

- Radhika Dua, Alex Wilson, Shubhika Garg, Gaurav Singh, Alok Talekar, Gaurav Aggarwal, Gopi Prashanth Ramineni, Bindiya Kurlle. Agricultural Landscape Understanding At Scale, **American Geophysical Union, AGU 2023**. [\[Oral presentation\]](#) [\[abstract\]](#)
- Alok Talekar, Aravindan Krishnan, Radhika Dua, Alex Wilson, Gopi Prashanth Ramineni, Arnab Basu. Policy Driven Growth In Water Infrastructure By SmallHolder Farmers, **American Geophysical Union, AGU 2023**. [\[Lightening presentation\]](#) [\[abstract\]](#)
- Ishan Deshpande, Bhartendu Pandey, Radhika Dua, Amandeep Kaur, Alok Talekar, Anu Ramaswami. AgroForestry in India - Towards Country Wide Finescale Carbon Accounting, **American Geophysical Union, AGU 2023**. [\[Poster presentation\]](#) [\[abstract\]](#)
- Karan Choudhary, Chintapalli Srirama Srirama Murthy, Sunil Kumar Dubey, Radhika Dua, Dinesh Tewari, Alok Talekar. Crop analytics at field parcel level using multi-resolution satellite images, segmentation and mapping techniques: Towards a transformative solution for crop surveys, **American Geophysical Union, AGU 2023**. [\[Poster presentation\]](#) [\[abstract\]](#)
- Chintapalli Srirama Srirama Murthy, Sunil Kumar Dubey, Karan Choudhary, Radhika Dua, Ishan Deshpande, Alok Talekar. Mapping tree cover over farm parcels and assessing the scope for agro-forestry development using high resolution satellite images and segmentation techniques, **American Geophysical Union, AGU 2023**. [\[Poster presentation\]](#) [\[abstract\]](#)

Preprints

- Radhika Dua*, Jeonghoon Park*, Jimin Hong*, Daehoon Gwak, Yixuan Li, Jaegul Choo, Edward Choi. Natural Attribute-based Shift Detection, *Under Review*. [\[paper\]](#)

* denotes equal contribution

Awards and Scholarships

- Recipient of the **KAIST International Students Scholarship** from 2020 to 2022.
- Recipient of the prestigious **Grace Hopper Celebration India (GHCI) 2018 Student Scholarship** given to 250 deserving women students from computing, engineering, and IT backgrounds.
- Awarded **Second Prize in Celestini Project India** by **Marconi Society and Google** for our project on Air Pollution Prediction. **Celestini Project India 2018** is a very competitive internship program where only 8 out of 100 extremely talented applicants are selected.
- Recognized as **India's 91 Brightest Engineering Student** by Economic Times Campus Stars 2018-19. It was a four-phase program in which 91 students out of total 37,000 students were selected.
- **Hackathons**: Won hackathons like **Hack In The North 2017**-The largest student hackathon in India (Prize: **Second**), **Hack Infinity 2017** (Prize: **Second**) and **India Hacks 2017** by Hacker Earth (Prize: **Sixth** out of 35000).

Teaching Experience

- Teaching Assistant for **Scientific Writing (CC500)** and **Graduate English Presentations (HSS583)** at **KAIST** instructed by [Prof. Mik Fanguy](#).
- Teaching Assistant for **Deep Learning for Computer Vision** offered by [Prof. Vineeth N Balasubramanian](#) on **NPTEL** (National Programme on Technology Enhanced Learning) platform.
- Teaching Assistant for **Deep Learning for Computer Vision (CS5370)** and **Advanced Topics in Machine Learning (CS6360)** at **IIT Hyderabad** instructed by [Prof. Vineeth N Balasubramanian](#).

Talks and Sessions

- Gave a **keynote talk** on *Towards Sustainable Agriculture prioritizing Global South using Machine Learning* in **IISC open day 2023**.
- Speaker at **codechef campus chapter UIET** (2016-17) where I took programming sessions for junior year students.
- Speaker at **Software Freedom Day 2017**, Panjab University, which aims to motivate the junior year students to contribute to open source software and pursue an education in STEM fields.

Professional Activities

- Volunteer at the **Google Networking Event** and **Google Booth** during **ICCV 2023**.
- Reviewer / Subreviewer for **AAAI 2024**, **ICCV 2023**, **ECCV 2022**, **CVPR 2022**, and **SDM 2020**.
- Reviewer for **Grace Hopper Celebration (GHC) 2020 Scholarship**.
- Volunteer for virtual conferences: **ICML 2021**, **ICML 2020**, and **ACL 2020**.
- Mentor at **Climate Tech Startup Meet 2023** by Google.
- Poster Mentor at **Women in Machine Learning (WiML)** workshop, **NeurIPS '20**.
- Mentor at **Hacksprint** version2 Hackathon at Panjab University, Chandigarh.
- **Fellow Campus Ambassador** in **Campus Geek Ambassador program** by **GeeksforGeeks** (2017-18).

Additional Research Experience

Celestini Project India	<i>Research Intern</i>	<i>June 2018 - Aug 2018</i>
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- **Mentors**: [Dr. Aakanksha Chowdhery](#) (Google Brain and Tensorflow) and [Prof. Brejesh Lall](#) (IIT Delhi).
- **Real-time Air Pollution Forecasting**
 - Developed a temporal forecasting solution based on the historical data reported by Central Pollution Control board to predict the real-time and fine-grained air quality information in five locations of Delhi.
 - [Blog post](#), [Indian press](#) and [Demo youtube video](#).
 - [Paper](#) accepted for a poster presentation to **GlobalSIP 2019**.