

Surya Teja Palavalasa

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EDUCATION

University of California, Irvine, Irvine, CA

Masters in Computer Science

Expected Dec 2022

Sep. 2021 – curr.

National Institute of Technology, Calicut, Kozhikode, KL

Bachelors of Technology in Computer Science and Engineering

GPA: 8.04 / 10.00

Jun. 2012 – Jul. 2016

Secured 99 percentile among 1.2 million students appearing for the entrance examination to NITs

RESEARCH EXPERIENCE

International Institute of Information Technology, Hyderabad, India

Research Assistant

Mar. 2019 – Feb. 2020

- **Explicit State Model checking**
 - Developed a distributed model checker that tackles State Space Explosion problem in explicit State Model Checking with cues from distributed System
 - The work is accepted to be published and presented at the 27th IEEE International conference on high performance computing titled Model Checking as a Service using Dynamic Resource Scaling
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PROFESSIONAL EXPERIENCE

Freshworks, Hyderabad, India

Senior Software Engineer: Site Reliability

May. 2020 – Sep. 2021

- **Edge**
 - Worked on the edge platform that provides organization wide platform services such as rate limiting, authentication.
 - Played a pivotal role in taking it in to production and debugging early issues and making it stable
- **Highly available service discovery**
 - Developed a cloud native system that would discover endpoints of various tenants and exports the info using various service discoveries. This service is used by edge to discovery endpoints of various tenants and route traffic accordingly
- **Secret management Service**
 - Worked on an organization wide secret management service and their corresponding libraries to access via code.

Media.net (<https://www.media.net/>), Bangalore, India

Site Reliability Engineer 2

Jul. 2016 – Mar. 2019

- **Leveraging near real-time revenue reports to make canary builds intelligent**
 - revenue-based A/B testing platform that tests the efficacy of newly developed features against revenue and reports them to the business and the development teams to assist in the decision-making process.
- **Improved observability of application by architecting distributed, scalable, lightweight, reliable systems**
 - Built a pipeline that calculates various application metrics like backend connection times, total response times, etc. and plots them in near real-time for performance tuning and debugging.
 - The pipeline involves pushing logs produced across serving into Kafka streaming service and developing a custom log compilation application in Golang to consume the logs and post the results to a graphing service.
 - Provided visualization of the graphs using graphana
- **Played a pivotal role in research and execution of container orchestration framework in production**
 - Deployed a container-based resource management system Kubernetes, evaluating various virtual networks such as Macvlan, Ipvlan, bridged, overlay for the container networking.
 - Contributed to the opensource implementation of the Netscaler ingress controller, a hardware-based load balancer, for load balancing the containers in the cluster.
- **Optimized Resource Utilisation by AutoScaling backend API Microservices**
 - Worked on auto-scaling a backend API using traffic patterns. Investigating traffic patterns and automatically scaling various layers independently, helped in optimizing resource utilization, resulting in cost reduction.
- **Refactoring Redis Architecture**
 - Migrated traditional shard based Redis using Twemproxy to a cluster based solution while maintaining the integrity of the current data.
- **Miscellaneous**
 - Responsible for architecting, maintaining service level agreement, performance tuning, and troubleshooting problems of multiple backend services at media.net, including a KeywordApi that returns relevant keywords based on context for a given URL, a BidApi that returns revenue predictions on a given keyword and URL for ad-slot bidding in real-time.

Embibe (<https://www.embibe.com/>), Bangalore, India

Software Intern

Apr. 2015 – Jun. 2015

- **Cloud Infra Monitoring and Alerting system**
 - Deployed a pipeline to collect system metrics from the cloud infrastructure and alert anomalies, if any.
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ACADEMIC PROJECTS

eXperimental Operating System(XOS),

Github link: <https://github.com/Surya361/myxos>

Aug. 2014 – Nov. 2014

- A platform to develop a toy operating system, which supports multiprogramming, demand paging, XFS(experimental file system). It uses a custom-defined language called SPL(Systems Programming Language) to write the kernel and APL (Application Programming Language) for applications.
- The main aim of this project to get familiar with various data structures and hardware constructs used in operating systems.

Lottery Scheduler for MINIX,

Github link: <https://github.com/Surya361/minix-exp-lottery/tree/surya>

Dec. 2015 – Apr. 2016

- A microkernel-based operating system that emphasizes reliability and security to performance. the scheduling policy of Minix from priority queue to lottery along with introducing necessary new system calls to modify the priority of a process by changing the number of tickets allocated.
- The main objective of the project is studying the tenets of a microkernel and work with a real-world operating system.

Dynamically Scalable Explicit State Model Checker

Guide: Dr. Suresh Purini

Mar. 2019 – Mar. 2020

- Tackled state space explosion problem in explicit state model checking using consistent hashing.
- Employed actors for the mobility of State Space across virtual machines. In the case of memory pressure actors, the cluster incrementally expands, and the actors relocate to the new virtual machines.
- The work is published at the 27th International Conference on High Performance Computing titled Model Checking as a Service using Dynamic Resource Scaling

Miscellaneous

- Working on challenges from cryptopals.com Github: <https://github.com/Surya361/cryptopals>.
- Finalist for CTF conducted during CSAW'17.
- Worked as Student System Administrator for Software Systems Lab during undergraduation.

Technical Skills

Programming Languages: C, Golang, Python, Java

Frameworks: Kubernetes, Docker, Rails

Tools: Git, Linux, Jenkins, GCE, AWS