**Education**

**Masters of Computer Science Sept 2022 – June 2024 (Expected)**

University of California, San Diego (UCSD) CGPA: 3.97/ 4

*Relevant Courses*: Advanced Computer Vision, Deep Generative Modelling, Advanced Data-Driven Text Mining (NLP), Computer Vision, Deep Learning, Scalable Data/ML Systems, Recommender Systems, AI: Probabilistic Reasoning and Decision-Making, Design and Analysis of Algorithms

**Bachelor Of Engineering (Computer Engineering) August 2018 – July 2022**

Vivekanand Education Society’s Institute of Technology (VESIT) CGPA: 9.013/ 10

*Relevant Courses*: Machine Learning, Big Data Analytics (Hadoop), Artificial Intelligence and Soft Computing, Software Development, Data Warehouse and Mining, Natural Language Processing, Distributed Systems and Computing, Data Structures, Object Oriented Programming, Analysis of Algorithms, Database Management System, Computer Networks, Cryptography/System Security, Web Development, Operating Systems, OOPM (Java) Lab, Cloud Computing Lab

**Internship Experience**

*Machine Learning & Cyber Security Intern,* **Legendary Entertainment**  **June 2023 – Dec 2023**

* Reduced false positive anomaly detection time by 10x by Streamlining employee online activity monitoring by integrating Splunk Dashboard and Azure MSGraphs APIs via Python Scripting.
* Contributed to integrating a FIDO Alliance product into the SSO workflow, enhancing security and user experience.
* Assisted the lead SOC analyst in foundational work for the Shared Learning Intelligence Platform (SLIP) to improve anomaly detection in security cloud brokers in collaboration with Sky High Security.

**Full Stack Developer, Stealth Startup DON’T USE ANYMORE**  **Feb 2023 – Present**

* Integrating Python-based DL architecture to a user-friendly Web Application utilizing AWS and React JS.
* Secured $100K in funding in AWS credits from Adobe.

*Full Stack Development Intern,* **Makos Infotech**  **June 2021 – July 2021**

* Developed Server-side backend rendering for their main website’s UI utilizing JQuery, PHP, and MySQL, which targets automating the On-campus placement process for various colleges.
* Managed existing and created relational databases using MySQL Workbench and deployed them on AWS.
* Worked on the website's front-end design using the prototyping tool Figma, followed by Bootstrap.
* Co-pitched the online job placement portal, Jobaskit, to 3 University professors alongside the founder.
* Mentored 2 intern recruits working on the digitalization of the teaching process.

**Web Developer Intern, VESIT Renaissance Cell** **June 2020 – July 2020**

* Led and managed a team of 6 during the entire duration of the internship.
* Worked on designing and implementing a Django-based [Paper Publication Easy-to-use Website](https://cmpn-publications-official.herokuapp.com/) for my college, wherein teachers can easily add their newly published work for the students to see.
* Developed a [Portfolio Website](https://anjaliyeole-15e4c.web.app/) for our mentor.

*Data Analyst Intern,* **Leadingindia.ai May 2020 – June 2020**

* Worked in a team of four to build a Vaccine Prediction model on the H1N1 and seasonal flu vaccines to accurately predict the trends of the public acceptance rate (41%) of the Covid-19 vaccine.
* [Research Paper](https://doi.org/10.1007/978-981-16-0401-0_11) was published in Springer & I wrote a [Blog](https://medium.com/@jjhaveri1906/pandemics-a-harsh-reality-7c05254e907b) showcasing the correlation between the two pandemics.
* Secured first position for the mentioned research project amongst 85 peers intercollege.

**App Developer, Dalvik Apps Dec 2019 – Jan 2020**

* Designed and developed a Car Coin Collection game using C Sharp (C#) and created a UI-friendly library management system.
* Built an Android app using Android-Java as a substitute for default calling & messaging apps

**Data Analyst Intern, Núclei Technologies Dec 2018 – Jan 2019**

* Applied several supervised ML algorithms such as Linear regression & random forest in R & Python to predict sales of products at specific BigMart store locations based on previous sales data.

