Abhinav Rajagopalan

https://abhinavrajagopalan.in

abhinavrajagopalan@gmail.com
+919884958740

EDUCATION

SVCE, Anna University
Bachelor of Engineering in Electrical and Electronics; GPA: 8 (6.30/10.0)

Chennai, IN
2013 – 2017

P S Senior Secondary School
AISSCE (CBSE) in Science; 84 %

Chennai, IN
2011 – 2013

EXPERIENCE

Rekindle Automations
Systems Engineer

Bengaluru, IN
2017 - Present

- Implementing efficient methods in healthcare and sustainability using applications of IoT and embedded systems.
- Refactored codebase and improved usage of power and memory in low level hardware.
- Maintenance and upgradation of software and networking protocols at regular intervals including patchwork and testing.
- Automated various mundane processes to achieve non-intrusive and stable operation of products.
- Wrote a custom real time operating system for ARM Cortex arch to manage a monitoring system.
- Applied machine learning models to gather intelligence from feedback controllers to monitor and operate tasks.

SCHOOL PROJECTS

- Power optimizer for MPPT solar photovoltaic system (Thesis, 2017)
  Designed and built an efficient converter and MPPT system for optimized power generation through a solar photovoltaic process. (MATLAB, Simulink, Atmel AVR, PIC)

- Efficient usage of artificial grow light from LEDs using selective PWM techniques for healthy growth of plants and drip system (International Journal of Advanced Research and Technology)
  Presented a paper on a simulated automated system for effortless horticulture using a sensor and actuator-based mesh network with visual feedback by Internet of Things.
  Simulated a system automating horticulture using IoT with actuator-based network and drip system with MATLAB. (MATLAB, Simulink)

- Automated system for effortless horticulture using a sensor and actuator based mesh network (Research project, 2017)
  Automated horticulture using IoT with actuator-based network and drip system. Created an automated system for effortless horticulture using a sensor and actuator-based mesh network with visual feedback via Raspberry Pi by Internet of Things. (Internet of Things, Raspberry Pi, PIC, OpenCV, electronics)
  Image detection of solid object fields in a farm or area using computer vision and OpenCV.

- Smart farming using IoT with remote Android application (Research project, 2016)
  Built a system to monitor and control a farm and detect moisture content and other such parameters implementing Internet of Things with an Android application. (Java, Android, Android Studio, Node js, Internet of Things, electronics, Bluetooth)

- Wireless power transmission using High-Frequency resonant transformer (Research project, 2015)
  Created a prototype model to increase the efficiency of power consumption and range of wireless power transmission using high frequency resonant air core transformer. (Tesla coil, electronics, transformer)

- Designed a portable & efficient Inverter using regenerative snubbing (Project proposal, 2014)
  Modelled a simulation to create a more efficient and portable Inverter using Regenerative Snubbing at Texas Instruments Innovation Challenge: India Design Contest '15 (OrCAD EE PSpice, electronics)

- Chat/IM client with JDBC & SQL (Course project, 2013)
  Built a personalized instant messaging service application between systems on the same network with Java and MySQL using Java Database Connectivity. (Java, JDBC, SQL)

ACHIEVEMENTS

- Research Day - 2017
  Won first place for presenting a prototype model for "Automation for effortless horticulture using a sensor and actuator-based mesh network" in SVCE Innovates - Student Research Day 2017. (Feb 2017)

- NCAEEE - 2017
  Presented a paper on "Efficient usage of artificial grow light from LEDs using selective PWM techniques for healthy growth of plants" at the National Conference on Advances in Electrical and Electronics Engineering (NCAEEE-2017) organized by the Department of Electrical and Electronics Engineering, SVCE held on 10 & 11th March 2017. (Mar 2017)

- Smart horticulture IoT (2016)
  Placed third at SVCE Innovates - Student Research Day - 2016. Presented a working model for building a system to monitor and control a farm and detect moisture content and other such parameters implementing Internet of Things with an Android application. (Feb 2016)

- Open source software/FOSS
  Contributed > 100 LOC, changes of production code and patches to the Linux kernel and gcc compiler over the years.
  Currently involved with the patches/issues in mailing lists of the Linux kernel and standard library (STL C++17) of the C++ programming language (2010 - present)

- Various
  Awarded several certifications for skills & excellency in free hand sketching, graphic designing & painting.(2000 - 2011)

TECHNICAL

- Languages : C, C++, Python, LISP (Scheme), Java, ASM (x86-64), Haskell
- Platforms : POSIX compliant - UNIX, Linux
- Other : MATLAB, Simulink, HDL (VHDL/Verilog)
- Tools and frameworks : Git, Shell (Bash), Node js, OpenGL, OpenCL, SQL (Redis, Postgres, MySQL, MongoDB), TeX
- Other systems : RISC - Atmel AVR, MIPS, ARM Cortex-M
- Machine learning (Frameworks & libraries) : TensorFlow, Scikit, NumPy, OpenCV

RESEARCH INTERESTS

- Computer science and mathematics: Systems engineering, cryptography, graph theory, Turing machines, combinatorics, λ-calculus, analysis of algorithms.
- Machine learning: Deep Neural Networks, Reinforcement Learning, Unsupervised Learning, Hidden Markov Model.
- Computational Neuroscience and Brain Decoding, BCI.
- EE: Control systems, Sustainable energy
- Theoretical physics (general relativity, quantum gravity, standard model)
- Computational biology (Markov chain optimization, genome sequencing, Monte-Carlo optimization, Bayesian classification)

ORGANIZATIONS

Environmentalist Foundation of India
2008 - 2013

- Involved in various events and clean up drives.
- Participated in Olive ridley turtle conservation walks.