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 Artificial Intelligence, Computer Vision and Machine Learning. Excels at Sensors/Perception, Programming, Data Analysis/Visualization and Circuit Analysis. 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 GUI to actuate a Humanoid Robot by a Remote User, controlled through intranet & internet.
  - Used Python and TkInter to create the GUI with multithreaded functions and classes.
  - Used publisher/subscriber methods in ROS to actuate the robot and get positional feedbacks.
  - Setup VPN to control the robot from another place for private access. Wrote TCP/IP based API commands in Python.
- Developed a communication protocol for Ultra Long Range RF Transceiver pair to transfer text data, sounds and images.
- Developed an API in Python and C/C++ to interface a GPS RTK device. Decoded incoming binary format data.

DSP Engineer (Volunteer-Associate), Parseval LLC, Orlando, Florida, USA.   **May 2017 – April 2018**
- Developed a "Smart-Car" that saves trapped lives endangered by unsafe temperatures. Designed and fabricated circuit boards and programmed with C/C++ and Python. Interfaced the device to the CAN bus to start the vehicle and activate the A/C.
- Developed advanced DSP algorithms, signal communication strategy & device communication topologies with OTA updates.
- 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.
- Lead engineering teams of up to 10 people, conducted interviews and made important decisions.
- Built, maintained & patched computers and cables, installed & fixed operating systems, set up complex development environments to support development team.

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#]
Communication Interfaces: USB 2.3/3.0, SPI, I2C, RJ11, Ethernet/RJ45, UART/USART, CAN/J2234, J1850, RS232, RS485.
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:
- 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++.