

# Madhu Krishnan

· SOFTWARE ENGINEER · BACKEND & DISTRIBUTED SYSTEMS ·

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## Education

### University of California, San Diego

Sep. 2012 - Dec. 2016

DOUBLE DEGREE (SUMMA CUM LAUDE)

B.S. COMPUTER SCIENCE

B.S. APPLIED MATHEMATICS

- Undergraduate Tutor
- Tau Beta Pi Honor Society (Vice-President)

## Skills & Qualifications

**Programming** Java, Typescript/Javascript, Python, C/C++, MATLAB, Haskell, LaTeX

**Technologies** Docker, Kubernetes, Terraform, Istio, Postgres, Node.js, gRPC, GraphQL, Message Queues, Solr, Datadog, AWS, Git, GNU/Linux

## Work Experience

### Uptrust

SOFTWARE ENGINEER

Apr. 2021 - Jun. 2022

- Designed and implemented a new **queuing system with pg-boss** to improve reliability and fault-tolerance of the messaging system; new features included resilience to dropped messages, automatic retries, and service monitors per queue.
- Rewrote the messaging system with **GraphQL** APIs with backing **Typescript + Postgres** implementations as part of a datastore migration from Firebase.
- Designed improvements including recurring court date events and many staff-to-client associations, and Coffeescript-to-TypeScript migration.

### Salesforce

SENIOR SOFTWARE ENGINEER

Mar. 2017 - Apr. 2021

INTERN (CORE SEARCH)

Jun. 2016 - Sep. 2016

INTERN (SERVICE CLOUD)

Jun. 2015 - Sep. 2015

- Designed and implemented performance improvements in legacy search query execution, leading to **500ms+ improvement** for some customers.
- Led implementation for "many **Kubernetes** namespaces" interim solution for developer productivity in the early days of an AWS public cloud migration. Presented to architects and the CTO to help prioritize an improved development experience.
- Shipped critical MVP features for SQEP, one of the first **gRPC microservices** at Salesforce, used to provide real-time execution of machine learning models.
- Implemented key features to the internal **feature toggling** infrastructure, including database migrations and service alerts.

### Annai Systems

SOFTWARE ENGINEERING INTERN

June. 2014 - Sep. 2014

- Built and tested an encrypted high-speed transport service for genome sequencing with **OpenSSL** and **C/C++**.

## Research Experience

### Cryptographic Security of Novel Hypermedia Protocols

UNDERGRADUATE RESEARCHER

2016

- Analyzed the cryptographic security of IPFS, a peer-to-peer distributed protocol and application suite. ([Paper](#))

### Autonomous Mapping and Navigation

UNDERGRADUATE RESEARCHER

2011 - 2013

- *Edge-based Crowd Detection from Single Image Datasets* (Published in [IJCSI](#), Vol. 12)
- *Autonomous Mapping and Navigation through Edge-based Optical Flow and Time-to-Collision* (Published in [ARPN](#), Vol. 7)

## Projects

### COMPETITIONS

- 2020 **Winner of 'Coolest Hack'**, Einstein Cloud Hackathon (Multi-Armed Bandit Experimentation)
- 2014 **3rd Place**, Facebook Hackathon (Facebook Reconnect)
- 2013 **2nd Place**, Intuit Hackathon (Triton Exchange)
- 2012 **2nd Place**, Intel ISEF Sweepstakes
- 2012 **1st Place**, Greater San Diego Science and Engineering Fair