

SABYASACHI SAHOO

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EDUCATION

MILA & Université Laval Ph.D. Student	2021 - Present
Indian Institute of Science (IISc), Bangalore M. Tech. Computational Science Department of Computational & Data Sciences (CDS)	2014 - 2016 CGPA: 6.3 / 8 (top 5)
Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat Bachelor of Technology - Mechanical Mechanical Engineering Department	2010 - 2014 CGPA: 7.52 / 10

RESEARCH EXPERIENCE

Research Assistant, MILA & Université Laval Advisor : Prof. Christian Gagné , MILA & Université Laval Co-Advisor : Prof. Frédéric Precioso , INRIA & Université Côte d'Azur. <ul style="list-style-type: none">• Broadly work on developing robust machine learning systems for autonomous driving systems.• Funded by DEEL project.	Aug 2021 - Present
Research Associate, Machine Learning Lab, IISc Advisor : Prof. Chiranjib Bhattacharyya <ul style="list-style-type: none">• Broadly worked on unsupervised learning (generative models, disentanglement, domain adaptation), explainable models, AI in healthcare (disease classification/segmentation), and robotics (LiDAR, SLAM).• Led and deployed research projects like DSLRL on a self-driving robot and XraySetu, an Xray based automatic report generation tool for doctors.• Collaborate with Prof. Soma Biswas, Dr. Vinay V, and Dr. Geetha Manjunath for some of these projects.• Work with Project Associates, Masters, and PhD students. Also, mentor several research interns.• Most of these projects are funded by Tata Motors, Ati Motors, Niramai, and ARTPARK.	Feb 2019 - August 2021
Deep Learning Engineer, Donut Research Labs Supervisor : Latha Iyer (Machine Learning R&D group) <ul style="list-style-type: none">• Worked on NLP research problems like extreme text classification and text normalization.• Led and deployed brand-name text-normalization project for Walmart US.• Also, worked on object and text detection on product images.• Mentored software engineers and interns.	Jun 2018 - Feb 2019
Research Student, Middleware and Runtime Systems Lab, IISc Advisor : Prof. Sathish S. Vadhiyar <ul style="list-style-type: none">• Proposed a novel hierarchical partitioning-based task mapping algorithm which resulted in about 40% reduction in communication times on molecular dynamics benchmark datasets on Cray XC40 supercomputer.• Awarded distinction for my masters' thesis.	Aug 2015 - Jul 2016
Research Student, Computational and Data Sciences, IISc <ul style="list-style-type: none">• Worked on extracting semantic context in CNNs with Prof. R. Venkatesh Babu and Prof. Partha Pratim Talukdar.• Built a hybrid parallel implementation of OpenMP and CUDA for Travelling Salesman Problem with Prof. Sathish S. Vadhiyar.• Worked on an optimal diet problem project with Prof. Phaneendra K. Yalavarthy.	Aug 2014 - Jul 2015

ENGINEERING EXPERIENCE

Software Engineer II, NVIDIA

Aug 2016 - May 2018

Supervisors : [Raghavendra VK](#) and [Ravi Chandra SV](#)

- Owned display module and was Person-In-Charge for Device Tree on all self-driving embedded-system platforms.
- Led Xavier Chip Bringup for display and device tree modules.
- Mentored software interns.

PUBLICATIONS

- **Sabyasachi Sahoo**, Santosh Shet, Suchit Jain, Rachit Shah, Siva Teja Kakileti, Chiranjib Bhattacharyya, Geetha Manjunath. (June 2021). “**XraySetu : AI driven Xray Interpretation by Doctors via What-sApp**”. The Journal of the American Medical Association. (journal submission) [[demo](#), [preprint](#), [link1](#), [link2](#)]
- Prashant Kumar*, **Sabyasachi Sahoo***, Vanshil Shah, Vineetha Kondameedi, Abhinav Jain, Akshaj Verma, Chiranjib Bhattacharyya, Vinay V. (Feb 2021). “**DSLRL : Dynamic to Static LiDAR scan Reconstruction using adversarially trained autoencoder**”. Proceedings of the AAAI Conference on Artificial Intelligence, 35(3), 1836-1844. [[paper](#), [project](#), [code](#), [datasets](#), [link](#)]
- **Sabyasachi Sahoo**, Sathish S. Vadhiyar. (July 2016). “**Hierarchical Task Mapping on Dragonfly topology for scaling Molecular Dynamics**”. Masters Thesis Book. [[scholar](#), [thesis](#), [report](#), [link](#)]

