

Namrata Deka

COMPUTER SCIENCE · GRADUATE RESEARCH ASSISTANT

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Education

The University of British Columbia

Vancouver, Canada

MASTER OF SCIENCE IN COMPUTER SCIENCE

2020 - 2022

- GPA: 92.5/100

Indraprastha Institute of Information Technology

New Delhi, India

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING

2013 - 2017

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

Experience

The University of British Columbia

Vancouver, Canada

GRADUATE RESEARCH ASSISTANT

September 2020 - Present

- Advisor: [DR. DANICA J. SUTHERLAND](#)
- Working on learning deep kernels for interpretable representation learning of high-dimensional data samples.

Wadhvani Institute for Artificial Intelligence

Mumbai, India

RESEARCH FELLOW

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 objects in the scene.
- Mentored undergraduate research interns over the summer months of 2019 and 2020.

Microsoft Research

Bengaluru, India

RESEARCH INTERN

Jan 2018 - July 2018

- Mentor: [DR. SREANGSU ACHARYYA](#)
- Built a classifier to tag very rare personally identifiable information (P.I.I.) of customers using a pairwise-optimization method.
- Achieved an AUROC of 99.8% 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)

New Delhi, India

RESEARCH ASSISTANT

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

New Delhi, India

SOFTWARE INTERN

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.

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](#)
- Developing a reinforcement learning-based system where a robot can learn task-based physical properties of objects that can maximize expected rewards.
- Policy learning is augmented with a self-supervised dense optical flow objective to incentivise the learning of physical representations.
- Tools & Frameworks: PyBullet, OpenAI Gym, PyTorch, Weights & Biases

Novel Scene Generation via Decomposition [Code]

GRADUATE PROJECT, UBC

Sep 2020 - Present

- Mentor: [DR. HELGE RHODIN](#)
- Developing a deep generative model to synthesize novel scenes by rearranging objects in a given image.
- 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 simple imitation learning methods to gain insights from cost-maps used by Indian drivers to make driving decisions.
- Implemented detection and tracking algorithms for pedestrians and vehicles.
- Also worked on sensor cross-calibration, 3D mapping of outdoor scenes and analysis of vehicle trajectory behaviour with respect to other agents on the road.
- Tools & Frameworks: Python, Matlab, TensorFlow, 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

Teaching Experience

The University of British Columbia

Vancouver, Canada

GRADUATE TEACHING ASSISTANT

- Intelligent Systems - Level 400

Indraprastha Institute of Information Technology (IIITD)

New Delhi, India

TEACHING ASSISTANT

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

Invited Talks

Perceiving Systems Department, Max Planck Institute for Intelligent Systems

Tübingen, Germany

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

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](#)