

# Guru Prasad Srinivasa

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## Objective

To continuously upgrade my skills (Technical, Management and others) in order to excel in delivery and add value to the team and organization, thus ensuring consistent growth.

## Education

**University at Buffalo, The State University of New York** Aug '13 - Present

Ph.D. Computer Science and Engineering

Thesis: A Temperature-Aware Approach to Managing Smartphone Efficiency and Power Consumption

**University at Buffalo, The State University of New York** Aug '11 - June '13

Masters of Science in Computer Science and Engineering

GPA: 3.4/4.0

Interests: Software Engineering, Android, Cloud Computing, Distributed Systems

**SRM University, Tamil Nadu, India** Aug '07 - May '11

Bachelor of Technology in Computer Science and Engineering (Top 25% of the class)

GPA: 7.4/10.0

## Experience

**Research Assistant – University at Buffalo** (Advisor: Dr. Geoffrey Challen) Jan '13 - Present

- Optimizing performance under thermal constraints
- Studying power-agility on the Android platform

**Research Intern, Microsoft Research** May '14 – Aug '14

- Worked on providing cloud storage reliability while harnessing users' local storage

**Teaching Assistant, University at Buffalo** Spring '13, 14, 15, 16

- CSE421 - Operating Systems Internals

**QA Intern, Pendula IT Pvt Ltd** Jun '10 - Oct '10

- Helped implement CMMI level 3 standards
- Documentation of processes and standards
- Requirements specification standards
- Java coding practices and standards

**Network Intern, Religare Technova IT Services** Dec '09 - Jan '10

- Automated the network configuration backup – reduced a total effort of **16 man-hours to below 1 hour**

## Research Projects

**ThermaPlan** ([Project Page](#))

Battery consumption is the top concern among smartphone users. Due to transistor characteristics, when hot, devices consume more energy to do the same work. At the same time, transistor variations between two smartphones of the same make and model can cause them to have different thermal characteristics. These thermal characteristics can at times result in 20% difference in *both* energy and performance between two seemingly-identical smartphones. The goal of this project is gain insight into the thermal characteristics of smartphones and use these insights to ensure devices heat up less and are more energy efficient.

**Power Agility** ([Project Page](#))

System aimed at improving energy utilization in computing devices. The system exposes unique interfaces between application-OS and OS-hardware for applications to communicate resource requirements to OS. The OS scales resource requirements based on process priority and configures hardware accordingly. This ensures that the application uses only the resources that it requested. The hardware runs as fast as possible under given constraints.

## Worldtree ([Github](#))

Worldtree is a constrained random map generator. User specifies a set of constraints and properties to the engine. Engine generates a random world that satisfies all specified constraints.

- Established grammar for specifying constraints and properties (based on SPARQL)
- Implemented parser for the above grammar in JavaCC
- Implemented optimization techniques to optimize constraint satisfaction and query resolution

## Publications

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- Quantifying Process Variations and Its Impacts on Smartphones (Accepted) [[ISPASS 2019](#)]
- Separated by Birth: Hidden Differences Between Seemingly-Identical Smartphone CPUs [[HotMobile 2017](#)]
- Algorithms for CPU and DRAM DVFS Under Inefficiency Constraint [[ICCD 2016](#)]
- Energy-Performance Trade-offs on Energy-Constrained Devices with Multi-Component DVFS [[IISWC 2015](#)]
- maybe We Should Enable More Uncertain Mobile App Programming [[HotMobile 2015](#)]
- The Mote is Dead. Long Live the Discarded Smartphone! [[HotMobile 2014](#)]

## Personal Projects

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### Videoshare – Enabling users across the world to share a virtual movie night [[twoseven.xyz](#)]

Web app that allows users across the world to watch videos together with text and video chat. The app manages synchronization to ensure that all users are viewing the same content at any point in time. Designed and implemented a custom load-balancer to enable system to scale, and built multiple p2p components using WebRTC to allow users to share and view videos seamlessly from their devices.

### HomeSound – Smart headphones that receive audio from any device

Converts wired headphones to wireless using a light-weight chip. Further, it enables the augmented headphone to receive audio multiple devices without reconfiguration.

### Nautilus – Making your ‘dumb’ devices smart

Set of simple, cost-effective hacks to control traditional ‘dumb’ devices using smart home assistants like Amazon Alexa. One successful application is the conversion of traditional TVs into ‘smart-TVs’ using a simple IR transmitter and a low-cost ESP-8266 chip.

## Software Skills

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- Linux kernel development
- Proficient in JavaScript, C, Python, Golang, Java
- Experienced with Gem5 simulator
- Experienced with the Android platform
- Experienced at rapid prototyping system designs
- In-depth knowledge of operating systems

## Awards and Achievements

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- 2<sup>nd</sup> place in Google Developer Groups(GDG) Hackathon at UB for [Audioshare](#)
  - Enabled streaming of low-level audio over Wi-Fi to nearby devices
- *Hack with the most economical impact* at 2014 UB ACM Hackathon (BayStore)
  - Designed a market platform for buying and selling storage space
- Certificate of distinction in the 2<sup>nd</sup> National Cyber Olympiad
- Silver Merit in the 4<sup>th</sup> National Cyber Olympiad