**Projects**

**[Alt Bot for Mastadon: An automatic image alt generation bot](https://docs.google.com/presentation/d/1smZzOd8u-NhgbotJRkn2Eqw5WmXVxA-XSB0afzxaNWE/edit?usp=sharing) Sep 2023 – Jan 2024**

* Developed a Chrome extension to help the visually impaired browse decentralized social media by leveraging hugging face image captioning models to generate alternative descriptions for images in posts.
* Deployed 3 levels of custom cache system to ensure peak and efficient performance with no lag.
* Collaborated in a 10-member team, envisioning the potential to significantly simplify the search for specific media.

[**Inquirable Models: Increasing Explainability in ML using LLM**](https://docs.google.com/presentation/d/1naydNzz6F8W51bA40Phez4-Pj2b-vJRJmUHkOp5rO1M/edit?usp=sharing) **Sep 2023 – Jan 2024**

* Explored the possibility of making traditional medical risk models more easily interpretable using Large Language models with the help of SHAP values, ultimately reducing the patient’s risk.
* Conducted exploratory research with the help of prompt engineering on popular LLMs in a 2 stage manner.
* Hosted surveys for Doctors and Patients to evaluate the answers generated on metrics such as Confabulation rate.

[**MedLM: Exploring Language Models for Medical QnA Systems**](https://arxiv.org/abs/2401.11389) **March 2023 – Aug 2023**

* Led team of 4 in fine-tuning diverse language models (e.g., bloom, t5, gpt2) on the MedQuad dataset, comparing them with larger models (gpt3.5, gpt4) using direct questions and dynamic prompt engineering.
* Collaborated with Microsoft researcher Dr. Asma Ben Abacha, creator of MedQuad dataset, for expert guidance.
* Implemented ROUGE, BLEU metrics and conducted human surveys for doctors and patients to evaluate the model.

**[GrooveGenie: A copyright-free music generator](https://github.com/JayJhaveri1906/GrooveGenie-A-copyright-free-music-generator) March 2023 – June 2023**

* Created an open source music generation model, utilizing Facebook’s EnCodec Transformer model to compress audio wav files to an embedding that can be understood by the model.
* Trained a conditioned GAN network that generates music based on user-provided genre inputs embedded using the BERT model, with a goal of creating only copyright and royalty-free music, being trained on the FMA dataset.
* Tested out different, more efficient Diffusion/Transformer architecture to generate audio.

[**Self-Driving Car**](https://github.com/JayJhaveri1906/QLearning-F1-Car-Autonomous-Driving) **Feb 2023 – March 2023**

* Built a self-driving car using QLearning and Deep Q-Network on the PyGame GUI.

[**Semantic Segmentation using Transfer-Learning and U-Net**](https://github.com/AGhafaryy/Deep-Learning-Pattern-Recognition-/tree/main/PA3/PA3) **Jan 2023 – Feb 2023**

* Implemented pixel-level segmentation using a pretrained Resnet18 and U-Net architecture including a weighted loss on the PASCAL VOC-2007 dataset. Evaluated using pixel accuracy and intersection over union (IoU) metrics.
* Achieved a pixel accuracy of 74.4% and an IoU of 15% by utilizing transfer learning with a modified ResNet18 model.

[**Game Genre and Recommendation Classification using Steam Reviews**](https://github.com/JayJhaveri1906/Game-Genre-and-Recommendation-Prediction) **Nov 2022 – Dec 2022**

* Designed data pipelines to preprocess and apply machine learning techniques to classify the game’s genre, user’s sentiment and finally curated a personalized game recommendation system using user reviews.
* Out of N-gram, Multinomial NB, and Linear SVC, RF with Balanced data & TF-IDF gave the highest accuracy of 90.53%.

[**VisionNumpy: Computer Vision Applications**](https://github.com/JayJhaveri1906/Computer-Vision---1) **Sept 2022 – Dec 2022**

* Implemented edge detection and Shi-Tomasi corner detection from scratch with NMS and Hysteresis thresholding.
* Bettered SIFT feature matching using the fundamental matrix, homogeneous geometry combined with RANSAC.
* Performed partially and completely bounded camera rectification with epipolar geometry used in 3D reconstruction.
* Implemented SLP, MLP, and CNN using Pytorch to perform classification on the MNIST dataset.
* Designed an image captioning deep learning algorithm using a CNN-LSTM architecture using the COCO dataset.
* Re-Implemented U-Net to perform semantic segmentation and compared it with transfer learning on ResNet16.

