RAKSHITH SUBRAMANYAM

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Creative and solutions-oriented computer vision engineer with a wide variety of professional experiences working to build a better world.

SKILLS

Expertise: Machine Learning, CNN, Image Classification, Object detection, Segmentation, Transfer Learning, One-shot Learning, Linear Algebra, Linear Controls, Optimal Control, PCB designing, Electronics assembly, and Electrical testing.
Frameworks/Applications: OpenCV, Keras, Pytorch, NumPy, Flask, ROS, Docker, Git, CouchDB, and Eagle CAD.
Languages/Tools: Python, C++, React JS, HTML, CSS, Arduino, and Linux.

WORK EXPERIENCE

Luminosity Lab, Arizona State University **August 2016 - Current**
Lead AI and Image Processing Engineer

- Reduced the patient wait time for Phoenix Children's Hospital by developing a web app for PFSH patient data collection.
- Digitalized coffee shops hand-off counter, using OpenCV python for a leading coffee house.

Autonomous Collective Systems Lab, Arizona State University **January 2017 – Current**
Graduate Researcher

- Initiated and developed the Chartopolis Test bed for self-driven car experiments.
- Developed an Ad-Hoc based communication system for data transfer in swarm vehicle systems.
- Currently working on a multi subspace fast **spectral clustering** algorithm to segment laceration wounds.

Aptus Engineering Inc, Scottsdale, Arizona **September 2018 – March 2019**
Robotics and Control Systems Engineer

- Developed **R-CNN networks** for medical diagnostics using X-Ray images and deployed as an API using JS and python.
- Drafted solution architecture and system architecture design for various projects. Inculcated agile software development process.
- Designed and developed various **hardware solutions** including firmware development, PCB design and fabrication.
- Deployed AI web applications using react JS and **Docker** containers.

PROJECTS

Medical Imaging Assistant, Arizona State University **Fall 2019**

- Deployed a web app using multiple CNN models to create medical diagnostics for Chest X-Ray and fracture X-Ray.
- Trained a **probabilistic segmentation model** with classification labels using class activation maps.

Self-Driving Car Test Bed, Master's Thesis, Arizona State University **Spring 2018**

- Made an **emulation of self-driving** car using a swarm of differential drive robots.
- Implemented multilevel system architecture using **Raspberry-pi** and ARM processor for vision and sensors/actuators controls.
- Programmed the robot to follow lane, detect changes in traffic lights, detect other cars on the road, and predict their current state.
- Developed an on-command video streaming system using ffmpeg libraries.

MYRA – Humanoid Robot, Arizona State University **Spring 2018**

- Trained a **LBPH** system in OpenCV for a humanoid robot that can classify human face, recognize emotions and respond accordingly.
- Developed **multilevel architecture** using **NVIDIA Jetson**, Raspberry pi and Atmega processor in C++ and python.
- Established **serial and TCP/IP** internal communication network to interface the Neural network model with the controller.

Lab2Moon, Arizona State University **Spring 2017**

- Designed a **cyanobacteria monitoring system** which actively monitors and maintains desirable conditions for the cyanobacteria to culture on **Moon**. Integrated the sensors and designed a PCB to achieve the objective.
- Presented the Project in India and secured a **launch to moon**.

CanSat Annual Competition, Burkett, Texas **Spring 2015**

- Supervised a multidisciplinary team to build a **miniature satellite** traveling through the planetary atmosphere sampling the atmospheric composition. Secured **world rank 1** in design reviews and managed the end to end project plan and complete finance of $20000.
- Probed a concept of **altitude determination using the magnetic field strength** to aid the barometric altitude sensor during a random variation in the environmental pressure.

EDUCATIONAL QUALIFICATION

Arizona State University, Tempe, Arizona **Aug 2019 – Current**
PhD in Electrical Engineering- Major in AI systems

Arizona State University, Tempe, Arizona **Aug 2016 – May 2018**
Master of Science in Electrical Engineering- Major in Control systems **GPA – 3.72/4**

SRM University, Chennai, India **Aug 2012 – May 2016**
Bachelor of Technology in Mechatronics Engineering **GPA – 4/4**