

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 improving robust machine learning 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.• Collaborated with Prof. Soma Biswas, Dr. Vinay V, and Dr. Geetha Manjunath for some of these projects.• Most of these projects are funded by Tata Motors, Ati Motors, Niramai, and ARTPARK.• Mentored masters students, project-assistants and research interns.	Feb 2019 - Aug 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

PUBLICATIONS

- **“XraySetu : AI driven Xray Interpretation for Doctors via WhatsApp”**.
The Journal of the American Medical Association. (August 2021). (journal submission) [[demo](#), [pdf](#), [www](#)]
Sabyasachi Sahoo, Siva Teja Kakileti, Rachit Shah, Mariamma Antony, Chiranjib Bhattacharyya, Geetha Manjunath.
- **“DSLRL : Dynamic to Static LiDAR scan Reconstruction using adversarially trained autoencoder”**. AAAI Conference on Artificial Intelligence 2021. (Feb 2021). [[pdf](#), [www](#)]
Prashant Kumar*, **Sabyasachi Sahoo***, Vanshil Shah, Vineetha Kondameedi, Abhinav Jain, Akshaj Verma, Chiranjib Bhattacharyya, Vinay V.
- **“Hierarchical Task Mapping on Dragonfly topology for scaling Molecular Dynamics”**.
Masters Thesis Book. (July 2016). [[pdf](#), [www](#)]
Sabyasachi Sahoo, Sathish S. Vadhiyar.

POSTERS AND PREPRINTS

- **“Towards Understanding and Comparing Adversarial Robustness for Local Interpretable Methods”**. Preprint. (July 2021). [[pdf](#), [www](#)]
Gaurav Parashar*, **Sabyasachi Sahoo***, Chiranjib Bhattacharyya.
- **“An Approach For Accurate SceneFlow Prediction For LiDAR-based Sensors.”**.
Preprint. (July 2020). [[pdf](#), [www](#)]
Dhiraj Shanbag, **Sabyasachi Sahoo**, Chiranjib Bhattacharyya, Vinay V.
- **“FAIR : Frugal ADAS for Indian Roads”**.
Preprint. (May 2020). [[pdf](#), [www](#)]
Vineetha Kondameedi, Santosh Shet, Akshaj Verma, **Sabyasachi Sahoo**, Prashant Kumar, Chiranjib Bhattacharyya, Soma Biswas.
- **“Proximal pose search for adapting SLAM in dynamic environments on slow moving UGVs”**.
3rd Cyber-Physical Systems Symposium. Poster. (July 2019). [[pdf](#), [www](#)]
Sabyasachi Sahoo, Prashant Kumar, Chiranjib Bhattacharyya.
- **“Establishing Semantic relationships among object classes using Deep Networks to Image Classification”**. Preprint. (May 2015). [[pdf](#), [www](#)]
Sabyasachi Sahoo, Vineetha Kondameedi, Srinivas Kruthiventi S. S., R. Venkatesh Babu, Partha Pratim Talukdar.

ONGOING RESEARCH WORKS

- **“Improving Automatic Concept Extraction on Chest X-Rays”**. [[www](#)]
Rachit Shah, **Sabyasachi Sahoo**, Abhinav Jain, Chiranjib Bhattacharyya.
- **“Unpaired LiDAR to LiDAR translation”**. [[www](#)]
Siddharth Sanghavi, Tezuesh Varshney, **Sabyasachi Sahoo**, Chiranjib Bhattacharyya.
- **“DCT-VAE: Capturing Low level and High Level features for image generation”**. [[www](#)]
Tezuesh Varshney, **Sabyasachi Sahoo**, Chiranjib Bhattacharyya.
- **“Towards Understanding Domain Adaptation quantitatively”**. [[www](#)]
Akshaj Verma*, **Sabyasachi Sahoo***, Chiranjib Bhattacharyya.

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.

* equal contribution

TEACHING AND LEADERSHIP ROLES

- **Research Mentor**, [SHARE Research Labs](#) : Teaching and mentoring students on the platform for working towards a research paper for top-tier conferences.
- **ML/Autonomous Navigation Paper Reading Group**, IISc : Conducted and delivered talks on latest machine learning and autonomous navigation research papers. [[youtube](#)]
- **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)
- Awarded distinction for masters’ thesis
- NIPS 2017 Challenge ([winner](#)) [[www](#)]
- SO1 Customer Basket Prediction (3rd) [[www](#)]
- Deep Traffic for self driving car (finalist) [[www](#)]

PERSONAL PROJECTS

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

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](#).