

Archana Narayanan

Software Engineer and Full-Stack Developer

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Education

MS Computer Science *Indiana University, 4.0/4.0*

Bloomington, IN 2022- 04/2024

B.Tech Computer Science *SASTRA University, 8.5/10.0*

India 2015-2019

Professional Experience

Systems Engineering Intern (*GlobalNOC*)

Bloomington, IN 10/2022 - present

- Revamped User-Interface using - React, Tailwind CSS leading to **15x faster interactions** and modernized data presentation
- Achieved **30% faster development cycles** by Engineering highly reusable UI components enhancing code maintainability, leading to **40% reduction in bug reports** and improved **development efficiency by 25%**
- Led the optimization initiative, **reducing the build size to 3/4th** of the previous bloated application by using purging and compression techniques

Senior Software Engineer, (SS&C EZE) - *Employee of the year, 2022 | SPOT Award, 2021 | SPOT Award, 2020*

India 06/2019 - 08/2022

- Accomplished **99.9% service uptime** by leading the development and implementation of fintech features ensuring uninterrupted transactions, along with **100% code coverage**
- Standardized coding practices, project templates, and CI/CD pipelines - fostering reusability and consistency leading to **3x faster setups, 2x reduced bug instances**, and lowered tech debt
- Participated in conducting interviews, code reviews, **technical architecture** discussions, product **retrospectives**, and **80+ sprint sessions** as part of Agile methodology fostering improvement in team productivity

Projects

Stream Crew- Movie Streaming Platform - *Python, Angular JS, AWS, Redis, RabbitMQ, Kubernetes, Distributed Systems, Micro-Services*

- Architected an on-demand, distributed system for content streaming services, scaled to serve 100+ viewers at a time with Disaster Recovery
- Implemented 5+ REST APIs and 2 Web Socket APIs using FastAPI for service connectivity, along with CI/CD pipeline using GitHub Actions
- Encoded the streaming content employing DASH using AWS-ElementalMediaConvert with AWS S3 as a cost-efficient and lightweight data storage
- Deployed the service using Kubernetes along with RabbitMQ and Redis cache for faster streamlined using edge computing techniques

Breaking Security - The Quantum Realm - *Qiskit, Python, IBM Quantum Computer*

- Implemented Quantum Discrete Logarithm Algorithm using 8+ Quantum circuits, Quantum gates - Hadamard, Z-gate, P-gate, and Fourier Transformation techniques
- Optimized the complete algorithm up to 0.3x reduced memory utilization by using Artur & Michele Technique for reduced Adders, reducing registers for control qubits

Programming Language Compiler - *Python, X86 Interpreter, Docker*

- Programmed a Custom compiler for Python - an interpreted language, supporting arithmetics, branching, looping constructs, arrays, functions, and tuple data structures
- Optimized the compile-time up to 0.2x faster by employing Variable Propagation and Constant Folding techniques
- Tested the functioning of the compiler by deploying in a Docker container hosting bare metal Linux with X86 run-time

Biometric Template Protection - *Scilab, Atmel, Verilog, Curve-based CryptoSystems*

Published

- Devised a co-processor, implementing encryption techniques using Hyper-Elliptic Curve Cryptography facilitating parallelism
- Established a Speech-Biometric system (first of its kind) - a lightweight, lossless recovery model for securing speech templates in the cloud
- Perfected the system by matching 85% of the ideal values on various assessment metrics

Skills

Programming Languages: Python, Go, C#, Node JS, .NET, Java, C++.

Web Development: React JS, Angular JS, Next JS, Vue JS, TypeScript, Tailwind CSS, HTML, CSS, Javascript.

Database: MS SQL Server, MySQL, PL/SQL, Postgres, MongoDB, NoSQL, Neo4J (Graph DB), ORMs.

Cloud: AWS - S3, DynamoDB, SQS, SNS, EventBridge, Lambda, Kinesis, EC2, Cloudfront, Elemental Media Convert, RDS, ElastiCache, AppFabric, App Mesh, API gateway, VPC, Route 53, Azure Administrator, GCP compute, Redis, Memcache, IBM-quantum.

DevOps & Platform: Docker, Kubernetes, Rancher, Nginx, Consul, Jenkins, Octopus, Teamcity, Redis, Kafka, AMQ, RabbitMQ, Grafana, Prometheus, Datadog, Splunk.

Testing: Jasmine, Protractor, Selenium, J-Unit, Go tests.

Misc: REST APIs, Web Sockets, GraphQL, gRPC, Lambdas, Solution Infrastructure, Multi-Cloud Architectures.