

# JAY GALA

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## EDUCATION

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**Dwarkadas J. Sanghvi College of Engineering  
(Mumbai University)**

B.E. in Computer Engineering

Applied Mathematics, Discrete Mathematics, Algorithms, Databases, Machine Learning, Artificial Intelligence,  
Natural Language Processing

August 2017 - July 2021

Overall GPA: 9.86/10

## EXPERIENCE

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**University of California San Diego**

Research Intern

June 2021 - Present

Advisor: Dr. Pengtao Xie

- Working on applying humans' learning skills for Neural Architecture Search using PyTorch
- Applying learning from mistakes strategy which acts as an extension to [Skilllearn](#)

**Tata Consultancy Services**

Machine Learning Project Intern

Dec 2019 - Feb 2020

- Developed NLP language models for customer analysis to prevent customer churn
- Prepared custom dataset, created surveys to handle open-ended and closed-ended questions
- Extracted feedback responses from handwritten forms using OCR

**Ucadd EdTech**

Web Developer

Dec 2018 - Aug 2019

- Built a platform using MERN stack for the organization's instructors to build courses
- Introduced data analytics to generate useful insights regarding the courses for the instructors

**Sensum Fintech**

Web Developer

Jan 2019 - Feb 2019

- Constructed visualization graphs using plotly to show the trends in the finance trading markets
- Integrated APIs for stock recommendations and improved user experience by optimizing the builds

**Unicode**

Web Developer & Student Mentor

Aug 2018 - June 2021

- Mentored a team of sophomores on projects such as Inventory Management, Masters and Placement Portals
- Conducted workshop on web and open-source development for over 100 students in the college

## PROJECTS

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**A Federated Approach to Hate Speech Detection (Ongoing)**

Advisor: Zeerak Talat

- Identify real world representations of the types of hate speech on different non-iid datasets
- Extension to the cross-dataset model generalization for hate speech by [Fortuna et al.](#)

**Ocubot - Image-based Dialog for Visually Impaired**

Advisor: Dr. Pratik Kanani

- Incorporate knowledge from perception and language to have more natural conversations
- Reduced modality biases by improving visual context with the use of dense captions and attention

**Anomaly Detection in ECG Signals (Industry Collaboration)**

Advisor: Dr. Pratik Kanani

- Developed neural models for detection of anomalies in processed ECG signals from IoT devices
- Applied distributed computing algorithms to improve speed and load balancing

### PyTorch Paper Implementations

[View](#)

- Implementations of deep learning papers using PyTorch

### Image Captioning using Attention

[View Notebook](#)

- Generated descriptive captions from an image along with attention map
- Implementation of Show, Attend and Tell paper by [Kelvin Xu et al.](#) in PyTorch

### C Programming Exam Portal

[View Demo](#)

- A paperless solution for conducting C programming exam for over 500 students at D. J. Sanghvi
- Generated detailed reports for students and instructors to enhance the overall learning experience

## RESEARCH & PUBLICATIONS

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*Publications available at [Google Scholar](#)*

### Improving Image-based Dialog by Reducing Modality Biases

Apr 2021

- 5th International Conference on Advances in Computing and Data Sciences, Springer, Accepted

### Pothole Detection and Dimension Estimation

Nov 2020

- 35th International Conference on Image and Vision Computing New Zealand, IEEE

### Combatting COVID-19 Using Object Detection techniques

Aug 2020

- Book Chapter in Cyber-Physical Systems: AI and COVID-19, Elsevier, Accepted

### IoT and ML based Smart System for Efficient Garbage Monitoring

Aug 2020

- 3rd International Conference on Smart Systems and Inventive Technology, IEEE

### Virtual Farmer

Jul 2020

- 11th International Conference On Computing, Communication And Networking Technologies, IEEE

## SKILLS

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<b>Languages</b>	Python, C, Java, JavaScript, SQL, HTML5
<b>Databases</b>	MySQL, SQLite, PostgreSQL, MongoDB
<b>Libraries and frameworks</b>	PyTorch, Keras, Scikit-learn, NumPy, Pandas, OpenCV, Gensim, SpaCy, NLTK, Flask, FastAPI, Streamlit, ReactJs, NodeJs
<b>Others</b>	Git, Jupyter, Docker, Raspberry Pi, LaTeX

## CO-CURRICULAR ACTIVITIES

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**Teaching Assistant** for an undergrad level Machine Learning Course - [UMLSC](#), Summer 2021

Part of **Shalizi-Stats reading group** led by [Swapneel Mehta](#) which focuses on the book [Advanced Data Analysis from an Elementary Point of View](#) and Bayesian Statistics taught by [Fenil Doshi](#)

Presented paper reviews as a part of [Unicode Research Group](#) and currently working on identifying the causal effects of non-expert mentors on the careers of the mentee (students) in educational institutions

## HONORS AND AWARDS

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**Winner** at ACM LOC Hackathon (2020)

**Top 3** at CodeShashtra (State-wide hackathon) (2020)