

Namrata Deka

COMPUTER SCIENCE · GRADUATE RESEARCH ASSISTANT

☎ (+1) 672-999-6762 | ✉ dnamrata@cs.ubc.ca | 🏠 namratadeka.github.io | 📷 namratadeka | 🌐 namrata-deka

Education

The University of British Columbia

Vancouver, Canada

MASTER OF SCIENCE IN COMPUTER SCIENCE

2020 - 2022

- GPA: 92.8/100

Indraprastha Institute of Information Technology (IIITD)

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

École Polytechnique Fédérale de Lausanne (EPFL)

Lausanne, Switzerland

SUMMER@EPFL FELLOW

June 2021 - August 2021

- Advisor: [DR. AMIR ZAMIR](#)
- Developing a deep neural network method to learn articulated object models by leveraging motion cues in monocular videos with possible applications for robotic manipulations.

The University of British Columbia

Vancouver, Canada

GRADUATE RESEARCH ASSISTANT

September 2020 - Present

- Advisor: [DR. DANICA J. SUTHERLAND](#)
- Exploring deep kernel methods for learning representations 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 for public health sectors 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 and managed interns and their research projects.

Microsoft Research

Bengaluru, India

RESEARCH INTERN

Jan 2018 - July 2018

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

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

Amortized Inference with Rejection Loops for Autonomous Vehicles

Vancouver, BC

GRADUATE PROJECT, UBC

March 2021 - April 2021

- Mentor: [DR. FRANK WOOD](#)
- Created a probabilistic generative model for traffic at road intersections using the CARLA simulation engine and PyProb.
- Performed amortized inference over the number of cars in the scene using inference compilation and amortized rejection loop-based importance sampling.
- Tools & Frameworks: PyTorch, PyProb, CARLA Python API

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

Vancouver, BC

GRADUATE PROJECT, UBC

Oct 2020 - Dec 2020

- Mentor: [DR. IAN MITCHELL](#)
- Developed 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]

Vancouver, BC

GRADUATE PROJECT, UBC

Sep 2020 - Dec 2020

- Mentor: [DR. HELGE RHODIN](#)
- Developed 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

New Delhi, India

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

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

Volunteering Experience

Pygmy Hog Breeding Center, EcoSystems India

Guwahati, India

SUMMER RESEARCH VOLUNTEER

July 2014

- Observed the pygmy hogs (highly-endangered) and gained insights into litter-behaviour.
- Aided in various animal husbandry tasks essential for the survival of the pygmy hogs in the breeding center.

Extracurricular Activity

Women's Basketball Team (IIITD)

New Delhi, India

CORE MEMBER & CAPTAIN FROM 2014-2016

August 2013 - May 2017

- Elected as the basketball coordinator in 2015

Women's Volleyball Team (IIITD)

New Delhi, India

CORE MEMBER

August 2013 - May 2017

- Winner of Twarang 2015 (National Level Tournament organized by IIIT Gwalior)

Women's Basketball Team (Mody School)

CORE MEMBER & CAPTAIN FROM 2007-2009

- Winner of the U17 district-level tournament in 2009
- Best basketball player at the U17 district-level tournament in 2009
- Captain of the state-level U17 team in 2009
- Winner of the U14 district-level tournament in 2007

National Cadet Corps (NCC), India

CORE MEMBER IN 2008

- Best cadet among a class size of over 50 cadets.

Lakshmangarh, Rajasthan

July 2005 - March 2010

Jaipur, Rajasthan

July 2008 - March 2009