

UTKARSH GOEL

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ACADEMIC QUALIFICATION

Master of Science, Computer Science, New York University – Courant Institute of Mathematical Sciences, **GPA: 3.5/4.0**, Sep 2025 – May 2027

Coursework: Honors Analysis of Algorithms (PhD), Quantum Computation (PhD), Machine Learning.

Bachelor of Technology, Computer and Communication Engineering, Manipal Institute of Technology, Manipal, India, **CGPA: 8.18/10**, July 2019-2023

PROFESSIONAL EXPERIENCE

Software Development Engineer - 1, Amazon, Amazon Smart Vehicles - Q, Bangalore, India Jan 2024- Jul 2025

- Migrating System Architecture:** Contributed to the transition from an FSM-based to an LLM-based framework, enhancing adaptability and user interaction intelligence using Java and Spring Framework.
- Developed Microservices:** Designed and implemented scalable microservices for data registries, user management, and IoT directives, ensuring efficient integration of Alexa with automotive systems.
- Integrating Domains:** Merging Alexa Home and Automotive domains by migrating services and developing a new service for vehicle zone queries and language translations, improving safety and personalization.
- Enhanced Automation:** Engineered automation improvements and optimized testing setups, ensuring reliable integrations for clients like Audi, Stellantis, and Mahindra.
- Managed Client Accounts:** Independently managed Mahindra and Audi accounts, earning commendations from both clients.
- Boosted Operational Excellence:** Maintained best coding practices and performed root cause analyses to implement exponential backoff throttling mechanisms and an OAuth 2.0-based authentication framework, enhancing system performance and security.

Product Analyst, timelyAI, Data Engineering Team, Bangalore, India Sep- Dec 2023

- Built Analytics Stack:** Solely developed an analytics stack using Python data pipelines and a Node.js backend for a sales and user engagement app, leading to a 50% month-over-month increase in Daily Active Users.
- Implemented QA Automation:** Automated quality assurance processes with Python and Selenium, ensuring high-quality websites for small and medium-sized businesses (SMBs) clients and reducing manual testing time by 30%.
- Enhanced App Engagement:** Implemented targeted user engagement features based on data insights, resulting in a 20% revenue growth for SMB clients through increased customer interactions and sales.
- Developed Real-Time Dashboards:** Created SQL-based real-time dashboards using Tableau and PostgreSQL, to support data-driven product decisions, specifically, creation of automated marketing campaigns and referral programs.

Data Scientist Intern, timelyAI, Data Engineering Team, Bangalore, India Jul- Sep 2023

- Developed Data Pipelines:** Developed Real-Time Dashboards: Designed and deployed scalable data pipelines using Python, Apache Airflow for workflow orchestration, Pandas for data manipulation, and AWS S3 for data storage, enhancing data flow efficiency and increasing predictive accuracy for image classification and lead conversion prediction models by 20%.
- Engineered Machine Learning Models:** Developed ML proofs of concept utilizing logistic regression, decision trees, and random forests with scikit-learn to classify effective leads, resulting in a 25% improvement in lead generation accuracy.
- Statistical Analysis:** Performed comprehensive statistical analyses Python (NumPy, SciPy) and conducted UX research based on app event usage and statistics, providing actionable insights that guided product strategies and drove revenue growth.

Data Scientist Intern, EliteFit.AI, Data Science Team, Singapore Aug 2022- Jun 2023

- Developed Frame Detection & Coordinate Transformation Algorithms:** Utilized optical flow algorithms to create frame detection methods that identify pixel movements at frame edges, effectively detecting camera changes. Implemented affine and homography transformation matrices based on "correct" and "incorrect" poses to normalize video inputs and mitigate data variability, achieving an F1 score of 0.98.
- Designed Generative Feedback Systems:** Developed prescriptive and generative feedback mechanisms leveraging Large Language Models (LLMs) and open-source databases, providing personalized coaching and actionable fitness recommendations to optimize user training.

- **Improved Similarity Algorithms:** Researched and implemented similarity algorithms using cosine similarity and cross-correlation (CCR) metrics, improving pose estimation accuracy through comparison of user and trainer coordinates.

Software Development Intern, Deloitte USI, Tax Technology, Bangalore, India

May- Jul 2022

- **Developed Web Applications:** Collaborated on a team project to develop a web-based application using C#, ASP.NET Core, enhancing tax enabling capabilities for finance systems for clients like Nike.
- **Developed Data Pipelines & ETL Processes:** Utilized SQL Server Integration Services (SSIS) to create robust ETL pipelines, transforming and migrating client data efficiently to support analytics and reporting needs.
- **Data Analytics with Power BI:** Conducted data summarization and analytics using Power BI, providing actionable insights from client data to support finance and operational processes.

Summer Intern, Vedanta Limited, Cairn Oil & Gas, Bangalore, India

Apr- Jun 2021

- **Enhanced Security through Video & Data Analytics:** Led video analytics and vehicle tracking projects, collaborating with engineers to refine data models and design real-time dashboard wireframes for security operations and system health monitoring, enabling Oil and Gas security teams to perform real-time data analysis and streamline security workflows.

Technical Skills

- **Languages:** C++, C, Python, Java, SQL, JavaScript (Node.js), Bash.
- **Deep Learning & GenAI:** PyTorch (Custom Architectures), Transformers, Large Language Models (LLMs), Chain-of-Thought (CoT) Reasoning, Self-Attention Mechanisms, Backpropagation, Scikit-learn, Pandas.
- **Efficient AI & Hardware:** Model Compression, Quantization (Int8/Mixed-Precision), Pruning (Structured/Unstructured), Knowledge Distillation, KV Cache Optimization, Systolic Arrays, Edge AI Deployment.
- **Systems & Cloud:** Distributed Systems, Microservices, AWS (EC2, S3, Lambda), Docker, Apache Airflow, Linux/Unix Kernels, Spring Boot.