



### EDUCATION AND SCHOLASTIC ACHIEVEMENTS

Program	Institution	%/CGPA	Year
B. Tech in Mechanical Engineering	Indian Institute of Technology Madras, Chennai	8.95	2023
XII (CBSE)	Ryan International School, Kandivali, Mumbai	93%	2019
X (CBSE)	Ryan International School, Malad, Mumbai	10.00	2017
<ul style="list-style-type: none"> <li>Secured <b>99.08 percentile</b> in JEE Advanced out of 1.73 lakh participants.</li> </ul>			(2019)
<ul style="list-style-type: none"> <li>Secured <b>99.56 percentile</b> in JEE Mains out of 9.35 lakh participants.</li> </ul>			(2019)
<ul style="list-style-type: none"> <li>Secured <b>International Rank 64</b> in National Science Olympiad.</li> </ul>			(2017)

### RELEVANT COURSEWORK AND SKILLS

- Probability and Statistics
- Data Structures and Algorithms
- Game Theory
- Operations Management
- Deep Learning Specialisation
- Fundamentals of Operations Research

**Programming Languages:** C, C++, Python, SQL, Java, ExtJS, ReactJS      **Software Packages:** Microsoft Office Suite, Git

### WORK EXPERIENCE

<b>Associate Consultant</b> <b>Finmechanics</b> <i>(Jul '23 - Present)</i>	<b>FX Options Trading Platform</b> <ul style="list-style-type: none"> <li>Contributed to an <b>FX Options Trading Platform</b> enabling CCIL<sup>1</sup> to act as an exchange for India's OTC<sup>2</sup> interbank trades.</li> <li>Made a volatility-based <b>Exchange-Like Options Matching Algorithm</b> tailored for <b>ultra low-latency (&lt; 5ms)</b> matching.</li> <li>Used <b>LMAX Disruptor</b> and <b>Adaptive Radix Trees</b> to efficiently handle heavy traffic (Avg. Notional <b>\$300M/day</b>).</li> <li>Integrated <b>Kafka listeners</b> with <b>Hazelcast</b> for multi-trader quote updates, enabling CCIL to become a <b>market maker</b>.</li> <li>Configured secure <b>Apache/Nginx</b> web servers using <b>certificate-based</b> authentication to enable server security.</li> <li>Designed a <b>one-to-many RFQ<sup>3</sup> algorithm</b> enabling simultaneous, <b>multi-dimensional</b> negotiations for options deals.</li> </ul>
	<b>Collateral Management Platform</b> <ul style="list-style-type: none"> <li>Collaborated with CCIL to enhance FmConverge—a <b>Treasury and Risk Management Platform</b> for banks.</li> <li>Designed and built the <b>Custodian Module</b> using <b>ExtJS</b> and <b>Java</b> to facilitate <b>Collateral Management</b> for over <b>50 banks</b>.</li> <li>Implemented the <b>Collateral Request</b> algorithm to efficiently calculate daily margins for over <b>1M Trades/day</b>.</li> <li>Engineered a <b>Collateral Allocation</b> algorithm for fair, equitable margin distribution to <b>~200 counterparties per bank</b>.</li> <li>Streamlined Collateral Management by implementing <b>Interest &amp; Bond Coupon Payment Systems</b>.</li> <li>Introduced <b>Maker-Checker</b> and <b>4-Eye checks</b> across multiple modules to enhance <b>validation and control</b>.</li> </ul>
<b>Intern</b> <b>Finmechanics</b> <i>(May '22 - Jul '22)</i>	<ul style="list-style-type: none"> <li>Developed <b>Excel/VBA-based</b> validation sheets for SIMM<sup>4</sup> initial margin (IM) calculations.</li> <li>Secured <b>ISDA<sup>5</sup> Certification</b> for the company by <b>fixing errors</b> in the system's SIMM IM calculation code.</li> <li><b>Eliminated hardcoding</b> by implementing dynamic handling of static data (risk factors, correlations).</li> </ul>

### PROJECTS

<b>Inventory Management</b> <i>(Jun '21 - Present)</i>	<ul style="list-style-type: none"> <li><b>Working in a team</b> of seven members on an <b>ML-based</b> Inventory Management project at <b>Analytics Club, CFI<sup>6</sup></b>.</li> <li>Implemented a <b>Q-learning</b> RL algorithm that optimises Inventory Management in a linear supply chain.</li> </ul>
<b>AR Sudoku</b> <i>(Sep '20 - Nov '20)</i>	<ul style="list-style-type: none"> <li>Created a WebApp that utilises OpenCV and Tensorflow to <b>solve Sudoku puzzles</b> from a <b>Webcam feed</b>.</li> <li><b>Generated training data</b> of digits using popular <b>computer fonts</b> to train a <b>NN model</b> for digit recognition.</li> <li>Implemented a <b>backtracking algorithm</b> for obtaining the solution which is then overlaid onto the input feed.</li> </ul>

### MISCELLANEOUS

<b>Cultural</b>	<ul style="list-style-type: none"> <li>Obtained a Junior Diploma in Art recognised by the West Bengal State Academy of Dance, Music and Fine Arts.</li> </ul>		
<b>Hobbies</b>	<ul style="list-style-type: none"> <li>Avid Guitar &amp; Piano player</li> </ul>	<ul style="list-style-type: none"> <li>Reading fiction and fantasy books</li> </ul>	<ul style="list-style-type: none"> <li>Playing non-competitive video games</li> </ul>

1. Clearing Corporation of India Limited

2. Over-the-Counter

3. Request for Quote

4. Standard Initial Margin Model

5. Intl. Swaps and Derivatives Association

6. Centre for Innovation