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
Working towards adapting SLAM in dynamic environments for lifelong SLAM. This effort is part of Ati Motors Autonomous Vehicles Project at Robert Bosch Centre for Cyber-Physical Systems (RBCCPS) which is focused on building unmanned ground vehicles for factories.

Research Associate, Machine Learning Lab, IISc Mar 2019 - Present
Advisors : Chiranjib Bhattacharyya and Soma Biswas
Working towards building real time and frugal Advanced Driver Assistance Systems (ADAS) for driving on Indian urban roads. This effort is part of Tata Motors ADAS project at Department of Computer Science and Automation (CSA) which is focused on building ADAS for Indian roads.

Deep Learning Engineer, Donut Research Labs Jun 2018 - Feb 2019
Supervisor : Latha Iyer (Machine Learning R&D group)
Worked towards building extreme text classifiers for eCommerce Hierarchical Product Classification. Built keyword detectors and text classifiers for Brand and Sub-Brand Detection. Also built a seq2seq based character level text normalizer for Brand Normalization.

Research Student, Middleware and Runtime Systems Lab, IISc May 2015 - May 2016
Advisor : Sathish S. Vadhiyar
Thesis: "Hierarchical Task Mapping on Dragonfly topology for scaling Molecular Dynamics". We proposed partitioning-based task mapping algorithm for reducing inter-process communication times on dragonfly network based Cray XC40 supercomputer. [pdf]

Research Student, CDS, IISc Jan 2015 - May 2015
Advisor : R. Venkatesh Babu and Partha Pratim Talukdar
Visualized CNN space of images and Tested effect of non-linearity of CNNs using confusion matrix to generate a hierarchical clustering of object classes based on visual similarity. [github, pdf]

PUBLICATIONS

- Prashant Kumar*, **Sabyasachi Sahoo***, Vanshil Shah, Vineetha Kondameedi, Chiranjib Bhattacharyya, Vinay V. "**SLIC-SLAM: Static LiDAR Completion using adversarial training for SLAM in dynamic environments on UGVs**" IEEE Intelligent Transportation Systems Conference (**ITSC 2020** submission)

ENGINEERING EXPERIENCE

Software Engineer II, NVIDIA Aug 2016 - May 2018
Supervisors : Raghavendra VK and Ravi Chandra SV
Owned display module on all self driving platforms and worked on Xavier chip bringup. Was Person in Charge (PIC) for device tree (DT) on all platforms.

HONORS AND AWARDS

- Ranked **Top 5** in M. Tech - Computational Science, IISc, 2016.
- **NIPS Paper Implementation Challenge** (winner)
  Experimentally proved the theoretical error bounds of "Iterative Collaborative Filtering for Sparse Matrix Estimation" and showed robustness to cold-start problem in recommender systems. [github]
- **SO1 Customer Basket Prediction** (3rd place)
  Built a sliding window time series forecasting model, trained on relevant engineered features of users and items to predict next week's customer basket item list. [github]
- **Deep Traffic for self driving car** (awarded finalist)
  Built a deep Q-learning model for optimal lane changing navigation policy to obtain the highest speed on a congested road traffic simulator.

PROJECTS

- **Depth Map for Image Classification**
  Improved standard image classification performance by using predicted depth maps as additional information channel and built an end-to-end Google colab tutorial project. [code]
- **Car Image Masking**
  Trained a Unet based model for masking out car pixels from the background. [github]
- **Text Normalisation for English**
  Built a context aware decision tree for text tagging and performed Text normalization using context aware statistical model. [github]
- **Quora Question Pair - Paraphrase detection**
  Built a LSTM-CNN based Siamese network for one-shot classification, ensembled with linear model of engineered features for improved performance. [github]

TEACHING AND LEADERSHIP ROLES

- **ML/Autonomous Navigation Paper Reading Group**, IISc : Conducted and delivered talks on latest machine learning and autonomous navigation research papers.
- **Machine Learning Brainstorming Sessions**, Donut Research Labs : Conducted and taught weekly sessions on latest machine 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".

OTHER ACTIVITIES

- State Level Lawn Tennis and Basketball player