

# Giri Gopalan

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## Qualifications:

- Extensive experience in the areas of Software and Hardware Engineering across many industries, including **Big Data, Machine Learning, Networking and Security**.
- Good knowledge of Data Science tools like: **pandas, numpy/scipy, matplotlib, etc.**
- Experienced in ML/DL including:
  - Knowledge of ML models like: SVM, GBMs (XGBoost, LightGBM)
  - Knowledge of CNN models like: ResNet, RetinaNet, etc
  - Knowledge of object detection models like: R-CNNs, SSD, Yolo
  - Reasonable knowledge of sequence models like: LSTM, GRU, etc.
  - Frameworks: **scikit-learn, Tensorflow, Keras** (and a bit of Pytorch)
  - Training various DNN models on CPUs and **GPUs**
- Experienced in Computer Vision (**OpenCV**)
- Cloud Experience:
  - Mostly on **AWS** (played around a bit with GCP)
  - Experience in AWS services like: EC2, S3, AWS IoT Core, Lambda, DynamoDB
  - Experience in tools like boto3 and **Terraform**
- Experienced with various infrastructure components like Kafka, **Docker**, Cassandra etc.
- Languages: **Python** (intermediate to advanced); C & C++ (basic); Golang (just started)
- Solid knowledge of IP networking protocols
- Worked in a wide range of companies from startups (founding engineer of a few) to mid-sized and large companies.

## Work Experience:

### **Aruba Networks, Senior Engineer, Mar 2017 – Present.**

- Conceptualized, designed and implemented an (end-to-end) project called Neutrino that involves Computer Vision based applications for Smart Buildings.
  - Project involves getting video streams from many cameras, detecting persons and objects (using **DNNs**) and providing useful analytics.
  - Neutrino project pipeline:
    - Captured frames from cameras and performed edge computing using OpenCV and an off-the-shelf CNN model (**MobileNetSSDv1**)
    - The extracted JSON was fed to Kafka
    - From Kafka the data was stored in **Cassandra**
    - Finally implemented a (bare bones) UI based on **Flask** to visualize some basic statistics
  - Currently working on moving the project into AWS using **AWS IoT Core, Lambda and DynamoDB** services.
  - This project is partially completed. A helpdesk analyzer and room occupancy app are online. Working on people counter and object tracker apps.
  - Implemented this project almost single-handedly
- Experimented with face recognition systems, human pose tracking systems (for biometric identification) and basic IoT sensors for various other initiatives inside Aruba
- After acquisition transitioned various Niara Inc. duties and projects to Aruba/HPE including:
  - Smoothly transitioned QA duties to an Aruba QA director
  - Transitioned manufacturing and operations of Niara appliances to Aruba internal teams and processes

### **Niara Inc. (acquired by Aruba/HPE), Founding Engineer, May 2013 – Mar 2017**

- As one of the founding engineers, took on many roles to steer the company to a successful acquisition by Aruba/HPE
- Involved in the early stages of the company formation from problem statement, defining addressable market, proposing and implementing a solution, etc.
- Worked with other systems and software engineers during the early system design phase to define and implement a **Big Data** system based on **Hadoop**. I mostly implemented the system hardware portion of it.
- **Managed a small QA** group that tested Niara's entire product solution, including its Big Data System. As a hands-on manager, I implemented many of the tests including:
  - Full system performance tests for the two major components of the system (the sensor and the analyzer)
  - Implemented a correlation test that sanity tested the systems **ETL**
  - Designed and implemented the QA groups' infrastructure
- At the same time, headed the Hardware, Operations and Manufacturing functions for Niara's appliances. Designed and implemented various processes to enable smooth manufacturing and operations while working on a tight budget and timelines.

### **Stoke Inc, Principal Engineer/Director, May 2010 – May 2013**

- Specified, designed and implemented a very complex line card for Stoke's existing chassis. This extraordinarily complex card contained 3 complex and high-powered CPUs (two Broadcom XLPs and one Freescale CPU), a 10Gbps switch (Broadcom Trident), two TCAMs and several other components. Overcame many challenges – from placement, layout, routing, thermals and unstable silicon – to deliver the product on time.
- Designed and implemented a next generation management card for Stoke's chassis.

### **Aruba Wireless Networks, Senior Staff Engineer, Sep 2005 – May 2010.**

- Specified, designed and implemented several products, including: an intelligent switch, indoor and outdoor access points.
- Involved in the setup of JDM/ODM type manufacturing models with manufacturers based in Taiwan and China.

### **Previous Work Experience:**

This is a brief summary of past companies I have worked for. Can provide details upon request.

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|---|----------------------|
| • Network General, Consulting Engineer                    | Jan 2004 – July 2005 |
| • Tahoe Networks, Founding Engineer                       | Jan 2001 – Oct 2003  |
| • Shasta Networks (acquired by Nortel), Founding Engineer | May 1998 – Jan 2001  |
| • NET, Principal Hardware Engineer                        | Oct 1993 – May 1998  |
| • NetExpress Inc. (Member Technical Staff)                | Dec 1992 – Sep 1993  |
| • Optima Computers Pvt. Ltd., India (Consultant)          | Jan 1992 – Dec 1992  |
| • CDAC., India (Member Technical Staff)                   | Aug 1989 – Jan 1992  |

### **Education:**

- BS in Electrical Engineering, BMS College of Engineering, Bangalore, India. Graduated in 1989.

### **Publications/Awards:**

- Co-author of "FPGA Implementation of the BH8000 Wormhole Router", published in the IEEE 1991 ASIC Conference and Exhibit.
- Part of team that won the "Vincent Bendix Award" in 1987 presented by Allied-Signal Inc., for building an 8 node parallel processor.