[**Aatmanirbhar Sanchar: Secure Self-Sufficient Communications**](https://github.com/JayJhaveri1906/Aatmanirbhar-Sanchar) **June 2021 – May 2022**

* Led a team of 4 to design and develop an off-the-grid, cross-platform secure multimedia-supported chat application.
* Followed a CI/CD approach to build a client-server architecture with the server based on python and React JS.
* Made in collaboration with the Tata Institute of Fundamental Research (*TIFR*) to be used within the organization.
* Implemented SHA-256 and AES-256 overlapped inside an HMAC envelope to fight off any kind of cyber attacks.

[**Aatmanirbhar Samakraman: Auto File Synchronization Android Application**](https://github.com/JayJhaveri1906/Auto-File-Sync-App) **June 2021 – May 2022**

* Led a team of 4 to develop an android application that monitors a selected directory and uses multi-part upload methodologies to encrypt and securely upload to the dedicated remote server.
* Uses a client-server architecture with the server based on python and Node JS backend.
* Worked on 1 of 3 in collaboration with the Tata Institute of Fundamental Research (*TIFR*).
* Utilized Google Maps and Sheets API to build a Bootstrap based website for live tracking feature of the uploader.

[**Divya-Drishti: An Independent Aid for the Visually Impaired**](https://github.com/JayJhaveri1906/Divya-Drishti) **Aug 2020 – May 2021**

* Created a Voice-activated standalone AIOT android application using Raspberry Pi4 to help Visually Impaired People (VIPs) accurately and efficiently detect Indian Currency notes, colors, and everyday objects.
* Funded by the Mumbai University Minor Research Grant Program.
* Received feedback, on the android-Java app developed, by National Association for the Blind (NAB)’s members.
* Achieved a *400%* net cost reduction compared to products made by OrCam.
* Achieved a *400%* net cost reduction by creating a Voice-activated AI-IoT android application to help Visually Impaired People (VIPs) comparable to state-of-the-art OrCam in detecting currency, objects and scenes.
* Received vital feedback on the Android-Java app from National Association for the Blind (NAB)’s members.
* Published a [research paper](https://dx.doi.org/10.2139/ssrn.3867707) highlighting the needs of VIPs funded by the Mumbai University Minor Research Grant.

**[Code for Change Hackathon: A Data Extraction project](https://github.com/JayJhaveri1906/Saath-Baara-Utara-OCR-The-7-12-OCR) Nov 2020 – 24 Hours**

* Developed Django based data extracting software for Global Parli Foundation NGO to automate the translation of Land ownership papers’ pdf originally in Devanagari Script into an editable Excel sheet using Google Cloud OCR.
* Secured First position for the web application amongst the 72 teams participating.

[**“Mental Health Messiah” Twitter Bot**](https://github.com/JayJhaveri1906/Mental-Health-Messiah) **June 2020 – Aug 2020**

Leveraged sentiment analysis to build a bot to help people suffering from mental health issues related to COVID-19. *Tech Used:* *IBM-Cloud API, Twitter API, Python, React JS, Angular JS*

[**Automated Number Plate Recognition and Parking System**](https://github.com/JayJhaveri1906/AutomaticParkingSystemANPR) **Dec 2019 – Feb 2020**

Built android application connected to a Firebase server, to automate security and space availability in car parking systems by monitoring the number plates detected at the exits, utilizing already installed CCTVs at the entry and exit gates of parking lots. *Tech Used:* *Tesseract OCR, Firebase, Android-Java, Python*

[**International Flutter Hackathon: Healthy While Distant**](https://github.com/JayJhaveri1906/Healthy-While-Distant) **June 2020 – 48 Hours**

Devised a user-friendly Flutter app that leveraged smartphones' existing Bluetooth Low Energy (BLE) technology to help users maintain social distancing during the COVID-19 pandemic. The app alerts the user if they come within six feet of another smartphone and includes an additional feature of teaching yoga moves to stay fit while quarantining. *Tech Used:* *Flutter, Dart, BLE. Achievement: Secured top 150 positions amongst all the teams participating worldwide.*

