SAAGARA MANJU BAIJU

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PROFESSIONAL SUMMARY

Highly motivated and analytically driven software engineer with 2.5 years of experience as an Applications Engineer at Oracle, transitioning into AI/ML with a strong foundation in computer vision through undergraduate research. Demonstrates proficiency in Python programming, algorithmic thinking, and problem-solving, backed by solid mathematical knowledge. Brings a unique interdisciplinary advantage through a background in Applied Electronics and Instrumentation Engineering combined with hands-on experience in software engineering—enabling a systems-level understanding crucial for research at the intersection of AI, robotics, and cognitive systems. Actively pursuing opportunities as a Research Engineer to contribute to cutting-edge AI research in areas such as AGI, reinforcement learning, and cognitive robotics, while continuously building expertise through independent learning and hands-on projects.

EDUCATION

College of Engineering, Trivandrum
Bachelor of Technology, Applied Electronics and Instrumentation Engineering, 2017-2021

- University Topper
- CGPA : 9.75/10

TECHNICAL SKILLS

Programming Languages	Python, Matlab, JavaScript, TypeScript, C++, SQL
Tools & Methodologies	Git, RESTful APIs, CI/CD, Object-Oriented Programming (OOP), Software Development Life Cycle (SDLC), Agile
AI/ML Frameworks & Tools	TensorFlow, PyTorch, OpenCV, NumPy, Pandas, Scikit-learn
Mathematical, Algorithmic & Systems Expertise	Data Structures & Algorithms, Algorithmic Thinking, Problem Solving, Linear Algebra, Probability & Statistics, Optimization (basic), Calculus, Embedded Systems, Instrumentation & Control Systems, Low-level Hardware Interfacing

EXPERIENCE

Application Engineer Aug 2021 - Dec 2023
Oracle *Thiruvananthapuram, Kerala, India*

- Developed scalable web and mobile UIs using Oracle VBCS, streamlining integrated customer data workflows for utilities and consumer goods verticals.
- Optimized feature implementations, improving module load times and system responsiveness by up to 30%.
- Automated end-to-end regression and functional testing with Mocha and Selenium, reducing QA effort by 50%.
- Designed and deployed REST APIs for seamless data integration across heterogeneous backend systems, enhancing system interoperability.

Undergraduate Researcher Jun 2019 - Jul 2021
College of Engineering, Trivandrum *Thiruvananthapuram, Kerala, India*

- Participated in international AI/ML competitions including ECCV and CVPR challenges, achieving top global rankings.

- Conducted in-depth literature reviews on object detection, dehazing, and bokeh effect generation using deep learning.
- Implemented and benchmarked CNNs, RNNs, Seq2Seq, and detection models like RCNN, Fast-RCNN, Faster-RCNN, and YOLO.
- Developed and evaluated DETR-based transformer models for robust face detection in low-light conditions.

PUBLICATIONS

Ignatov, Andrey, et al. "AIM 2020 challenge on rendering realistic bokeh." European Conference on Computer Vision. Springer, Cham, 2020.
Co-author

- Developed a convolutional neural network modeled similar to Unet, with additional skip connections, and strided convolutions to render realistic bokeh effect to images captured by smartphones.
- Proposed solution won sixth position in the AIM 2020 Challenge on Rendering Realistic Bokeh.

PROJECTS

AI-Powered Secure Entry System with Real-Time Facial Recognition.

- Led a 4-member team to build a Raspberry Pi-based system using face recognition to control access and log intrusions.
- Designed the system to deny unauthorized access, capture images of intruders, and maintain logs for all authorized entries.

Transformer-Based Face Detection in Low-Light Conditions

- Implemented a DETR-based transformer architecture for end-to-end face detection in poor lighting conditions.
- Compared model performance with and without preprocessing on nighttime datasets.

Realistic Bokeh Rendering with CNNs (ECCV 2020 Challenge)

- Built a U-Net inspired CNN with skip connections and strided convolutions for synthetic bokeh rendering on mobile images.

ACHIEVEMENTS

- Rank 1 in APJ Abdul Kalam Technological University in Applied Electronics & Instrumentation Engineering (2017–2021 batch)
- Rank 6 in ECCV 2020 AIM Challenge on Bokeh Rendering
- Rank 15 in CVPR 2021 UG2+ Challenge: Face Detection in Low Light Conditions

LEADERSHIP AND EXTRA-CURRICULAR ACTIVITIES

- **Section Leader, Code in Place, Stanford:** Served as Section Leader in Stanford Code in Place for Stanford's flagship Intro to Python course, CS106A. Successfully led a group of diverse students through the first half of the course. Helped the group of learners to solidify their understanding of the course material with hands-on coding practice.
- **Steering Committee Member, CXI Hackathon, Oracle:** Planned and executed a company-wide hackathon across Oracle's APAC and EMEA offices, coordinating logistics, budgeting, and execution. Streamlined cross-team collaboration, facilitated demo presentations, and ensured timely completion of all tasks. Contributed to decision-making on training policies, resource allocation, and program implementation strategy.