Varun Ganjigunte Prakash

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EDUCATION

Bachelor of Engineering in Electronics and Communication Aug 2014 - May 2018
Sri Jayachamarajendra College of Engineering *Mysuru, India*
GPA: 8.47/10.0

WORK EXPERIENCE

Machine Learning Engineer - Computer Vision March 2021 - Present
CogniAble *Bengaluru, India*

- Trained and deployed a spatio-temporal action recognition deep network using children's behavioral videos.
- Implemented ML classifiers for treatment personalization and patient skill enhancement in neurodevelopmental disorders (classical, recommender systems, and graph models).
- Developed object classifiers and trackers in the settings of clinical children's skill recognition.
- Led and managed the development of computer vision models in production.
- Implemented data, model training, and inference pipelines. Managed data engineers and a clinical team.
- Researched and implemented several novel approaches for clinical diagnosis in computer vision.

Engineer June 2018 - March 2021
L&T Technology Services *Bengaluru, India*

- Developed three computer vision based software applications for edge inference products for leading AI and semiconductor customers.
- Proposed and implemented improvements on existing computer vision frameworks.
- Software development for a medical sterilization product in both C++ and Lua.
- Explored new facets in subsets of AI and proposed solutions (POC) to establish strong customer relationships from ideation to realization.
- Demonstrated the scope of AI in initiatives for the use of AI in the semiconductor business unit.
- Developed an OCR pipeline for an automation pipeline for HMI screens.
- Developed and validated performance improvements using the OpenVINO toolkit for customers.
- Taught engineers about deep learning for computer vision and its applications.
- Collaborated to help teams find solutions to software problems and simplify them with automation.
- Implemented scripts of AI for code (Software 2.0) that reduced hours of manual tasks to minutes (10x faster). Some code implementations were successful, and the unsuccessful ones taught me valuable lessons.
- Stood out among hundreds of transportation business unit employees as the only one ready and willing to automate and accelerate software processes using open-source tools.
- Improved several business processes with computer vision-based automation. Automated most simple and repetitive tasks yet time consuming in project development and delivery (June 2018 - June 2019).

Computer Vision Intern Feb 2018 - May 2018
Skylark Drones *Bengaluru, India*

- Researched and developed tools for an aerial image overlap checker to address drone terrain variation issues.

Embedded Systems And Wireless Network Intern June 2016 - Dec 2016
LogicHive Solutions *Mysuru, India*

- Worked on various projects that involved multifarious sensors to implement practical applications with Ethernet, Bluetooth, WiFi, and other networking principles.
- Developed a few real-world wireless applications for GPS geo-fencing with ZigBee, robot control, RF communication, and an electronic liquid measuring scale.

PROJECTS

6-DOF pose estimation, planning, and control

- Designed a custom 4–axis robotic arm, implemented it, and simulated it in ROS.
- Tested the custom built manipulator for 3D object grasp with deep learning.

Indian currency recognition and food classifier application

- Implemented a deep model for currency recognition and deployed it as an Android mobile application.
- Developed a deep model that classifies and discovers related information about the 20 most common Indian food items, such as the nearest restaurants where they are available and the item's cost.

Autonomous mobile manipulator robot: Dexterous Service Robot *Advances in Robotics, 2019*

- Designed a home assistant robot to assist differently-abled and elderly persons by performing some of the common tasks involved in daily life.
- Implemented the objectives using a robot (DEXTER ER-2) mounted on a mobile vehicle that operated using voice commands to selectively search for and deliver the object required by the user.

Robot to sort objects

- Implemented code to sort different sized objects based on color with a robotic arm (DEXTER ER-2). The algorithm used basic image processing and inverse kinematics concepts.

Robot to pick and deliver objects

- Designed and implemented object delivery behavior for a robot based on the shape, size, and color of the objects.
- Implemented perception algorithms to analyze objects and obstacles and plan paths.
- Evaluated objectives using the Fire Bird V robot with a mounted custom designed gripper to pick and deliver objects.

Miscellaneous

- *Biomorphic Hyper–redundant Snake Robot* (Oct 2017 – Jan 2018): Designed and built a robot resembling a snake in Autodesk Fusion 360. Simulated different gaits such as serpentine, caterpillar, and side-winding motion in V–REP (now CoppeliaSim). The project was a part of the e–Yantra robotics competition in 2018.
- Implemented transmitter and receiver codes with an encrypted communication system (Morse code) for information communication and validated them on two Zigbee modules.

PUBLICATIONS

- "Autonomous Service Robot", Arshad Javeed, **Varun Ganjigunte Prakash**, Sudarshan Patilkulkarni, *Advances in Robotics (AIR 2019) – ACM ICPS, 2019*

TECHNICAL SKILLS

Languages:	Python, C++, MATLAB, C, Embedded C
Libraries and Tools:	OpenCV, Keras, TensorFlow, scikit-learn, PyTorch, ROS, OpenAI Gym, Git
Miscellaneous Interfaces:	Jetson Nano, Raspberry Pi, custom mobile robots, and robotic arms

ACCOLADES AND LEADERSHIP

- Completed *DELF B1* (Advanced) certification for a Diploma in French Language administered by the International Centre for French Studies for France's Ministry of Education.
- Worked as a *Omdena* collaborator (ML Engineer) to solve the renewable energy AI challenge for African communities.
- Received a certificate of participation for the implementation of the theme 'Launch a Module' in the 2016 e-Yantra Robotics Competition 2016.

- Co-led the team to come up with a full-fledged product that can raise the standard of living in our society in six months. Our project, "Dexterous Service Robot," was one of the top seven finalists in the Anveshan Fellowship 2018, organized by Analog Devices, and my team did a real-time demo at the event.
- Presented a paper entitled "Colour based Object Sorting Robotic arm using Image Processing" in *National Conference on Robotics, Automation, Control and Embedded Systems (NCRACES-2017).*
- Led a team for the 2017 e-Yantra Robotics Competition and other robotics projects at the e-Yantra Robotics Lab at SJCE.
- Volunteered to teach children at the U&I charitable organization. Received the "Best Teacher of the Year 2019-20" recognition.
- Volunteered in the technical activities of the IEEE-SJCE student branch for the years 2015-2018.

LANGUAGES

- French (fluent, B1), English (fluent), Kannada (native), Hindi (beginner)