**Selected Research Publications**

**Jhaveri, J.**, Gupta, A., Chhabria, P., Ochani, N. and Sengupta, S., Dugad, S., (In Press). **Aatmanirbhar Sanchar: Self-Sufficient Communications**. International Conference on Intelligent Cyber Physical Systems and Internet of Things. ICoICI 2022. Engineering Cyber-Physical Systems and Critical Infrastructures, ECPSCI vol 3. Springer (<https://doi.org/10.1007/978-3-031-18497-0_41>)

**Jhaveri, J.**, Gupta, A., Chhabria, P., Ochani, N. and Sengupta, S., 2021. **Divya-Drishti: An Independent Aid for the Visually Impaired**. *SSRN Electronic Journal*. (<https://dx.doi.org/10.2139/ssrn.3867707>)

Inampudi S., **Jhaveri J.** et al., (2021) **Machine Learning Based Prediction of H1N1 and Seasonal Flu Vaccination**. In: Garg D., Wong K., Sarangapani J., Gupta S.K. (eds) Advanced Computing. IACC 2020. Communications in Computer and Information Science, vol 1367. Springer, Singapore. (<https://doi.org/10.1007/978-981-16-0401-0_11>)

**Jhaveri, J.**, Gupta, A., Chhabria, P., Ochani, N. and Sengupta, S., 2021. **Divya-Drishti: An Independent Aid for the Visually Impaired**. *SSRN Electronic Journal*. [DOI.org Link](https://dx.doi.org/10.2139/ssrn.3867707)

Inampudi S., **Jhaveri J.** et al., (2021) **Machine Learning Based Prediction of H1N1 and Seasonal Flu Vaccination**. Advanced Computing. IACC 2020. Communications in CIS, vol 1367. Springer, Singapore. [DOI.org Link](https://doi.org/10.1007/978-981-16-0401-0_11)

**Additional Information**

* **Leadership & Achievements:**
* **VESIT Renaissance Cell (2020):** Led a team of 6 peers working on the design & implementation of a Django-based [Paper Publication Easy-to-use Website](https://cmpn-publications-official.herokuapp.com/) to facilitate sharing the faculty’s research work with students.
* Secured 1st place in Code for Change Hackathon held amongst 72 participants across the university.
* **Technical Skills:** Python, PyTorch, TensorFlow, OpenCV2, SQL, Java, Javascript, C, Splunk, SPL, AWS, Google Cloud, Azure, Firebase, HTML/CSS, Android-Java, React JS, Django, PostgreSQL, Linux, Android Studio, Flutter, Object Oriented Programming, Git, APIs, Hugging Face

TEMP:

[**Aatmanirbhar Sanchar: Secure Self-Sufficient Communications**](https://github.com/JayJhaveri1906/Aatmanirbhar-Sanchar) **June 2021 – May 2022**

In collaboration with the Tata Institute of Fundamental Research (*TIFR*), developed an off-the-grid, cross-platform, secure (SHA-256) client-server chat application without depending on third-party APIs in the light of recent data privacy issues. I guided my team to adopt a CI/CD outlook on the project, and we kept redeploying our app after integrating features and solving bugs based on the feedback we received from our mentors. *Tech Used:* *Python, Node JS, Docker.*

[**Aatmanirbhar Sanchar: Secure Self-Sufficient Communications**](https://github.com/JayJhaveri1906/Aatmanirbhar-Sanchar) **June 2021 – May 2022**

In collaboration with the Tata Institute of Fundamental Research (*TIFR*), developed an off-the-grid secure (SHA-256) chat application without using any third-party APIs in the light of recent data piracy issues. *Tech Used:* *Python, React JS.*

[**Divya-Drishti: An Independent Aid for the Visually Impaired**](https://github.com/JayJhaveri1906/Divya-Drishti) **Aug 2020 – May 2021**

Created a Voice-activated standalone AIOT application using Raspberry Pi4 to help Visually Impaired People accurately detect Indian Currency notes, colors, and everyday objects. The project was funded under the Mumbai University Minor Research Grant Program. Received feedback from the members of National Association for the Blind (NAB). Achieved a *400%* in net cost reduction compared to products made by OrCam. *Tech Used:* *TensorFlow, OpenCV2, Google Cloud, Raspberry Pi, Android-Java, Linux, Python. Achievement: Published a* [*research paper*](https://dx.doi.org/10.2139/ssrn.3867707) *highlighting the needs of VIPs.*