Sai Krishna Bashetty

Applied Science Leader | Computer Vision & AI
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SUMMARY

Applied Science leader specializing in computer vision and AI systems for retail environments. Over 6 years driving innovation from research through production deployment, with proven ability to translate complex ML research into scalable, patent-worthy products adopted by Fortune 500 retailers. Published researcher (ICRA 2020) and co-inventor on 8 U.S. patents. Combines deep technical expertise in edge AI optimization and MLOps with cross-functional leadership to deliver high-impact solutions that set industry standards.

KEY ACHIEVEMENTS

- Led development of ShopAssist, a patented AI checkout system piloted by major retailers, reducing transaction times by 30%.
- Co-inventor on 8 U.S. patents (2 granted) covering advanced computer vision and retail analytics technologies.
- Deployed real-time Computer Vision systems handling 10,000+ retail SKUs across diverse retail environments with 99.99% uptime and sub-300ms latency on edge devices.
- Published at ICRA 2020 with work cited by multiple research groups in autonomous vehicle safety.

SKILLS

- **Leadership & Product:** Team mentorship, cross-functional collaboration, technical strategy, 0-1 MVP ownership, MVP to enterprise rollout.
- **Computer Vision & Deep Learning:** CNNs, Transformers, Vision Language Models, LLMs, Object Detection, Classification, Segmentation, multi-camera tracking, out-of-distribution detection, barcode reading, depth estimation, Camera calibration, environmental cue–based localization.
- **Edge AI Optimization:** Real-time inference, latency reduction, GPU/CPU optimization, Triton Inference Server, DeepStream, vLLM, model inference engines.
- **MLOps:** Automated annotation, pipeline orchestration, decentralized deployment, high-availability systems.
- **Software Engineering:** Python, Pytorch, Tensorflow, OpenCV, Docker, Kubernetes, C/C++, Rust.

PROFESSIONAL EXPERIENCE

Applied Science Manager (Computer Vision) | RadiusAI, Bellevue, WA | Nov 2022 - Present

- Led development of ShopAssist, a patented AI-driven assisted checkout system piloted by major retailers; reduced transaction times by 30% and improved customer experience.
- Led a cross-functional research team delivering large-scale computer vision solutions across object detection, segmentation, classification, monocular depth estimation, OCR, barcode recognition, OOD detection, tracking, and multi-camera association, leveraging CNNs, vision transformers, Vision Language Models (VLMs), Kalman filters, and camera projection methods.
- Directed end-to-end data science delivery, integrating advanced visual analytics and ML techniques to achieve ambitious product milestones.
- Built proprietary real-time object recognition and robust CV/AI pipelines for 10,000+ retail SKUs across challenging store conditions.
- Pioneered unsupervised annotation using POS ground truth, increasing data throughput by 10x and reducing labeling time and cost.
- Led the development of novel out-of-distribution detection models for real-time unknown product flagging, reducing false positives by 25%.
- Optimized real-time inference models for edge devices, reducing latency to under 300ms with 99.99% uptime; bootstrapped scalable remote deployment across thousands of locations.
- Designed and deployed vision-based barcode detection, increasing store coverage to over 95%.

Computer Vision Engineer | RadiusAI, Bellevue, WA | Oct 2019 - Nov 2022

- Spearheaded a retail video analytics platform using multi-camera tracking and real-time analytics to optimize store layouts and map customer journeys.
- Developed privacy-preserving tracking algorithms for real-time, anonymous customer movement, integrated with existing surveillance and compliant with GDPR/CCPA.
- Engineered online camera calibration using environmental cues and store layouts for precise 3D localization, automating setup, and reducing deployment time.
- Enhanced scene understanding and spatial analytics with monocular depth estimation for improved customer behavior insights.
- Optimized computer vision inference for reliable, real-time deployment on low-power edge devices, boosting scalability and cost-efficiency.
- Co-developed a multimodal healthcare screening system during COVID pandemic, integrating thermal cameras and gesture recognition for real-time, contactless screening; piloted in major hospitals to reduce staff exposure and streamline entry.

Graduate Student Researcher | Arizona State University, Tempe, AZ | June 2018 - Sept 2019

- Led NSF-funded research on perception algorithms for autonomous vehicles under Profs. Heni Ben Amor and Georgios Fainekos.
- Developed DeepCrashTest, an AI framework for reconstructing crash scenarios from dashcam footage to enhance safety-critical automotive systems; published findings at ICRA 2020.

EDUCATION

Master of Science, Computer Engineering | Arizona State University | 2017 - 2019
Bachelor of Engineering, Electronics & Communications Engineering | Osmania University | 2013 - 2017

PATENTS (CO-INVENTOR)

- **US12236662B2** - Point of Sale Station for Assisted Checkout System (Granted)
- **US12272217B1** - Automatic Item Identification During Assisted Checkout Based on Visual Features (Granted)
- **US20250117766A1** - Augmented Reality of Item Identification During Assisted Checkout
- **US20240249266A1** - Integration of Visual Analytics and Automatic Item Recognition at Assisted Checkout
- **US20240242505A1** - Visual Analytics Systems and Methods
- **US20240242470A1** - Automatic Item Recognition from Captured Images During Assisted Checkout

PUBLICATION

- **DeepCrashTest**: Turning Dashcam Videos into Virtual Crash Tests for Automated Driving Systems | ICRA 2020