

# Dhruva Kashyap

## Education

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Degree	Institute	% /CGPA	Year
M.Tech (CSE)(3rd Semester)	Indian Institute of Science, Bengaluru	9.4/10	2022-present
B. Tech. (Computer Sc.)	PES University, Bengaluru	9.65/10	2018-2022
Class XII	(CBSE) Sindhi High School, Bengaluru	96.4%	2018
Class X	(CBSE) Sindhi High School, Bengaluru	10/10	2016

- **CBSE Certificate of Merit** for standing in the **top 0.1% of the Class XII** examination in Physics.
- **First Runner up** in the **NeurIPS 2020** Competition, "Predicting Generalization in Deep Learning."
- Currently **Rank 1** in the Department of Computer Science and Automation, IISc
- **CNR Rao Merit scholarship (top 2%)** in semesters 1, 2, 3, 4, 5 & 6 at PES University
- **All India Rank 14** for the GATE 2022 examination in Computer Science

## Technical Skills

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**Programming Languages:** Proficient in C, Python, Bash Scripting, and C++  
**Technological tools:** Git, PyTorch(XLA), Tensorflow, and C++ STL  
**Technical Skills:** Generic Programming, Design Patterns

## Work Experience

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### Machine Learning Lab, IISc

*MTech Thesis, 2022-Present*

- Working with Prof. Chiranjib Bhattacharyya on **Model compression** and **Algebraic Geometry**

### IT Seers

*iSpirit Volunteer, December-April 2022*

- Worked on building a cloud system to address **cybercrime grievances** on social media

### Visa, Inc.

*Project Intern, May-August 2021*

- Developed a **Named Entity Recognition** system using **Deep Learning** in **TensorFlow**.

### Centre for Cloud Computing and Big Data

*Summer Intern, June-July 2020, PES University*

- Built a **Cloud-based web application** to facilitate project management.

### Centers for Data Science and Applied Machine Learning

*Summer Intern, June-July 2019*

- Developed an **Image-captioning** system using **Reinforcement Learning** in **PyTorch**.
- Developed a new scoring metric called the **BLUDer**; Results comparable to state-of-the-art models at the time.

## Publications

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- Co-authored workshop paper in **ICML 2022**, Principles of Distribution Shift, "Towards Domain Adversarial Methods to Mitigate Texture Bias."
- Co-authored **Journal paper** "Methods and Analysis of The First Competition in Predicting Generalization of Deep Learning" - Accepted for publication in "PMLR post-proceedings - Competition Track@NeurIPS2020."
- Co-authored **Journal Paper** "Image Captioning using Reinforcement Learning with BLUDer Optimization" - Published in "Pattern Recognition and Image Analysis" Springer Journal, Issue 4, Vol. 30, 2020
- Proposed "**Cloud-based Evaluation policies**" at the **IEEE CCEM 2020** Conference Student Project Showcase Proposal.

## Academic Projects

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- **Reconstruction based Network Pruning(2023-Present)**

Working on advanced pruning algorithms for complex neural net architectures

- **Optimizing Code Generator for Tensorflow(2023)**

Implemented an optimizing compiler pass for Tensorflow using **LLVM**, which produced code with speeds comparable to **TF XLA**

- **Interprocedural point-to Analysis(2022)**

Implemented Kildall's Algorithm to compute Points-to information for large interprocedural code in Java

- **Shape-Texture conflicts in CNNs(2021-2022)**

Redesigning CNNs to handle shape-texture cue conflicts

- **C++ Runtime Garbage collection system(2020)**

Implemented a garbage collection system for C++ utilizing concepts such as Template metaprogramming and SFINAE

- **Greenest parts of Bangalore(2020)**

Designed a system to find the areas of Bangalore with the largest extent of green cover on a pseudo-distributed Apache Hadoop cluster

- **YACS (Yet Another Centralized Scheduler)(2020)**

Simulated a scheduling framework to manage and allocate the cluster's resources to the different jobs in the MapReduce workload