

# Sarthak Mittal

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## Education

**Indian Institute of Technology (IIT) Bombay** Nov 2020 – Jun 2024  
• Bachelor of Technology in Computer Science and Engineering (with *Honors*) GPA: 9.25/10.0  
• Exchange student at the **University of Geneva, Switzerland** in Geneva School of Economics and Management (GSEM)  
• **Coursework:** Financial Markets, Statistics & Probability, Data Structures, Algorithm Design, Reinforcement Learning

## Work Experience

**Software Engineer**, Stripe – Bengaluru, Karnataka, India Jul 2024 – Present  
**Quantitative Strategist Intern**, Quadeye Securities – Gurugram, Haryana, India May 2023 – Jul 2023  
• Computed option premium with **99% accuracy** using **greeks** and Newton-Raphson method for **implied volatility (IV)**  
• Implemented **Black Scholes Pricing** model in **C++** with low-latency (**700μs** for **200+** strike prices per time snapshot)  
• Designed  $\alpha$ s achieving **1.4 sharpe** using interpolation of **cubic splines** with 3-7 knots and parameterised **IV surfaces**  
**Machine Learning Intern**, Prodigious SoftTech – Mumbai, Maharashtra, India Dec 2022 – Jan 2023  
• Analysed architectures and compared **ROUGE scores** of **8+** LLMs including PEGASUS and BART for **text summarisation**  
• Determined **BART-large** model to be **20% plastic** for summarisation by fine-tuning on **5% tweaked** SAMSum Corpus set  
**Language Modeling Intern**, International Workplace – Cambridge, England, UK May 2022 – Jul 2022  
• Deployed a **language model** to map **500+** newsfeed articles to **top 5** learning outcomes as a **web API** using **Azure ML**  
• Implemented **prefix matching** and a probability density function (**PDF**) with **3 variables** to predict learning outcomes  
**Software Developer Intern**, Greatfour Systems – Hyderabad, Telangana, India Dec 2021  
• Utilised Python API for **OpenCV** and **MTM** for multi-scale **template matching** to counting tablets in medicine packets  
• Improved counting algorithm speed by **60%** using **4+** enhancements including use of **geometric progression** for resizing

## University Projects

**Algorithmic Trading** | Learner's Space – Web and Coding Club, IIT Bombay 🔄/algo-trading  
• Deployed trading strategies in **Python** and compared styles like **Momentum** and **Paired Switching** for market performance  
• Achieved profits of up to **160%** and **500%** by executing the algorithms on post-recession **SENSEX 30** data of 2009 – 2010  
**Mega NetWorks** | Databases and Information Systems Lab (CS 387) 🔄/cs387-project-NetWorks  
• Designed a clone of **LinkedIn** with a database having **10+ relational entities** using **PERN** stack along with CSS styling  
• Supported **5** key features, including connections, jobs, profiles, messaging, and **dynamic** feed with **5 posts** scroll window  
**P2P Network Simulator** | Computer Networks Lab (CS 252) 🔄/network-simulator  
• Utilised **minimum-hop** graph algorithm and **sockets** in **C++** to transfer files between client ports using **TCP** connections  
• **Automated** the network simulation using configuration files and **Bash** along with **MD5 hash** verification for file transfer  
**Attendance System** | Artificial Intelligence and Machine Learning Lab (CS 335) 🔄/attendance-system  
• Built an **automated** university attendance system using **deep learning** techniques and **facial recognition** neural nets  
• Trained the **embedding vector** model using **triplet loss** and achieved **75%** validation accuracy with **softmax** classifier

## Additional Experience

**Department Academic Mentor**, Computer Science and Engineering – IIT Bombay May 2022 – Apr 2023  
• Selected to **lead** the **academic resources team** from among **80+** applicants after extensive interviews & peer reviews  
• Mentored **6** sophomores to assist them with academic and personal difficulties and guide their **holistic development**  
**Class Representative**, Computer Science and Engineering – IIT Bombay Aug 2021 – May 2022  
• Served as the primary **point of communication** between professors, CSE council, and a batch of **175+** undergraduates  
• Initiated the creation of a Telegram group to host **20+ polls** for collection of batch opinion about academic activities

## Technical Skills

**Languages:** C/C++, Python, Java, ReactJS, HTML/CSS/JS, LaTeX, NodeJS, SQL, Dart, Bash, Sed, Awk, VHDL, Flex, Bison  
**Development:** Git, Django, MATLAB, Spark, Kafka, Flutter, Android Studio, AWS, AzureML, Wireshark, GDB, Docker