Agrim Bansal

Undergraduate in Computer Science & Engineering
Indian Institute of Technology Delhi

agrim.cs524@cse.iitd.ac.in
www.agrimbansal.com
github.com/Agrim-Bansal

Course	Institute	Year	CGPA (Score)/%
Computer Science and Engg.	IIT Delhi	2024-	9.559 (Dept Rank 4)
Intermediate/+2	CBSE	2022-2024	96%
Matriculation	CBSE	2022	97.6%

SCHOLASTIC ACHIEVEMENTS

- **JEE Advanced** - Achived and All India Rank of 155 among over 2 Million students in a STEM based exam.
- **INAO, 2023** - Shortlisted for selection to the Indian team for the international Astronomy Olympiad.
- **INChO, 2024** - Shortlisted for selection to the Indian team for the international Chemistry Olympiad.

PROJECTS

- **Micromouse** *(PCB design, Efficient packing, PID motion with gyroscope, Flood-Fill, lidar distance sensors, Microcontroller)*
  - Built a miniature and efficient bot to solve mazes utilizing LIDARs, MPU6050 and optical encoders as a project in the robotics club IIT Delhi. Designed the schematic circuit, fabricated the pcb, implemented multi-sensor data integration, motor control with partial integration-differentiation feedback. Coded and used the flood-fill algorithm for fast traversal with assured results. Performed real-world calibration and testing in addition to simulation.
- **Stock Market Simulator**, *(NextJS, ReactJS, Firebase, Firestore DB, Auth, APIs)*
  - Built a web app with react and secure authentication to simulate realtime stock market and allows users to trade stocks in fake money. Optimally and asynchronously fetch large amount of data from multiple APIs, maintain transaction records, compute live price changes and overall portfolio value.
- **Inter IIT Tech Meet 14** *(Kotlin, Jetpack Compose, Android ML Kit, Graphics api) Futuristic AI Graphics Editor for Adobe PS*
  - Built a photo editor app integrate AI into a professional image editing workflows implemented via Agentic orchestration and Image processing with QWEN, FLUX, LoRAs and Segmentation models(SAM). It was built with the capability of running the models on-device even on low compute devices while maintaining a low latency.
- **Murder Mystery Detective Game** *(GeminiAPI, ReactJS, TailwindCSS)*
  - Built a terminal themed, AI powered, web app where the user gets to logically interrogate suspects in a murder mystery game. Built with input sanitization, argument and string parsing with regex, ReactJS state management and LLM prompt engineering to ensure good results and consistent responses via gemini api.
- **Esoteric Language interpreter** *(Python, blessed library, vanilla html-css-js)*
  - Built a terminal interface and a web app interpreter for the simplest Turing-complete language with only 6 characters. Implemented memory array visualization, syntax evaluation, a debugger implementation and comments.
- **Smart Waste Management** *(YOLO v10, Image Recognition, Image training, GI Sheet working, Spot Welding, Arduino)*
  - Designed and built a mechanical wastebin from galvanized iron sheets and implemented smart waste management based on image recognition via the YOLO v10 model running on a device communicating with a microcontroller and motor control.

TECHNICAL SKILLS

- **Programming & Scripting Languages**: C++, OCaml, Python, Javascript, Typescript, Dart
- **Tools & Libraries**: Pandas, Numpy, Matplotlib, LaTeX, ReactJS, TaiwindCSS, Qt
- **OS & DevOps**: Linux, Git, Terminal, SSH

COURSE WORK

- **Computer Science**
  Data Structures and Algorithms, Discrete Mathematics, Digital Hardware Design, Computer Architecture, Programming Languages, Design Principles, Introduction to Computer Science, and Signals and Systems.
- **Mathematics**
  Probability and Stochastic Processes, Introduction to Linear Algebra and Differential Equations, Calculus.
- **Miscellaneous**
  Engineering mechanics, Intro to chemistry, electrical engineering, Biology, Product Manufacture, and Others

EXTRA-CURRICULARS

- **CAIC General Championship IIT Delhi.** Won the first place for interactive robotics problem statement,
- **Jyoti and Prayatan(NSS)** Taught under-privileged and blind students electronic concepts and STEM as a volunteer.