# DEEPESH KUMAR LALL

Final Year Undergraduate
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## EDUCATIONAL QUALIFICATIONS

| Year | Degree | Institution(Board) | CGPA/% |
|------|--------|--------------------|--------|
| July'17 – June'21 (expected) | B.Tech, CSE | Indian Institute of Technology, Kanpur | 8.5/10.0 |
| 2017 | CBSE – XII | Delhi Public School, Bokaro Steel City (CBSE) | 92.6% |
| 2015 | CBSE – X | Delhi Public School, Bokaro Steel City (CBSE) | 10.0/10.0 |

## SCHOLASTIC ACHIEVEMENTS

- Rank 795, JEE Advanced 2017 (amongst 220,000 candidates)
- Rank 3588, JEE Main 2017 (amongst 1.4 million candidates)
- All India Rank 203, KVPY Scholarship SX (Conducted by IISC Bangalore) 2016
- Among the top 1% , in National Standard Examination in Physics (NSEP) conducted by Indian Association of Physics Teachers (IAPT) 2016-17
- Among the top 10%, in National Standard Examination in Astronomy(NSEA) conducted by Indian Association of Physics Teachers (IAPT), and qualified for Indian National Astronomy Olympiad (INAO) 2015-16
- Among the top 10% , in National Standard Examination in Physics(NSEP) conducted by Indian Association of Physics Teachers (IAPT) 2015-16.
- Qualified, Regional Mathematics Olympiad(RMO) 2015.

## PROJECTS

**JVC IC generator**  *github.com/DeepeshLall/Compiler-3ACgen*
*Prof. Swarnendu Biswas*  Jan 2020 - March 2020
- Implemented a Multi-Level Symbol Table with Coercion,Implicit type castable Indtermediate 3AC code(x86) generator for JAVA in a non-JVM env. with ANTLR4 as Computer based Language Recognizer and graphical AST.
- Used the ANTLR4 to parse code Lexically and Syntaxically as per the Oracle's specified grammar and using its output to make Graphical format of AST.

**gemOS (C/Assembly)**  *github.com/DeepeshLall/CS330-OS*
*Prof. Debadatta Mishra*  Aug 2019 - Nov 2019
- Implemented and tested various operating system designs and optimizations on gemOS such as Process Context, Paging, Caching, Filesystem and Multithreading.
- Implemented pipes, multilevel page tables with lazy page allocation scheme, cfork, vfork for smart process creation, and parallelized hash tables using Multithreading.

**Market Factor Model**  *github.com/DeepeshLall/FF3FM-C4FM*
*Prof. Wasim Ahmad*  Jan 2020 - March 2020
- Implemented the Fama French 3FM and extended it to momentum factor of Carhart 4FM using research paper mentioned as in repository for market risk return Analysis.

**Net. Packet Decoder**  *github.com/DeepeshLall/CRC-H74-Decode*
*Prof. Swaprava Nath*  Jan 2020 - March 2020

**Codefundo++**  *github.com/DeepeshLall/Disaster-Management*
*Microsoft Academic Accelerator*  October 2018

**SAT solver**  *github.com/DeepeshLall/Sudoku-solver*
*Prof. Subhajit Roy*  Nov 2018

**Fuzzing**  *github.com/DeepeshLall/Fuzzer*
*Prof. Pramod Subramanyan*  Jan 2019 - March 2019

## RELEVANT COURSES

| | | | |
|---|---|---|---|
| Fundamentals of Computing | Discrete Mathematics | Computer Organization | Logic for Computer Science |
| Data Structures and Algorithms | Probability for Computer Science | Computing Lab - 1 | Computing Lab - 2 |
| Operating System | Theory of Computation | Introduction to ML | Algorithms - 2 |
| Compiler Design | Principal of Database and Management | Computer Networks | Financial Econometrics |

## WORK EXPERIENCE

**ADB-D Cloud Service Performance monitoring**  India
*Oracle*  May 2020 - June 2020
- Used Linux /proc/ format report of cloud to extract metrics for performance monitoring like of CPU, Clusterware, Databases, I/O etc.
- Made a Metric generator with desired distribution with different possible Random distribution such as Gaussian, Laplacian and Expovariate etc over the base line along with manual override functionalities for Ideal Generation of metric distribution.
- Project was aimed to predict the system's performance metric Time Series Analysis and classifying the state of Cloud parameter as a regression problem over the normalized scale of 100%.
- Implemented this using ARIMA model and plotted the final result over the 20% extrapolated time scale along with the best model for the given metric for visual reference.
- Cross-Verified the Model performance over the Data set as provided and made optimizations like Auto-ARIMA for improving the results.

**Server Benchmark testing**  IIT Kanpur
*Supervisor Prof. Debadatta Mishra*  April 2019 - July 2019
- Used apachejmeter benchmarking tool for server load and oltp benchmarking for database load testing.
- Confirmed the knee point in the graphical result of load on server in terms of latency time and throughput, with variation of number of users.
- Used Blazemeter and Apachejmeter for sending concurrent request from multiple threads recording the output sequence and benchmarking consecutively on a full-stack website hosted over localhost.

## POSITIONS OF RESPONSIBILITY

- **Mentor**, *Association for Computational Activities* :
  The student body of Department of Computer Science and Engineering, IIT Kanpur.
- **Student Guide**, *Counselling Service* :
  The student body of IIT Kanpur, guiding the new coming student during their first year.

## SKILLS

**Programming**: C, C++, Haskell, Python, NodeJS
**App Devlopment**: HTML, CSS, JavaScript, BootStrap, PHP, React, React-Native
**Database**: SQL, SQLITE
**Data Analysis**: R, Graphviz, Pandas, Excel
**Tools**: Git ,Bash, LaTeX, MIPS, GDB, Docker, REGEX, ANTLR4, Lex, Yacc, Bison , Autodesk Fusion360, Inventor
**Cloud**: Microsoft Azure, Oracle Cloud, AWS
**Platforms**: Windows,Ubuntu, Mac