Harish Rajagopal

Fourth Year Undergraduate

Computer Science and Engineering · Indian Institute of Technology Kanpur

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Educational Qualifications

Degree	Year	Institution/Board	CGPA/%
B. Tech	2016 - Present	IIT Kanpur	9.7/10.0
Sr. Secondary	2016	Maharashtra H.S.C	90.46%
Secondary	2014	Maharashtra S.S.C	93.6%

Academic Achievements

- Awarded **Academic Achievement Awards** for notable performance in 1st and 2nd years.

- Secured All India Rank of **185** in **JEE Advanced 2016**.

- Secured All India Rank of **205** in **JEE Mains 2016**.

Internships

- **Research Intern, NYU Tandon**
  May '19 - July '19

  – Researched robust image hashes that are immune to typical image transformations, while being sensitive to malicious image edits such as face swaps & deep fakes.

  – Developed a *framework* for testing against compression, contrast changes, gamma, blurring, warping.

  – Tested the networks against *adversarial attacks* such as *FGSM*, *Projected Gradient Descent*, *Boundary Attack*.

- **Research Intern (Remote), NYU Tandon**
  May '18 - July '18

  – Researched *differentiable plasticity* for *domain transfer* in images using Convolutional Neural Networks.

  – Improved *efficiency* in the temporal update rule for the *Hebbian weights* by using *transpose convolution*.

  – Achieved improvement in classification accuracy, when adapting models from the SVHN dataset to MNIST.

- **Intern, Machine Learning Team, New York Office of IIT Kanpur**
  May '17 - July '18

  – Developed an *online* text clustering model using a fully-online modification of the *DBSCAN* algorithm.

  – Implemented an *online* document vectorisation model using *Distributed Memory paragraph vectors*.

  – Deployed above models using Docker and integrated with existing infrastructure using Apache Kafka.

Relevant Courses

Projects

- **Compiler for Golang in Python**
  Jan '19 - Apr '19

  – Implemented basic C-like features like data types, functions, pointers, structs, library imports, and I/O.

  – Implemented advanced features like composite literals, struct embeddings, typedefs/aliases, operator overloading, multiple value returns, multiple parallel assignments, short declarations, and short-circuit evaluation.

- **GemOS - Operating Systems Development**
  Aug '18 - Nov '18

  – Developed an object-store FUSE filesystem.

  – Implemented process scheduling, sleeping, signal handling, syscalls and exception handlers.

  – Implemented virtual memory and paging.

- **No-Frills Cab Locator - Android App**
  Sept '18 - Nov '18

  – A one-button-touch cab service with apps created using the *Ionic framework* for Android as part of a course.

  – Developed separate customer and driver apps using *Angular2* in Typescript and *Sass* for styling.

- **Improving GANs through Test-Time Constraints**
  Jan '19 - Present

- **Multi-Agent GANs for Image Super-Resolution**
  Aug '18 - Dec '18

- **Higher-Order Optimisation in Deep Learning**
  Sept '18 - Nov '18

- **7th Inter-IIT Tech Meet (Silver Medal)**
  Dec '18

Technical Skills

- **Programming Languages:** Python, Bash, C, C++, LaTeX, PHP, HTML+CSS, MySQL, Typescript

- **Software and Utilities:** TensorFlow, PyTorch, Keras, Numpy, Git, OpenCV, Hyperopt, Gensim, Ionic

Compiler Design (A⋆)	Algorithms II	Operating Systems
Visual Recognition	Introduction to Machine Learning	Data Structures and Algorithms