GIRISH KUMAR KANNAN

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SUMMARY

An M.S.Cp.E graduate with 3 years of professional computer engineering experience and a wide range of technical skills. Focused in Robotics, Computer Vision and Machine Learning. Excels at Programming, Electronic Circuit Design and Sensors/IoT. Versatile and hardworking, passionate towards contributing to a team. Takes personal responsibility and accountable to assigned tasks. Motivated towards developing quality technologies, systems and processes. Critical thinker, detail oriented & fast problem solver.

WORK EXPERIENCE

Roboticist / Robotics Engineer, Quartile 3 Robotics, Miami Beach, Florida, USA. **Nov 2018 – Present**

- Developed a program that will help take Restaurant orders using Speech Synthesis and Facial Recognition in Python. Implemented Speech Synthesis with Google Cloud and NLP. Deployed Face Recognition with OpenCV, Dlib and Deep NNs.
- Developed GUI using Python and TkInter to actuate a Humanoid Robot by a Remote User, controlled through intranet & internet. Wrote TCP/IP API with VPN access. Controlled the robot using ROS pub/sub methods. Used multithreaded calls in GUI. Designed SQL databases and API to communicate with the robot without the GUI for testing and debugging.
- Developed API in Python to interface and decode a GPS RTK device & designed comm. protocols for ULoRa Transceivers.

DSP Engineer (Volunteer-Associate), Parseval LLC, Orlando, Florida, USA. **May 2017 – April 2018**

- Lead engineering teams of up to 10 people, conducted interviews and made important decisions.
- Developed a "Smart-Car" that saves trapped lives endangered by unsafe temperatures.
  - Created a wearable device that communicates with on-vehicle device using specific sound beep patterns.
  - Attached the device to the CAN bus and communicated with the system to start the vehicle and activate the air-conditioners.
- Collaborated across disciplines to make user-friendly amplifier control systems, effectively automating smart soundscapes.
- Designed and programmed an automated microphone stand to perceive soundscape of a room. Implemented Arduino to actuate the stand using Servomotors. Programmed in C/C++. Created a map using Matlab to visualize the soundscape of the room.
- Developed advanced DSP algorithms, signal communication strategy and device communication topologies with OTA updates.

TECHNICAL SKILLS

Operating Systems: Windows (10+ years), Linux (3+ years – Ubuntu, Raspbian, Debian distros.)
Programming Languages: Python (numpy, scipy, matplotlib, pandas, pyserial), C, C++, Matlab, Git, SQL, [R, Java, HTML, C#]
Test Equipment: Multimeters, Oscilloscopes, Signal/Function Generators, Power Supplies, Precision Toolsets, Soldering, Wiring

EDUCATION

University of Central Florida, Orlando, Florida, USA. **August 2016 – May 2018**
Master of Science in Computer Engineering CGPA: 3.5 / 4.0

Related Coursework: Advanced Artificial Intelligence, Machine Learning, Intelligent Systems, Computer Vision, Control Systems, State Estimation, Digital Signal Processing, Adaptive DSP, Neuroscientific Systems, Modeling and Simulation.

Related Projects:

- Prediction & Signal Smoothening w/ Kalman Filter: Engineered an algorithm to obtain filtered values from noisy IMU datastream.
- Occupancy Grid-based 2D-SLAM Robot: Engineered a robot that can autonomously navigate within a specified region.
  - Used Digital IMU for obtaining distance and angle for odometry and pose estimation with Kalman filtering using C/C++.
  - Implemented navigation and path planning using A-star and Reinforcement learning using Python
  - Implemented simple SLAM with sonars and servomotor to scan the semi-random region of work and mapped it in Matlab.
  - Communicated robot location using RF transceivers to computer, successfully interfacing C/C++, Matlab and Python.
- Developed a program in Python and OpenCV to track hand gestures and converted them to move cursor movements.
- Image and Action Sequence Classifier using CNN: Modified and trained a neural network from scratch using Scikit-Learn & Tensorflow in Python.
- Analyzed and compared Machine Learning algorithms to understand the efficiency of every algorithm using R and Python (numpy, scipy, matplotlib, pandas, seaborn and scikit-learn). Visualized, pruned & extracted the data with most correlation and significance.
- Designed and demonstrated various Signal Filters and Processing techniques to analyze the efficiency of each design using Matlab.

SRM University, Chennai, Tamil Nadu, India. **August 2011 – May 2015**
Bachelor of Technology in Mechatronics CGPA: 8.9 / 10.0

Related Projects:

- Autonomous Robot Swarm for Goal Searching: Designed an Arduino-based three-agent swarm that uses Alpha-Beta Coordination Algorithm using C/C++ for Goal Searching and Convergence for applications like search and rescue and resource foraging.
- Gesture Controlled Mouse: Designed an Arduino-based Wireless Gesture-controlled Mouse using Digital IMU to aid people with limb-disabilities. Built and programmed an interface that translated hand gestures to cursor actions on a computer using C/C++.