Aniruddha Kalkar

+1 (213) 766 8700 | aniruddha.k97@gmail.com | aniruddhakalkar.github.io | github.com/AniruddhaKalkar | linkedin.com/in/AniruddhaKalkar

Education

M. S. in Computer Science | *University of Southern California* | Los Angeles, USA, *2021-23*
B. Tech in Computer Science and Engineering| *Walchand College of Engineering* | India, *2015-19*

Experience

Opal AI Inc, Senior Machine Learning Engineer | Los Angeles ***Aug 2023 - Present***

- Designed backend for video intelligence platform using Multimodal LLMs on GCP, reducing report generation time by 95%.
- Built scalable architecture with microservices, databases, and APIs to process 100,000+ minutes of video monthly.
- Implemented Retrieval-Augmented Generators improving analytics accuracy by 20% and relevance by 25%.
- Led ML efforts for US Department of Transportation, analyzing 1M+ video frames with 92%+ object detection precision for 60+ Road Elements.
- Developed 3D semantic segmentation achieving 98% accuracy for LiDAR scans and automating 3D BIM/CAD models.
- Supervised and mentored 3 interns, delivering 5+ milestones ahead of schedule.

Blackberry Corporation, Machine Learning Engineering Intern | Los Angeles ***Oct 2022 - Apr 2023***

- Automated ML workflows using Apache Airflow, saving 2190 hours/year and improving malware detection.
- Optimized data pipelines, reducing latency by 3.61 seconds per batch for 10M files daily.
- Developed advanced batching functionality with DynamoDB, streamlining data management.
- Contributed to scalable ML model deployment and improved runtime performance.
- Authored technical documentation, improving onboarding and knowledge sharing within the team.

Dassault Systèmes Solutions Lab, Software Engineering Specialist | Pune, India ***June 2019 - July 2021***

- Redesigned UI for CI/CD pipeline, increasing adoption by 63%.
- Optimized SQL database, improving performance by 7% for high-volume workflows.
- Developed REST APIs with 3x faster response times, reducing execution time.
- Migrated 20+ projects to in-house CI/CD pipeline, cutting adoption time by 40%.
- Integrated advanced code analysis tools, reducing production bugs by 18%.
- Contributed to scalable CI/CD infrastructure, reducing build queue times by 30%.

Research Experience

Locomotor Control Lab @ USC, *Researcher* | Los Angeles ***Jan 2022 - Apr 2023***

- Enhanced VR Game developed to improved skilled locomotion for individuals with neurological impairments.
- Enabled enhanced analysis by randomizing all object locations with 100% experiment repeatability.
- Introduced functionality to store additional user action data to analyze user responses at multiple granularities.

ICAROS @ USC, *Researcher* | Los Angeles ***May 2022 - Dec 2022***

- 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”.
- Engineered a high-performance Python script to orchestrate a distributed computing network of 100 CPUs

Tata Consultancy Services Research and Innovation, Research Intern | New Delhi, India ***Dec 2018 - Apr 2019***

- Collaborated on 3 Computer Vision projects, co-authoring a WACV 2020 publication.
- Resolved 2 critical problems in testing metrics and performance.
- 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.

Publications

Training Diverse High-Dimensional Controllers by Scaling Covariance Matrix Adaptation MAP-Annealing *Link to publication*

Bryon Tjanaka , Matthew C. Fontaine , David H. Lee , **Aniruddha Kalkar** and Stefanos Nikolaidis

SmartOverlays: A Visual Saliency Driven Label Placement for Intelligent Human-Computer Interfaces (IEEE WACV 2020) *Link to publication*

S. Hegde, J. Maurya, R. Hebbalaguppe and **A. Kalkar**

Technical Skills

Programming Python, Javascript, C/C++, Java, C#, HTML, CSS, React, Angular.js, Node.js, React.js, GoLang
Frameworks TensorFlow, Pytorch, Keras, OpenCV, matplotlib, Flask, Django, Unity
Databases Firestore, SQL, MySQL, MongoDB, DynamoDB, AWS S3
Tools Vertex AI, GCP Cloud Run, GCP Cloud Functions, GCP API Gateway, AWS SageMaker, AirFlow, MLFlow, Prefect, AWS Batch, AWS EC2, AWS Lambda, Google Cloud Platform, JIRA, Git, Github, Bitbucket