Tushar Aggarwal

9540389110 aggtushar123@gmail.com linkedin.com/in/aggtushar123 github.com/aggtushar123

Education

Indian Institute of Technology **Aug. 2024 – May 2025**

Minor in Artificial Intelligence *Ropar, India*

Courses: *Python Programming with Prompting, Mathematics for Machine Learning, Supervised Learning, Semi-Supervised Learning, Reinforcement Learning, Neural Network, Deep Learning, Large Language Models, Natural Language Processing, Computer Vision*

Delhi Technological University **Aug. 2018 – May 2022**

Bachelor of Technology - Mechanical with specialization in Automotive; GPA: 8.08/10 *Delhi, India*

Courses: *Programming Fundamentals, Data Structures, Operating Systems, Computer Networking, Competitive Programming*

Scholastic Achievement*: Department Rank 1 in 5th Semester in a batch of 65 students.*

Experience

Chegg Inc | *Software Development Engineer & Subject Matter Expert* **Jan 2022 – May 2024**

Gained exposure by working in a global organization to build end-to-end products with Business Intelligence to create software solutions. Instructed a diverse group of high school and graduate students from around the world.

Product Developent

- Engineered and optimised **10+** software solutions, reducing system errors by **40%**, improving user experience, contributing to revenue growth.
- Led cross-functional collaboration across six teams, producing technical documentation and scalable APIs, enhancing development efficiency and product quality.
- Integrated a feedback mechanism in Chegg's grading system, increasing efficiency by **45%** & boosting user satisfaction.
- Developed SME dashboard, streamlining performance evaluations, improving managerial feedback processes by **30%**.
- Built a Resume Builder for mentees, increasing resume shortlisting rates by over **30%**.
- Refactored React code to prevent multiple re-renders, optimized state management, & reduced first paint time by **40%**
- Identified and resolved software bugs, reducing post-launch issues by **60%** and improving UI performance by **15%**.
- Tech Stack Used: ReactJS, NodeJS, NextJS, PostgreSQL

Technical Tutoring

- Taught and mentored over 4000 learners in Data Structures, Algorithms, and Fullstack Development. Engaged with learners on a one-to-one basis from across the globe, providing timely and accurate solutions to their doubts.
- Effectively addressed technical questions and reviewed checkpoint submissions, ensuring the quality of learning material.

Achievements

- **Spot Award**: Recognized for significant contributions to key projects like the Content QC System and Topic Tagging. Demonstrated swift adaptation to new processes and technologies, while delivering high-quality work on time.
- **Budding Rookie Award**: Awarded for early promise and excellence as a new team member, for the period of Q2-2023, showcasing proactive learning, seeking guidance from senior engineers, and collaborating effectively with cross-functional teams to ensure project success.

Coding Minutes | *Fullstack Developer Intern* **May 2021 – Dec 2021**

Integrated microservice while working cross-team to ensure proper migration of all the notifications.

- Built authentication microservice and integrated it with the frontend for Google and GitHub OAuth for the Online IDE
- Designed and implemented a code file management microservice with an integrated frontend UI.
- Collaborated with team members using version control systems such as Git to organize modifications and assign tasks.
- Tech Stack Used: ReactJS, Django, PostgreSQL, Microservices

Delhi Technological University | *Research Intern* **May 2021 – Aug 2021**

Reviewed machine learning models to predict accident frequency and severity for improved safety insights.

- Evaluated the efficacy of various computer intelligence strategies, including K-Nearest Neighbors (KNN) and Random Forest, in predicting the frequency and severity of accidents, analyzing patterns and trends in accident occurrences.
- Employed Support Vector Machine (SVM) and Decision Trees to examine key performance parameters, assessing the prevalence of accidents and understanding their underlying causes and characteristics.
- Leveraged advanced analytical techniques in machine learning to enhance predictive capabilities, contributing to the development of safer environments and improved safety measures.

Projects & Publications

Language Translation Model & Symmetric Cryptography System | *TensorFlow* **Github**

- Developed a transformers-based model for English-Spanish translation, achieving a high BLEU score of 75.36.
- Implemented advanced model architecture, optimizing performance for accurate text translations.
- Currently developing a symmetric cryptography system using transformers for secure, end-to-end communication, resistant to third-party interference.

Paytm Wallet | *Next.js, ExpressJS, Turborepo, Postgres, Prisma, Recoil, NextAuth Tailwind* **Live** | **Github**

- Developed a wallet app allowing users to securely withdraw money from bank accounts and transfer it to contacts.
- Integrated secure payment workflows, including token generation for payments and webhook-based balance updates.
- Built and deployed CI/CD pipelines, automating testing & deployment in Dockerized environments to an EC2 server.

SendAlong | *ReactJS, ExpressJS, MongoDB, Redux, Socket.io Tailwind, JWT* **Live** | **Github**

- Developed a web app for listing and managing luggage and travel details, including real-time messaging between users.
- Implemented secure email signup with OTP verification, along with Google OAuth and Facebook OAuth.
- Integrated booking functionality with notifications for accepting or rejecting luggage bookings.

Titanic Survival Prediction | *Python, Numpy, Pandas, Matplotlib, Seaborn* **Github**

- Developed a machine-learning model for predicting passenger survival in the Titanic shipwreck.
- Conducted comprehensive data analysis and visualization, uncovering patterns and trends in the Titanic dataset.
- Implemented object-oriented programming practices such as inheritance to create different account types and databases.

T. Aggarwal et al. "Energy Storage System with Artificial Neural Networks using PI Hybrid Controllers," IEEE PECCON 22

- Proposed a unique method of error reduction by using an ANN and pi controller together for noise fluctuations.

Technical Skills

Languages: Python, Java, C, HTML/CSS, JavaScript, TypeScript, SQL
Frameworks/Tools: NodeJS, ExpressJS, Next.js, ReactJS, Prisma, Django, Numpy, Pandas, Matplotlib, Tensorflow, Keras, Scikit Learn, GraphQL, Redis
DevOps: Git, Docker, CI/CD, WebSockets, AWS
Databases: PostgreSQL, MongoDB

Honors and Awards

Shell Eco Marathon Global Winner, Pitch the Future 2021
Shell Eco Marathon Best Vehicle Design - Asia 2020, Malaysia
Digital Citizenship and Cyber Wellness Olympiad Awardee, under the two top categories.
Microsoft Office PowerPoint 2013 specialist 4th position all over India in COMPUDON season VIII
Selected among the top 20 projects to represent India at **Intel ISEF 2017**, showcasing excellence and innovation on an international platform.

Additional Certification

Machine Learning Specialization (Stanford University and DeepLearning.AI)
Machine Learning Essentials - Master core ML concepts (Coding Minutes)
Competitive Programmer's Core Skills (Saint Petersburg State University)
Crash Course on Python (Google)

Leadership / Extracurricular

Those In Need | *Volunteer (Intermediate Badge)* **May 2020 – present**

- Led the development of a user-friendly chatbot-integrated web app, facilitating pandemic fundraising.
- Dedicated to fostering educational development through learning workshops for children, organizing impactful social welfare programs for community engagement, and advocating for workplace inclusivity by educating peers about gender diversity.

Team DTU Supermileage | *Student Advisor and Head (Electronics Department)* **Aug 2018 – May 2022**

- Spearheaded a team of 50+ members to design an in-wheel suspension by significantly reducing weight by 12%, improving the mileage.
- Developed a "Driver's Drowsiness Detector" (ADAS Feature) program utilizing OpenCV and dlib library modules