Eashan Gupta
Computer Science & Engineering
Indian Institute of Technology Bombay

160050045
B.Tech.
Male
DOB: 30/10/1998

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2020	8.99

Pursuing **Honors** in Computer Science and Engineering

Scholastic Achievements

- Secured **All India Rank 38** in **JEE Advanced** among 200 thousand candidates *(2016)*
- Amongst the **top 35** students of the **Indian National Olympiads** in **Physics** and **Astronomy** *(2016)*
- Received Kishore Vaigyanik Protsahan Yojana Fellowship (**KVPY**) with an **All India Rank** of **121** *(2015)*
- Recipient of the **National Talent Search Examination** Scholarship awarded by the Govt. of India *(2014)*

Internships and Research Projects

Automation of Timing Performance Checks | *Tower Research Capital, Gurgaon* *May '19 - July '19*

- Automated performance **testing platform** for the software processing the order book data broadcast by market exchanges; simulated a similar environment on servers using **Bash** and **Python** scripts and the **Jenkins** API
- Experimented with different environments and configurations of **CAT** to observe dependencies in performance statistics

Reduction in Games played on recursion schemes *May '18 - July '18*
Guide: Prof. Roland Meyer *TU Braunschweig, Germany*

- Worked on the reduction of parity games to safety games played on **higher order recursion schemes** (HORS)
- Proposed a new approach to model games on recursion schemes using **computation trees** of the HORS
- Studied the equivalence between HORS to CPDA using **Krivine machines** and λ-labelled deterministic digraph

Implementation of Abstract Domains | *Guide: Prof. Supratik Chakraborty* *Jan '19 - May '19*

- Studied abstract interpretation for program verification and implemented **congruence** and **array** abstract domains
- Engineered the array domain by mapping its **segments** to bound sets and expressions using context-free comparisons

Course Projects

Handwriting synthesis using RNNs | *Advanced Machine Learning* *Mar '19 - May '19*

- Explored the various deep learning frameworks for handwriting synthesis and analyzed their pros and cons
- Designed and implemented an algorithm to generate handwriting by using attention based **recurrent neural networks** in an **adversarial** fashion to improve efficiency

Lightweight Probabilistic Deep Networks | *Digital Image Processing* *Oct '18 - Nov '18*

- Used probabilistic output layers and **Dirichlet** categorical classifier to account for uncertainties in deep networks
- Implemented assumed density filtering using the **Keras** API in **Python** to approximate activation uncertainties

Automated Ticketing System for Car Parking | *Database & Information System* *Sept '18 - Nov '18*

- Built an app to provide automated ticketing service for car parking using the **Flutter** API on Android
- Used **Java servlets**, **PostgerSQL** and **Tomcat** API to manage the database and its interactions with the app

Cache Timing Attacks on DSA | *Computer Architecture* *Oct '18 - Nov '18*

- Explored and examined various cache timing attacks on implementations of cryptographic algorithms
- Verified the possibility of exploiting the **OpenSSL** library and recover bits of the key in a **DSA** implementation

Compiler for subset of C language | *Implementation of Programming Languages* *Jan '19 - May '19*

- Developed a compiler and an interpreter for a subset of C language to generate its MIPS assembly code
- Used **lex** and **yacc** for parsing, creating abstract syntax trees, control flow graphs and symbol tables

Graphical Modelling and Animation | *Computer Graphics* *Aug '18 - Nov '18*

- Implemented hierarchical model for 3D objects using **C++ OpenGL** and texture mapping for surfaces
- Added camera animation by moving the camera along **Bézier** curves and simulated lighting by **Phong** shading

Wizard Chess | *Institute Technical Summer Project* *May '17- June '17*

- Developed an automated chess playing board which uses voice recognition system using an **API**
- Engineered the single player mode for chess using the **minimax algorithm** with **alpha-beta pruning** in C++

Extracurriculars

- Teaching assistant for the courses: Soft Skills online course (IITBombayX), Computer Programming and Utilization
- Successfully completed one year training in **lawn tennis** under National Sports Organisation, IIT Bombay