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Radhika Dua
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Education

KAIST, Republic of Korea *2020-2022*
Masters, Graduate School of AI CGPA: **4.05/4.3**

- Thesis Topic: Task agnostic and post-hoc unseen distribution detection.
- Advisor: Professor Edward Choi.

Panjab University, Chandigarh, India *2015-2019*
Bachelor of Engineering With Honours, Information Technology **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
- Group: Mixed-mode user understanding (M2U2) and Anthrokrishi Groups.
- Conducting research on **one-shot segmentation** without training models on any segmentation related tasks.
- Working on and Leading the **Agricultural Landscape Understanding** project. The project was highlighted in Google For India 2022 [video, G4I blog, dedicated project blog], Google I/O 2023[demo], Google I/O Connect India 2023 [video].

Brown University *Summer Intern* *July 2020 - Sept 2020*

- Mentor: Professor Srinath Sridhar (Brown University) and Professor Leonidas Guibas (Stanford University)
- Conducted research in 3D computer vision and machine learning.

Indian Institute of Technology Hyderabad, India *Visiting Researcher* *Jan 2019 - June 2020*

- Mentor: Professor Vineeth N Balasubramanian
- Conducted research in Vision and Language applications and introduced a new task, **ViQAR: Visual on Answering and Reasoning**, which focuses on automatic generation of the answer, and of a rationale, given a visual query.

Celestini Project India *Research Intern* *June 2018 - Aug 2018*

- Mentors: Dr. Aakanksha Chowdhery (Google Brain and Tensorflow) and Prof. Brejesh Lall (IIT Delhi).
- 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.

Variance.AI *Summer Intern* *June 2017 - Aug 2017*

- Worked on developing a method to determine the breathing rate and pulse rate of a person using video as a source by making use of **Eulerian Video Magnification Algorithm**.

Publications

Conference Publications

- Radhika Dua, Seongjun Yang, Yixuan Li, Edward Choi. TAPUDD: Task Agnostic and Post-hoc Unseen Distribution Detection, ***WACV 2023***. [paper]
- Jeonghoon Park*, Jimin Hong*, Radhika Dua*, Daehoon Gwak, Yixuan Li, Jaegul Choo, Edward Choi. Natural Attribute-based Shift Detection, *Under Review*. [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 Poulenard, 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]
- Divyam Madaan*, Radhika Dua*, 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-myoung 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]

AI for Social Good

- Radhika Dua, Alex Wilson, Shubhika Garg, Gaurav Singh, Alok Talekar, Gaurav Aggarwal, Gopi Prashanth Ramineni, Bindiya Kurle. Agricultural Landscape Understanding At Scale, ***American Geophysical Union, AGU 2023***. [**Oral presentation**] [paper]
- 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**] [paper]
- 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**] [paper]
- 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**] [paper]
- 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**] [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)** course and **Graduate English Presentations** (HSS583) course at KAIST instructed by Prof. Mik Fanguy.
- Teaching Assistant for **Deep Learning for Computer Vision** offered by Dr. Vineeth N Balasubramanian on NPTEL (National Programme on Technology Enhanced Learning) platform.
- Teaching Assistant for **Deep Learning for Computer Vision** (CS5370) course and **Advanced Topics in Machine Learning** (CS6360) course at IIT Hyderabad instructed by Dr. 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 youth 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** (SIAM International Conference on Data Mining (SDM20)).
- 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).

Programming Skills

- **Languages**: Python, C++
- **Deep Learning Frameworks**: Pytorch, Tensorflow
- **Libraries and tools**: LaTeX, Git, NumPy, Scikit-learn, Matplotlib, Pandas