

## EDUCATION

**Master of Science, Computer Science (Artificial Intelligence)**, University of Southern California  
**Bachelor of Technology, Computer Science and Engineering**, Walchand College of Engineering

Aug 2021-May 2023  
Aug 2015-May 2019

## EXPERIENCE

### Blackberry Corporation

Machine Learning Engineering Intern

Oct 2022 - Present  
Los Angeles

- Created Automated pipeline for training and evaluation of 2 machine learning models to detect malicious software on MacOS and Windows.
- Developed efficient, multi-threaded algorithms for processing of more than 2 Million large files.

### ICAROS Lab, USC

Volunteer Researcher

May 2022 - Dec 2022  
Los Angeles

- Designed and executed experiments to train 8 different Quality Diversity Algorithms with customized reward signals in 6 reinforcement learning environments like “Slime Volley” and “Car Racing”.
- Analysed effects of learning rates on the optimal score in 8 different RL environments.
- Co-Author “Training Diverse High-Dimensional Controllers by Scaling Covariance Matrix Adaptation MAP-Annealing”

### Textify AI

Natural Language Processing Intern

Nov 2021- Dec 2021  
Remote

- Optimized generative pre-trained (GPT-NEO) NLP model to auto-generate Natural language content for academic research proposals.
- Improved sentence acceptance rate by 14.7% by enhancing synonym suggestions.

### Dassault Systèmes Solutions Lab

Software Engineering Specialist

June 2019-Jul 2021  
Pune, India

- Increased product usage across organization by 63% by revamping the front end for the Lifecycle Management Service in the CI / CD Pipeline.
- Devised a prototype using NLP and Machine Learning to recommend QA testing scenarios using software requirements specification documents for 2 departments.

### Tata Consultancy Services Research and Innovation

Research Intern

Dec 2018-Apr 2019  
New Delhi, India

- Created Novel Metric to analyze Temporal Coherence of labels placed in videos for AR Applications.
- Introduced optical flow to give up to 50x Temporal Coherence improvement for the labels placed in the videos.
- Co-authored “SmartOverlays” published in WACV 2020.

## PUBLICATIONS

- **Training Diverse High-Dimensional Controllers by Scaling Covariance Matrix Adaptation MAP-Annealing**  
PrePrint.  
Authors: Bryon Tjanaka, Matthew C. Fontaine, **Aniruddha Kalkar**, Stefanos Nikolaidis
- **SmartOverlays: A Visual Saliency Driven Label Placement for Intelligent Human-Computer Interfaces**  
IEEE Winter Conference on Applications of Computer Vision (WACV).  
Authors: Srinidhi Hegde, Jitendra Maurya, **Aniruddha Kalkar**, Ramya Hebbalaguppe

## PROJECTS

### Multi-Teacher Knowledge Distillation for Visual Question Answering Systems

- Constructed a light-weight model for VQA systems using ALBEF and VisualBERT as teachers in a multi-teacher setup.
- Model size reduction up to 65x and upto 8x inference speed increase as compared to the teacher models.

### Driver Distraction Detection

- Built a driver distraction recognition and notification program based on a live video capture
- Attained 91.08% accuracy for the 10 pre-determined distractions.

## TECHNICAL SKILLS

### Languages

Python, Javascript, C/C++, Java, C#, HTML, CSS, Angular.js, Node.js, React.js

### Libraries & Frameworks

TensorFlow, Pytorch, Keras, OpenCV, matplotlib, Flask, Django

### Databases

MySQL, MongoDB, DynamoDB, AWS S3

### Tools

AWS SageMaker, AirFlow, MLFlow, Prefect, AWS Batch, AWS EC2, Google Cloud Platform, JIRA