Aditya **Senthilnathan**

Senior Undergraduate Student

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Education

Indian Institute of Technology, Delhi (IIT-D) *Delhi, India*

Integrated Masters (B.Tech + M.Tech) in Computer Science and Engineering *Jun. 2017 - Present*

- CGPA at the end of six semesters: 8.17/10
- **CS Coursework**: Operating Systems, Parallel & Distributed Systems, Machine Learning, Computer Vision, Artificial Intelligence, Computer Networks, Computer Architecture, Data Structures & Algorithms
- **Mathematics Coursework**: Discrete Mathematics, Probability and Stochastic Processes, Linear Algebra, Differential Equations

Honors & Awards

2017 **KVPY Fellowship,** Awarded by the Dept. of Science and Technology, Govt. of India

Internships & Projects

Platonia Labs *(Remote) Cambridge, UK*

Software Developer Intern *Apr. 2020 - Jul. 2020*

- Designed complete frontend of iOS client using React Native, Redux & JavaScript and ensured seamless integration of backend with the frontend
- Designed user flow and layout of several screens and developed numerous components from scratch for app's component library focusing on user-friendly and intuitive UI/UX

Fairness & Diversity Guaranteeing News Aggregator *IIT Delhi*

Undergraduate Research Assistant (Prof. Aaditeshwar Seth) *Jun. 2019 - Dec. 2019*

- Analysed bias in coverage of articles in news aggregators by analyzing topic coverage using topic modelling algorithms such as LDA, HDP, etc.
- Implemented OnlineLDA to extract topics from incoming stream of documents scraped continually by a web scraper from various news media
- Improved performance of algorithm by hyperparameter tuning, by 14% from the baseline model as measured by the C_V topic coherence score
- Abstract topics extracted by topic modelling algorithms were input to recommendation system which analysed topic coverage and ensured diversity and fairness in news feeds through various heuristics and distribution modelling techniques

Projects

REAPER: Cannon AI Bot *Prof. Mausam, IIT Delhi*

- Designed bot based on search techniques such as Minimax Search Algorithm, to play Cannon, a 2-player strategy board game. The bot was ranked among top 8 out of 60 other agents in one of the tournaments held among IITians. Functions were implemented as efficiently as possible as only 200 sec in total was allocated for each bot in a game to make all moves and win

Operating System Kernel *Prof. Sorav Bansal, IIT Delhi*

- Implemented kernel from scratch by designing a custom shell interface and interface for memory-mapped I/O devices and also added support for structures like stackless coroutines, fibers and implemented non-preemptive and preemptive scheduling for multiple processes

PageRank using MapReduce *Prof. Rijurekha Sen, IIT Delhi*

- Implemented PageRank algorithm from scratch using MapReduce model for parallelization of the algorithm. Utilized knowledge of MPI and C++ for implementation of the algorithm

Secure Messaging Application *Prof. Aaditeshwar Seth, IIT Delhi*

- Developed terminal based messaging application, which enables secure communication among users registered on central server. Achieved end-to-end security through the encryption of messages with public-private key pair generated by RSA and message integrity was verified with signatures generated using SHA-256 hash function

Skills

Programming **(proficient)** C/C++, Python, **(familiar)** Java, Javascript, Ocaml, Matlab, VHDL, x86 Assembly, Bash, LaTeX
Frameworks OpenMP, MPI, React Native, Redux, PyTorch, OpenCV, Git, OpenGL, Gensim, Gatsby
Platforms AutoDesk Inventor, Xilinx ISE, Vivado Design Suite, Unity Game Engine, Linux

Extracurricular Activity

Board of Student Publications *IIT Delhi*

Undergraduate Student Journalist *Jun. 2018 - Mar. 2019*

- Had several articles on Science and Technology published in various student magazines like Inquirer, Inception, Elemental, etc.