POSTERS AND PREPRINTS

- Dhiraj Shanbag, **Sabyasachi Sahoo**, Chiranjib Bhattacharyya, Vinay V. (July 2020). “**An Approach For Accurate SceneFlow Prediction For LiDAR-based Sensors**”. Preprint. [[preprint](#), [link](#)]
- Vineetha Kondameedi, Santosh Shet, Akshaj Verma, **Sabyasachi Sahoo**, Prashant Kumar, Chiranjib Bhattacharyya, Soma Biswas. (May 2020). “**FAIR : Frugal ADAS for Indian Roads**”. Preprint. [[preprint](#), [link](#)]
- **Sabyasachi Sahoo**, Prashant Kumar, Chiranjib Bhattacharyya. (July 2019). “**Proximal pose search for adapting SLAM in dynamic environments on slow moving UGVs**”. 3rd Cyber-Physical Systems Symposium. (accepted poster). [[poster](#), [link1](#), [link2](#)]
- Prashant Kumar, Siddharth Ramesh, **Sabyasachi Sahoo**, Chiranjib Bhattacharyya. (July 2019). “**Autonomous Control of Distance Actuated MAV drones in GPS Denied Environments: Autonomous Indoor Navigation at IISc**”. 3rd Cyber-Physical Systems Symposium (accepted poster). [[poster](#), [link1](#), [link2](#)]
- **Sabyasachi Sahoo**, Vineetha Kondameedi, Srinivas Kruthiventi S. S., R. Venkatesh Babu, Partha Pratim Talukdar. (May 2015). “**Establishing Semantic relationships among object classes using Deep Networks to Image Classification**”. Preprint. [[preprint](#), [code](#), [link](#)]

ONGOING RESEARCH WORKS

- Gaurav Parashar*, **Sabyasachi Sahoo***, Chiranjib Bhattacharyya. “**Defending adversarial attacks on heatmap explanations using optimal ensembling**”.
- Akshaj Verma*, **Sabyasachi Sahoo***, Chiranjib Bhattacharyya. “**Towards Understanding Domain Adaptation quantitatively**”. [[link](#)]
- **Sabyasachi Sahoo**, Rachit Shah, Abhinav Jain, Chiranjib Bhattacharyya. “**CID : Captioning for Interpretability and Disentanglement**”. [[link](#)]
- Tezuesh Varshney, **Sabyasachi Sahoo**, Vineetha Kondameedi, Chiranjib Bhattacharyya. “**HRHQ : High Resolution High Quality image generation and disentanglement**”. [[link](#)]

TEACHING AND LEADERSHIP ROLES

- **ML/Autonomous Navigation Paper Reading Group**, IISc : Conduct and deliver talks on latest machine learning and autonomous navigation research papers. [[youtube](#)]

* equal contribution

- **Research Mentor**, [SHARE Research Labs](#) : Teaching and mentoring students on the platform for working towards a research paper for top-tier conferences.
- **Deep Learning Brainstorming Sessions**, Donut Research Labs : Conducted and taught weekly sessions on latest deep learning research and engineering pipelines.
- **Placement Coordinator**, IISc : Invited, organized and coordinated on-campus placement for numerous MNCs and startups.
- **Head Coordinator Technical Events**, SVNIT : Formulated, organized, and headed various technical events for the technical college festival “Mindbend 2013”.

HONORS AND AWARDS

- Ranked Top 5 in class (CDS 2014-16, IISc)
- SO1 Customer Basket Prediction (3rd place) [[code](#)]
- Awarded distinction for masters’ thesis
- Deep Traffic for self driving car (awarded finalist)
- NIPS 2017 Challenge ([winner](#)) [[code](#)]

PERSONAL PROJECTS

- Depth Map for Image Classification [[code](#)]
- Text Normalisation for English [[code](#)]
- Car Image Masking [[code](#)]
- Paraphrase detection on Quora questions [[code](#)]

OTHER ACTIVITIES

- Selected for Oxford Machine Learning ([OxML-2020](#)) Summer School, Deep Learning Reinforcement Learning ([DLRL-2020](#)) Summer School, and Eastern European Machine Learning ([EEML-2020](#)) Summer School.
- [ICML 2020](#) Conference Volunteer.
- State Level Lawn Tennis and Basketball player.

OUR WORK IN NEWS

- XraySetu is covered by [NDTV](#), [Gadgets Now](#), [mint](#), [Hindustan Times](#), [Business Standard](#), [Economic Times](#), [ET HealthWorld](#), [KnockSense](#), [Bangalore Mirror](#), [Jagran](#), [Zee News Hindi](#), and [Prasar Bharati](#) (video).
- XraySetu is endorsed by Department of Science and Technology, Government of India [here](#).
- COVID-SWIFT (previous version of XraySetu) is covered by [The Hindu](#), and [The Times of India](#).
- DSLR features on [arXiv Daily](#) and [DeepAI](#).