

# Devansh Bisla

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## Education and Awards

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- PhD, Electrical and Computer Engineering, New York University** May, 2022  
- Thesis Advisor: [Dr. Anna Choromanska](#)  
- Awarded School of Engineering Fellowship
- M.S, Electrical and Computer Engineering, New York University** May, 2018  
- Thesis Advisor: [Dr. Anna Choromanska](#)  
- Awarded Graduate Student Scholarship
- B.E, Electronics and Communication, Manipal University** May, 2016  
- Project Advisor: [Dr. K. S Venkatesh](#) (IIT-Kanpur)

## Programming Skills

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Python | C | C++ | MATLAB | Pytorch | JAX | Tensorflow | Keras | Azure ML | Scikit-learn | Docker |

## Professional Experience

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- NVIDIA - New Jersey** July, 2022 - Present  
Deep Learning Software Engineer, Autonomous Vehicles
- Research and development of tools to understand three fundamental questions; "Where? How much? and When?" to collect data to improve performance of Machine Learning systems with primary focus on autonomous driving application.
- Microsoft - Seattle** May - July, 2021  
Data Scientist Intern, Bing Maps Metrics
- Developed deep learning models to compare Bing maps against competitors (Google/Apple/TomTom). The model was further utilized to understand the contribution of various map features (roads/parks/water bodies/buildings) towards user retention.
- NVIDIA - New Jersey** May - July, 2020 and Feb - May, 2021  
Deep Learning Software Intern, Autonomous Vehicles
- Developed data sampling strategy based on distance travelled by the ego vehicle. Achieved  $\approx 50\%$  data reduction while recovering  $\approx 95\%$  performance.
  - Developed a cost efficient data collection strategy that relies on perception data similarities between different countries.
- Hearst - New York** May - July, 2018  
Machine Learning Intern
- Incorporated content based image retrieval into Hearst's digital asset management system based on Meta's FAISS repository.
  - Developed image tagging and visualization tool based on t-distributed stochastic neighbor embedding (t-SNE).
  - Real-time speech to text translation system utilizing Kaldi; a C++ based speech recognition toolkit.
- Bharti Airtel Ltd - Manesar, India** Dec, 2014  
Telecommunication Engineering Intern
- Aided team of telecommunication engineers in management of 4G LTE network alarm systems in New Delhi, India telecom circle.

## Teaching Experience

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- Teaching Assistant, Machine Learning** Jan - May, 2020
- Mentor, K12 ARISE Program, Tandon School of Engineering, NYU** May - July, 2019
- Mentor, Undergraduate Research Program, Tandon School of Engineering, NYU** May - July, 2019
- Teaching Assistant, Urban Decision Models, NYU-CUSP** Aug - Dec, 2017
- Teaching Assistant, Leading with IT, NYU-CUSP** May - July, 2017

## Research Experience

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Publications/Technical Reports (citations: 100+, h-index: 4).....

**ERASE-Net: Efficient Segmentation Networks for Automotive Radar Signals** Axive, 2022

S. Fang, H. Zhu, **D. Bisla**, A. Choromanska, S. Ravindran, D. Ren, R. Wu

**Low-Pass Filtering SGD for Recovering Flat Optima in DL Optimization Landscape** AISTATS, 2022

**D. Bisla**, J. Wang, A. Choromanska

**A Theoretical-Empirical Approach to Estimating Sample Complexity of DNNs** CVPR - TCV, 2021

**D. Bisla**, A. Nandini, A. Choromanska

**ESAFE: Enterprise Security and Forensics at Scale** Axive, 2021

B. McShea, K. Wright, D. Lam, S. Schmidt, A. Choromanska, **D. Bisla**, et al.

**Towards Automated Melanoma Detection with Deep Learning** CVPR - ISIC, 2019

**D. Bisla**, A. Choromanska, R. S. Berman, J. A. Stein, D. Polsky

**VisualBackProp for Learning using Privileged Information with CNNs** Axive, 2018

**D. Bisla**, A. Choromanska

Conference Reviewer.....

CVPR-2021, ICML - 2018, 2019, NIPS - 2018, 2019, AAAI - 2019,2020, AISTATS - 2020, 2022

## Academic Projects

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**High Frequency Ultrasound Image Segmentation and Analysis** Jan - May, 2017

**D. Bisla**, Y. Wang

- Trained an Active Shape Model to segment brain ventricles of a mouse embryo from its high frequency 3D ultrasound image. The shape of the brain ventricle was described using a shape context descriptor while principle component analysis was used to generate the model.

**Semantic Image Segmentation by modifying Alexnet** Jan - May, 2017

**D. Bisla**, Y. Wang

- Trained AlexNet over 120,000 images obtained from MSCOCO dataset with 21 different classes. The network was built using tensorflow for a single GPU system and trained for over 2 days on the NYU-HPC.

**Estimation of Road Traffic Parameters - Indian Institute of Technology, Kanpur** Jan - May, 2016

**D. Bisla**, V. K. Subramanian

- Developed a computer vision system to detect and track moving vehicles from a camera mounted on a moving unmanned aerial vehicle (UAV).

**Analysis of Breath for Computation of Blood Alcohol Level** May, 2015

**D. Bisla**, K. Hegde

- Developed a novel breath analyzer for blood alcohol detection using AT8951 micro-controller of the 8051 family of micro-controllers.

## Relevant Coursework

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Data Structures and Algorithms | Advanced Machine learning | Numerical Optimization | Convex and Non Smooth Optimization | System Optimization Methods | Numerical Methods | Digital Signal processing