

# Aryamann Tomar

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## EDUCATION

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### IIT GANDHINAGAR

*Bachelor of Technology in Electrical Engineering*

July 2019 - Dec 2022

CGPA :- 8.08/10

### JCB Sr. Sec. School, Shimla

*Class XII (CBSE)*

July 2018 - July 2019

91.6%

### St. Edwards School, Shimla

*Class X (CBSE)*

July 2016 - July 2017

CGPA :- 10

## SKILLS

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**Languages:** C/C++, Python, JavaScript, TypeScript, SQL, MATLAB

**Technologies:** Flask, Django, NodeJs, ReactJs, MySQL, MongoDB, Git, Docker, AWS, Apache Pinot, Apache Datasketches, PyTorch, TensorFlow

## EXPERIENCE

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### Goods and Services Tax Network, GSTN

*Software Engineer*

Delhi, India

July 2023 – Present, Full-time

- Devised an algorithm which leverages vectorization to utilise parallel computing and multithreading in CPU to make the calculations extremely faster for saving 1.5 crore GSTN network saving redundancy from 4 days to just less than 2 hours, also developed a Front-end Application using Django and VisJs.
- Developed an ML-based system for detecting fraudulent GSTIN cancellation applications using financial, demographic, and network data. Employed ensemble learning and anomaly detection algorithms, with optimized feature selection and cross-validation, resulting in robust fraud detection for GSTN operations.
- Engineered an NLP pipeline to identify the top 5 most relevant matches to a text within an huge dataset of approximately 200 million data entries. Utilized various text-to-vector conversion libraries and techniques, including Flair, Tf-Idf, FastText, and Word2Vec, as well as pretrained embeddings. These embeddings were then efficiently clustered using the Annoy library for rapid retrieval through indexing.

### National Informatics Centre, NIC

*Full Stack Software Intern*

Shimla, India

June 2023 – July 2023, Internship

- Analyzed and understood the existing menu system developed using .NET
- Enhanced the menu management system by integrating dynamic menu icons and options, improving user interface flexibility and functionality.
- Contributed to the overall improvement of the user experience by ensuring seamless integration of new features with the existing system.

### IIIT Hyderabad

*Precog Lab, Research Associate*

Hyderabad, India

Jan 2023 – June 2023, Full-time

- Engaged in collaborative research within the Machine Learning Research Group about different ML subareas like - LegalAi, NLP, Computer Vision etc. under the supervision of [Prof. Ponnurangam Kumaraguru](#).
- Analysed the support given/ recieved by people in an online reddit community during COVID19 pandemic. Methods Used: Survival Analysis using Cox Regression, BERT Topic Modelling, HDBSCAN, Reddit Data Extraction using Pushshift and PRAW API.
- Industry collaboration - [Ensologic Pvt. Ltd.] - Created an Image Processing Pipeline to preprocess text within images. This pipeline integrates with Hugging Face's Stable Diffusion model, enabling the removal of blurs and enhancement of text clarity.

## SJVNL

Computer Network Intern

Shimla, India

Dec 2022 – Jan 2023, Internship

- Gained an in-depth knowledge of the organization's network architecture, including its design, implementation, and security protocols.
- Acquired hands-on experience and a thorough understanding of various networking devices, including routers, switches, and firewalls.
- Created an in-depth report detailing the entire computer network architecture of the organization, providing valuable insights and recommendations for improvements

## Semusi Technologies

Software Intern

Remote

June 2022 – Aug 2022, Internship

- Implemented Apache Data Sketches on PostgreSQL from scratch to accelerate the processing time for analysing Large Datasets
- Built an API to analyse user data from different platforms using NodeJs, Typescript and PostgreSQL, also analysed large datasets in PostgreSQL by executing Cohort Analysis
- Utilized Apache Spark's MLlib for a banking dataset to churn customers, employed Gaussian Mixture Models (GMM) and KMeans algorithm and LLM embeddings like Google's BERT within PostgreSQL

## National Hydroelectric Power Corporation, NHPC

Industrial Intern

Chamba, India

Dec 2020 – Jan 2021, Internship

- Analyzed the entire hydropower generation process from reservoirs to power grids for 300MW (100X3), 540MW (180X3), and 231MW (77X3) plants.
- Gained hands-on experience with the operation and maintenance of large-scale hydropower units.

## AWARDS & ACHIEVEMENTS

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**Early Graduation:** Completed B.Tech Degree in 3.5 Years instead of 4 Years in order to get an early research experience (Dec 2022)

**Dean's List Award - Semester IV,VI:** Achieved academic excellence for academic terms 2021-22 and 2022-23, for which I was honoured with a personalized letter of appreciation from the Dean of Academic Affairs - IITGN. (Apr 2021, Apr 2022)

**Chief Minister's Scholarship Award:** Received a Cash Prize of 75k which is awarded to meritorious students of Himachal Pradesh who are selected in IIT's, IIM's, IISc, AIIMS to encourage students to prepare for their entrance exams, and thereby promote the culture of competitive exam preparation in the state. (July 2019)

## PUBLICATIONS

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- Hitkul Jangid, ..., Aryamann Tomar, ..., Ponnuram Kumaraguru, **"Together Apart: Decoding Support Dynamics in Online COVID-19 Communities"**, Accepted at Proceedings of the International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2023) | [Paper](#)

## PROJECTS

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### Parametrized Posit Adder and Multiplier | [GitHub](#)

- Created a Posit to decimal and vice-versa converter using python. Constructed parameterized adder and multiplier using Verilog. POSIT number system is a new way of representing a real number for computers. The posit representation offers more precision and a more extensive dynamic range than floats with the same number of bits e.g. a 32-bit posit can represent a 64-bit float number, it can fit twice as many numbers in the memory. (it's faster and more accurate than the floating-point system)

## CERTIFICATIONS

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### AWS Certified Solutions Architect – Associate | [Amazon Web Services](#)

- Demonstrated expertise in designing secure, scalable, and resilient distributed systems on AWS, with experience using core services like EC2, S3, VPC, and RDS to build cost-effective cloud solutions.