K.L. BHANU MOORTHY

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PROFILE

Computer vision engineer and technical lead with 8+ years of applied AI/ML experience across research and industry, centered on computer vision. At Granular AI, leads applied research and production deployment of computer vision on aerial and satellite imagery (roof outline detection, facet segmentation, roof-face adjacency, storm damage detection), owning the lifecycle from data and annotation through training, evaluation and deployment, behind a product with 2,000+ registered users and 10,000+ reports. Peer-reviewed computer vision researcher (ACM CHI 2020); TCS Research Fellowship recipient.

TECHNICAL SKILLS

Computer Vision: U-Net, YOLO, DINO, SAM; object detection, segmentation, image classification, damage detection, saliency detection, video understanding, aerial and satellite image analysis
Languages & Frameworks: Python, PyTorch, OpenCV, CVXPY, Bash, FastAPI, Flask
Data & Evaluation: data curation, labeling guidelines, annotation standards, offline evaluation
ML Infrastructure: image storage, experiment tracking, training and inference pipelines, REST APIs
Cloud: AWS, GCS, Docker, Kubernetes
Domains: Geospatial and aerial imagery, property intelligence, video analytics, eye gaze

PROFESSIONAL EXPERIENCE

Granular AI

AI Technical Lead *Jan 2024 – Present*

Technical ownership of computer vision for property intelligence from aerial and satellite imagery, from requirements through MVP, platform build and iterative model development.

Storm and hail damage detection from aerial imagery

- Led applied computer vision for automated roof damage assessment from aerial imagery as an alternative to manual roof inspection, which is expensive, error-prone and unsafe, with an emphasis on deployment constraints.
- Built **storm and hail damage detection** models, plus weather severity prediction and camera view of aerial images, drawing on **U-Net**, **YOLO**, **DINO** and **SAM**.
- Owned data strategy and annotation standards for **15,000 damage images**, labelled by trained expert annotators in an in-house labelling tool, drawn from about **200,000 source images**; wrote the labeling guidelines and led data collection and curation.
- Owned model training, benchmarking and offline evaluation, with human review catching bad model outputs before customer release; integrated model results into product roadmaps.
- Shipped production Python for computer vision training, inference and preprocessing on AWS and GCS, and worked with engineers to deploy the models into the pipeline behind **10,000+ reports**; owns long-term maintenance of the deployed models.

Inspect.Properties: computer-vision-backed property reports

- Led conception, architecture and delivery of *Inspect.Properties*, Granular AI's commercial property-intelligence product built on aerial and satellite imagery (roof measurement reports, weather history reports, storm damage evidence reports, cost estimates), serving **2,000+ registered users** within 1.5 years and **10,000+ reports** in 2 years, and supporting growth to ~**$10K MRR**.
- Defined solution design and end-to-end pipelines (aerial and satellite imagery ingestion, processing, report generation, APIs) on cloud infrastructure, spanning automated image collection through damage evidence reports and instant material and labour cost estimation, plus an in-house 2D CAD-style roof measurement tool; ensured reliability, monitoring and maintainability.

Leadership

- Leads and mentors a team of 2 engineers on delivery practices, code quality and ML workflow, while owning DevOps, infrastructure and deployment pipelines.
- Primary technical point of contact for critical production issues and feature planning; mitigated at least two major production downtimes.
- Partners across engineering, sales and operations to align computer vision capabilities with business outcomes and customer feedback.

ML Engineer *Jan 2022 – Dec 2023*

- Led applied research on automated roof understanding from aerial imagery, formulating roof assessment as a set of interrelated computer vision problems on large-scale geospatial data, and built the roof geometry models: **roof outline detection**, **roof facet segmentation** and **roof-face adjacency prediction** (drawing on **U-Net**, **YOLO**, **DINO** and **SAM**), covering data collection, annotation, training and evaluation.
- Built and maintained key services in *GeoEngine*, a geospatial ML platform for aerial and satellite data processing and computer vision model training (FastAPI, cloud; multiple >1M-record datasets) supporting annotation, model training, experiment tracking and deployment.
- Architected and built from scratch the platform's aerial and satellite image acquisition, storage and curation microservice, serving >1M images, and its experiment-tracking microservice, and took ownership of ongoing maintenance across the platform.
- Conducted training experiments for vision tasks: **landscape classification** and **urban environment segmentation**.

RESEARCH EXPERIENCE

Graduate Researcher, Centre for Visual Information Technology *Jan 2018 – Dec 2021*
International Institute of Information Technology, Hyderabad

- **Computational videography (2018–2020):** led core algorithm design for gaze-guided cinematic editing of wide-angle monocular video recordings (**GAZED**, ACM CHI 2020), automating editorial decisions that otherwise take multiple skilled man-hours; delivered a publishable MVP with a user-facing demo.
- Built computer vision for saliency detection in scenes from eye gaze and facial features, and applied machine learning to video understanding, shot selection and automated editorial decision-making.
- Co-authored **CineFilter** (WICE 2020): unsupervised visual filtering for real-time autonomous camera systems.
- **Audio-visual multimodal learning (2020–2021):** worked on establishing the correlation between human faces and voices with modern machine learning techniques, toward applications such as person re-identification, active speaker recognition and speaker diarisation.

EDUCATION

Indian Institute of Information Technology Design and Manufacturing, Kancheepuram
Aug 2013 – May 2017
Bachelor of Technology, Computer Engineering CGPA: 8.14/10

PUBLICATIONS & RECOGNITION

- TCS Research Fellowship 2020 (four-year award).
- K L Bhanu Moorthy, Moneish Kumar, Ramanathan Subramaniam, Vineet Gandhi, **GAZED: Gaze-guided Cinematic Editing of Wide-Angle Monocular Video Recordings**, ACM CHI Conference on Human Factors in Computing Systems, 2020. Demo.
- Sudheer Achary, K L Bhanu Moorthy, Ashar Javed Syed, Nikitha Shravan, Vineet Gandhi, Anoop M Namboodiri, **CineFilter: Unsupervised Filtering for Real Time Autonomous Camera Systems**, 9th Workshop on Intelligent Cinematography and Editing (WICE), 2020.