

Namrata Deka

COMPUTER SCIENCE · GRADUATE RESEARCH ASSISTANT

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Education

The University of British Columbia

MASTER OF SCIENCE IN COMPUTER SCIENCE

Vancouver, Canada

2020 - 2022

Indraprastha Institute of Information Technology

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING

New Delhi, India

2013 - 2017

- GPA: 8.41/10
- Among the 10% in the class to graduate with Honors

Experience

The University of British Columbia

GRADUATE RESEARCH ASSISTANT

Vancouver, Canada

September 2020 - Present

- Advisor: [DR. DOUGAL J. SUTHERLAND](#)
- Working on methods to learn deep kernels that can meaningfully distinguish between two samples of high-dimensional data.

Wadhvani Institute for Artificial Intelligence

RESEARCH FELLOW

Mumbai, India

August 2018 - August 2020

- Mentors: [DR. RAHUL PANICKER](#), [DR. P. ANANDAN](#) and [DR. ALPAN RAVAL](#)
- Built an AI-based solution to screen low birth-weight babies using monocular videos in rural India.
- Built a pipeline to generate and annotate synthetic videos of infants using a differentiable renderer.
- Created a novel deep learning algorithm to reconstruct infant meshes to metric scale using deformable models of reference object in the scene.
- Mentored undergraduate research interns over the summer months of 2019 and 2020.

Microsoft Research

RESEARCH INTERN

Bengaluru, India

Jan 2018 - July 2018

- Mentor: [DR. SREANGSU ACHARYA](#)
- Built a classifier to tag very rare personally identifiable information (P.I.I.) of customers using area under ROC curve pairwise-optimization methods derived from the Neyman-Pearson lemma.
- Achieved an AUROC of 0.998 for the rarest P.I.I. tag which accounted for only 0.54% of the entire dataset.
- The resulting model is currently being used by internal teams across Microsoft to comply with the EU GDPR mandate.

Indraprastha Institute of Information Technology (IIITD)

RESEARCH ASSISTANT

New Delhi, India

Sep 2017 - Nov 2017

- Mentors: [DR. SAKET ANAND](#) and [DR. SANJIT KAUL](#)
- Conducted research on incorporating driver-pedestrian gaze interaction patterns for learning cost-maps and driving policy via inverse reinforcement learning towards the goal of understanding how people drive on Indian roads.

Elucidata Corporation

SOFTWARE INTERN

New Delhi, India

May 2016 - July 2016

- Mentors: [RAAISA MAHAJAN](#)
- Designed and implemented a python package to generate ODEs for labeled isotopomers of metabolites involved in a metabolic pathway.

Teaching Experience

Indraprastha Institute of Information Technology (IIITD)

TEACHING ASSISTANT

New Delhi, India

- Computer Vision - Graduate Level (42 students)
- Advanced Programming - Undergraduate Level (200 students)

Invited Talks

Perceiving Systems Department, Max Planck Institute for Intelligent Systems

NEONATAL (AND INFANT) ANTHROPOMETRY AND GROWTH TRACKING VIA MODEL BASED 3D RECONSTRUCTION FROM VIDEO

Tübingen, Germany

November 2019

Honors & Awards

INTERNATIONAL

- 2019 **Final Wild Card Entry**, Infant anthropometry solution at WadhvaniAI was the only team from the entire developing world to be selected for the [\\$5M IBM Watson AI XPRIZE](#)

Projects

Push-Nav: Self-Supervised Learning of Task-Based Object Representations for Navigation Through Clutter [\[Code\]](#)

GRADUATE PROJECT, UBC

Oct 2020 - Present

- Mentor: [DR. IAN MITCHELL](#)
- Creating a reinforcement learning-based system where a robot can learn task-based physical properties of objects that can maximize expected rewards.
- Focusing on the task of navigating to a target goal by pushing aside obstacles.
- Tools & Frameworks: PyBullet, OpenAI Gym, PyTorch, Weights & Biases

Novel Scene Generation via Decomposition [\[Code\]](#)

GRADUATE PROJECT, UBC

Sep 2020 - Present

- Mentor: [DR. HELGE RHODIN](#)
- Creating a multi-stage VAE-GAN framework to synthesize novel scenes given an input image by decomposing and rearranging the objects in the scene.
- Tools & Frameworks: PyTorch, Weights & Biases

Understanding Human Behaviour for Autonomous Vehicle Path Planning

UNDERGRADUATE RESEARCH PROJECT, IIITD

July 2016 - August 2017

- Mentors: [DR. SAKET ANAND](#) and [DR. SANJIT KAUL](#)
- Studied and implemented imitation learning methods to gain insights from cost-maps used by Indian drivers to make driving decisions.
- In the process, implemented detection and tracking algorithms for pedestrians and vehicles.
- Also worked on sensor cross-calibration, 3D mapping of outdoor scenes, analysis of vehicle trajectory behaviour with respect to other agents on the road etc.
- Tools & Frameworks: Python, Matlab, TensorFlow-1.0, ROS

Dialogue Response Classification [\[Code\]](#)

UNDERGRADUATE PROJECT, IIITD

March 2017 - April 2017

- Mentor: [DR. SAMEEP MEHTA](#)
- Classified whether a given response is in the context of a conversation in the Ubuntu dialogue corpus.
- Performed a comparative study between LSTMs, RNNs and TF-IDF approaches.
- Best accuracy was achieved using LSTMs at 83.96% and 88.54% top-1 and top-3 classification respectively.
- Tools & Frameworks: Python, Keras