SABYASACHI SAHOO

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EDUCATION

Indian Institute of Science (IISc), Bangalore 2014 - 2016
M. Tech - Computational Science, Dept. of Computational & Data Sciences (CDS) CGPA: 6.3 / 8

Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat 2010 - 2014
B. Tech - Mechanical, Mechanical Engineering CGPA: 7.52 / 10

RESEARCH EXPERIENCE

Research Associate, Machine Learning Lab, IISc Feb 2019 - Present
Advisor : Chiranjib Bhattacharyya
I broadly work on unsupervised learning (generative models, disentanglement, domain adaptation), explainable models, AI in healthcare (disease classification/segmentation) and robotics (LiDAR, SLAM). I have collaborated with Soma Biswas and Vinay V for some of these projects. Most of these projects are funded by Tata Motors, Ati Motors and Niramai.

Deep Learning Engineer, Donut Research Labs Jun 2018 - Feb 2019
Supervisor : Latha Iyer (Machine Learning R&D group)
I broadly worked on NLP research problems like extreme text classification and text normalization. I also worked on object and text detection on product images.

Research Student, Middleware and Runtime Systems Lab, IISc August 2015 - July 2016
Advisor : Sathish S. Vadhiyar
For my master's thesis, I proposed a novel hierarcical partitioning-based task mapping algorithm which resulted in about 40% reduction in communication times on molecular dynamics benchmark datasets on Cray XC40 supercomputer.

Research Student, Computational and Data Sciences, IISc Aug 2014 - July 2015
I worked on extracting semantic context in CNNs with R. Venkatesh Babu and Partha Pratim Talukdar, built a hybrid parallel implementation of OpenMP and CUDA for Travelling Salesman Problem with Sathish S. Vadhiyar and worked on optimal diet problem project with Phaneendra K. Yalavarthy.

PUBLICATIONS

- **Sabyasachi Sahoo***, Suchit Jain*, Santosh Shet*, Siva Teja Kakileti, Chiranjib Bhattacharyya, Geetha Manjunath. (In Progress). **"COVID-SWIFT : Simple Whatsapp based x-ray Image interpretation at your Finger Tips for potential COVID19 patients"**. BMC medical imaging (journal submission) [request pdf, link1, link2]
- Prashant Kumar*, **Sabyasachi Sahoo***, Vanshil Shah, Vineetha Kondameedi, Abhinav Jain, Akshaj Verma, Chiranjib Bhattacharyya, Vinay V. (Sep 2020). **"DSLR : Dynamic to Static LiDAR scan Reconstruction using adversarially trained autoencoder"**. AAAI Conference on Artificial Intelligence 2021 (conference submission) [request pdf, link]
- **Sabyasachi Sahoo**, Sathish S. Vadhiyar. (July 2016). **"Hierarchical Task Mapping on Dragonfly topology for scaling Molecular Dynamics"**. Masters Thesis Book. [scholar, pdf, link]

RESEARCH WORKS

- Abhinav Jain*, **Sabyasachi Sahoo***, Vineetha Kondameedi, Chiranjib Bhattacharyya. (In Progress). **"CID : Captioning for Interpretability and Disentanglement"**. [link]
- Tezuesh Varshney*, Vineetha Kondameedi*, **Sabyasachi Sahoo**, Chiranjib Bhattacharyya. (In Progress). **"HRHQ : High Resolution High Quality image generation and disentanglement"**. [link]
- Suchit Jain, Vineetha Kondameedi, **Sabyasachi Sahoo**, Chiranjib Bhattacharyya. (In Progress). **"RUDE : 3d Reconstruction Using DisEntanglement"**. [link]
- Akshaj Verma, **Sabyasachi Sahoo**, Santosh Shet, Chiranjib Bhattacharyya. (In Progress). **"Unsupervised Domain Adaption for cross domain Lung Segmentation on Chest Xray Images"**. [link]

* equal contribution

- Dhiraj Shanbag, **Sabyasachi Sahoo**, Jayant Priyadarshi, Chiranjib Bhattacharyya, Vinay V. (July 2020). **"An Approach For Accurate Sceneflow Prediction For LiDAR-based Sensors."**. Preprint. [request pdf, link]
- Vineetha Kondameedi, Santosh Shet, Akshaj Verma, **Sabyasachi Sahoo**, Prashant Kumar, Chiranjib Bhattacharyya, Soma Biswas. (May 2020). **"FAIR : Frugal ADAS for Indian Roads"**. Preprint. [request pdf, link]
- **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. [code, pdf, link]

ENGINEERING EXPERIENCE

Software Engineer II, NVIDIA Aug 2016 - May 2018
Supervisors : Raghavendra VK and Ravi Chandra SV
I owned display and device tree modules on all self driving platforms and worked on Xavier chip bringup.

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]
- **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 technical college festival "Mindbend 2013".

HONORS AND AWARDS

- Ranked Top 5 in class in M.Tech IISc 2016
- NIPS 2017 Challenge (winner) [code]
- SO1 Customer Basket Prediction (3rd place) [code]
- Deep Traffic for self driving car (awarded finalist)

PERSONAL PROJECTS

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

OTHER ACTIVITIES

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