ABHAY MISHRA

Third Year Undergraduate
Department of Computer Science and Engineering

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ACADEMIC QUALIFICATIONS

Year	Degree/Certificate	Institute	CPI/%
2019 - Present	B.Tech	Indian Institute of Technology, Kanpur	8.3/10
2019	CBSE(XII)	JNV Bundi, Rajasthan	97 %
2017	CBSE(X)	JNV Sidhi, Madhya Pradesh	10/10

SCHOLASTIC ACHIEVEMENTS

- Achieved **All India Rank 387** in **JEE Advanced 2019** out of 245,000 candidates
- Achieved **All India Rank 893** in **JEE Mains 2019** out of 1.3 million candidates
- Qualified **KVPY 2019** conducted by IISc and Gov. of India with **All India Rank 531**

KEY PROJECTS

- **Constructing Hot Path SSA over SSA** (*May'21- Ongoing*)
  Mentor: Prof. Subhajit Roy | Department of Computer Science and Engineering | IIT Kanpur
    - HPSSA form weaves **static program code** and **run-time profile information** in a single data structure
    - Implemented initial phase of HPSSA construction algorithm as a compiler pass in **LLVM compiler framework**
    - Utilized LLVM's inbuilt **Analysis passes** and data structures for optimizing **memory usage** and speed
    - Tested correctness of initial implementation on small programs and working on the final phase of the algorithm
- **IITK Coin** (*May'21-Ongoing*)
  Programming Club| IIT Kanpur
    - Used **Go** and SQLite to implement the **back-end** of a **pseudo-coin system** (centralized) for use in the IITK Campus
    - Used lightweight JSON web tokens (**JWT**) for authentication and stored passwords using hashing and salting
    - Designed and implemented fast, **scalable**, and **concurrent** endpoints for awarding and transfer of coins
    - Handled deadlocks, data races and tested the implementation at each stage using **cURL** and **Postman**
- **Introduction to Artificial Neural Networks** (*May'20- Jul'20*)
  Programming Club| IIT Kanpur
    - Trained and optimized different CNN Models like **LeNet** on MNIST and CIFAR-10, achieving max acc. of **97**%
    - Learned about transposed convolutions, **autoencoders** and used them for denoising of images
    - Obtained word embedding using **word2vec** algorithm based on the skip-gram architecture
    - Developed a **Seq2Seq** character level model using TensorFlow for use in natural language processing

TECHNICAL SKILLS

- **Proficient:** C, C++, Python, Go, HTML
- **Utilities:** Git, LaTeX, Bash
- **Exposure:** NodeJS, Javascript, Verilog, TensorFlow, SQLite
- **Machine Learning:** PyTorch, Numpy, Pandas, Matplotlib

RELEVANT COURSES

Data Structures and Algorithms	Software Development and Operations
Computer Organization	Probability for Computer Science
Fundamentals of Computing	Introduction to Electronics
Discrete Mathematics	Linear algebra and ODE
Logic in Computer Science	Real Analysis

POSITIONS OF RESPONSIBILITY

- **Project Mentor** | **Deep Into CNN** (*May'21-Jul'21*)
  Programming Club | IIT Kanpur
    - Introduced Convolutional Neural Networks (**CNN**) and optimization methods to **22** students
    - Conducted **two** hackathons based on shared material and gave feedback on more than **20** code submissions
    - Helped mentees in implementing models such as **AlexNet**, **VGG**, **ResNet**, **Inception**, **Xception** using PyTorch
- **Student Guide** (*2020-21*)
  Counselling Service| IIT Kanpur
    - Guided and mentored **five freshmen** and helped them in getting accustomed to the new environment
    - Helped them with their academics by arranging meetings with their mentors

ACTIVITIES

- Participated in parades and other activities throughout the year as an NCC Cadet (*2019-20*)
- Global Rank 1218 in Google Kickstart Round F among more than 5k participants (*Sep'20*)
- Participated in Codeforces contests (Max Rating: 1536, Specialist)