

OM CHAKANE

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Education

University of Southern California, CA, USA

Aug. 2023 - May 2025

Master of Science, Computer Science

GPA: 3.6/4.0

Relevant Coursework: *Advanced Computer Vision, Robotics, Machine Learning, Analysis of Algorithms*

Vishwakarma Institute of Technology, Pune, India

Jul. 2019 - May 2023

Bachelor of Technology, Computer Engineering

CGPA: 4.0/4.0

Relevant Coursework: *Machine Learning, Engineering Math, Data Science, Theory of Computation*

Technical Skills

Languages: Python, Java, C, HTML/CSS, SQL

Developer Tools: Github, Google Colab, Jupyter Notebook, IntelliJ, SQLite Studio, MS Office Suite

Frameworks/Libraries: OpenCV, Tensorflow, PyTorch, Pandas, Scikit-Learn, Matplotlib, LSTM, CLIP Model, ROS

Professional Experience

Big Data in Biotransport Center

Apr. 2024 - Jun. 2024

Research Assistant - Prof. Anita Penkova

Los Angeles, USA

- Research techniques to identify, verify associations and extract Cardiovascular Disease (CVD) biomarkers present in retinal vasculature from Retinal Fundus Images(RFI).
- Working on detailed analysis of RFMiD dataset - rare retinal diseases for higher accuracy predicting model built using 5-fold cross validation and Logistic Regression
- Leading the development of optimal model by modifying U-NET architecture for semantic segmentation of RFI and biomarker extraction from the same.

Centre of Excellence in HCI, VIT Pune

Jun. 2022 - Dec. 2022

Research Intern - Animal-Computer Interaction(ACI)

Pune, India

- Designed a PRISMA Workflow based on a holistically developed literature review of 56 ACI research papers
- Reviewed hitherto work in field of ACI and studied the Machine Learning methodologies deployed in each paper.
- Currently leading the publication and development of the final ACI review paper focussing on use of computer technology and its impact on animal welfare.
- Received a Travel Grant Award to present a research abstract on “*Pet animal health monitoring using wearables*” at ACM SIGCHI Workshop in Dhaka.
- Managed liaison at the virtual CHIuXiD 2022 workshop involving 40 academicians from 9 Asian countries.
- Addressed 15 other research interns on performing an effective literature review.

Projects

Wavy: Generating Image from Speech | Python, CLIP Model, HuBERT

Feb. 2024 - May. 2024

- Computed speech embeddings from speech encodings (HuBERT model) and image embeddings (pretrained ViT model).
- Created a Unified Encoding Framework for speech and image encodings to create a Speech-CLIP encoder - working on the principles of CLIP model.
- Trained the unified model over 15 epochs, in batches of 313, leading to overall loss of 10% by the end of 15th epoch.
- Evaluated the utility using another text diffusion model which generated images from text. Our speech model demonstrated higher degree of similarity to reference images (Human evaluation)

Persona Leakage in GPT | Python, Neural Networks

Feb. 2024 - May. 2024

- Developed a simple, 2-layered neural net attacker model to infer personas from GPT conversations.
- Formulated defense mechanism for persona inferring attacker model with inclusion of KL and MI Loss, reducing the attacker accuracy from 40% to mere 7.8%.
- Evaluated the utility of the model with BLEU, which was consistent with the original language model - 0.121 for original model and 0.119 for model with defense.

Leadership and Involvement

- Received the USC Volunteer Center's **Service Award** (Apr. 2024)
- **Treasurer:** Hindu Student Organisation - Managing Finance of the org. along with arrangement of 10+ events celebrating diverse Hindu festivals (Jan. 2024 - Present)
- **Volunteer:** Stray Cat Alliance - Morning shift: Cleaning 20 kennels, Feeding 60 cats in a shift (Oct. 2023 - Present)
- **Club Head:** Ekasutram - Mathematics Club of VIT Pune (Jul. 2021 - Jul. 2022)
- **Coordinator:** Rescue VITSocials - Rescued and Treated 11+ strays (Jul. 2020 - Jul. 2021)