

# Stefan Musarra

San Francisco, CA

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## SKILLS SUMMARY

- Front-end programming: React, Redux, ES6 JavaScript, NextJS,, Jest, Mocha
- Server and Web Site programming: Node with Express and MongoDB, Python with FastAPI & Django, Databases: Postgres, MySQL & GraphQL
- Cloud Services: AWS S3, Lambda, Cognito, EC2, Kubernetes and Docker
- Graphics programming with CreateJS HTML5, d3 SVG, and Three.js WebGL

## EDUCATION

- **Massachusetts Institute of Technology**  
B.S. Chemical Engineering
- **Stanford University**  
M.S. Mechanical Engineering (Computational Fluid Mechanics)
- **University of California, Berkeley**  
Ph.D. Chemical Engineering (Applied Mathematics and Computer Modeling)

## PROFESSIONAL EXPERIENCE

### **MissionBit and DevMission** *Volunteer Software Instructor*

San Francisco CA, Sep 2024 - present

- Part-time class-room assistant teaching Web Development to San Francisco Youth.

### **Checkr.com** *Full-stack Software Engineer*

San Francisco CA, Nov 2021 – Dec 2023

- Created API endpoints for Ruby on Rails microservice based architecture with 100% test coverage.
- Added new features to high-volume client-facing TypeScript React web applications.
- Wrote Snowflake, Postgres and MySQL queries to analyze scenarios results for client parameter changes upon large sets of input data.

### **Project Geminae** *Cloud Application Engineer*

San Francisco CA, Jan 2021 – Oct 2021

- Developed in-house library in Python using Boto3 to automate Serverless Application Model development with AWS Cloudfront and API Gateway.
- Developed front-end secure React web site using AWS Cognito.
- Implemented drag and drop graphical scheduling components

### **Tremor Video DSP Inc.** *Senior Software Engineer*

San Francisco CA, June 2015 – March 2019

- Designed and implemented code for proprietary Web-based application used to develop multi-scene interactive mobile and desktop video advertisements.
- Created novel JavaScript library for animating canvas elements, resulting in presentation at [2019 ForwardJS JavaScript conference](#).
- Implemented Mongo Database, Azure Authentication, and Access Control List Permissions for Customer-facing Express/React Advertisement Preview Web Site.

- Developed numerous API endpoints for processing AWS validation, transformation, storage, and retrieval data requests.

### **Mappable.com** *Python Back-End Data Scientist*

Berkeley CA, Jan 2015 – June 2015

- Designed SQLAlchemy Postgres Python programs to ingest and update the entire Apple iTunes database from flat files. Optimized foreign-key constraints and table indices. Wrote custom modules for the Python Luigi library to automate the entire process. Wrote corresponding PyTest modules to assure proper program operation.
- Assisted in development of an Internal Admin Utility written in Angular, to monitor database operations and data integrity

### **VendOp Corporation** *Software Engineer Internship*

San Francisco CA, Aug 2014 - Dec 2014

- Developed Embeddable Web Page AJAX Widget from scratch in Javascript, designed to increase SEO rank of the VendOp.com website. Wrote companion back-end RESTful API server in Python Django.
- Assisted in development of an Internal Admin Utility written in Angular, to monitor database operations and data integrity

### **Cutler Group, LP** *Software Engineer, CBOE Trading System*

San Francisco CA, 2 years

- Member of a small team developing a C++ multi-threaded high-speed memory-cached trading system for options traders on the Chicago Board of Options Exchange.
- Monitored active system for connectivity issues with the Java-based FIX (Financial Information eXchange) engine to electronic stock exchanges

### **Cambridge Technology Partners** *Associate Director*

San Francisco CA, 2 years

- Member of a large team creating a C++/Oracle multi-tiered electronic stock trading system with Rapid Application Development methodology.
- Responsible for establishing and maintaining system connectivity between Market Makers and NASDAQ.
- Monitored active system for database deadlocks and redesigned stored procedures for complex business logic.

### **MSCI Barra Inc.** *Financial Analytics Software Engineer*

Berkeley CA, 2 years

- Discovered and solved numerous subtle errors in C++ Financial Analytics library for Cosmos Global Risk Manager used by major corporations such as Capital One and JP Morgan.
- Analyzed monthly updates to financial database for valuation anomalies using Analytics library.

### **Electric Power Research Institute** *Project Manager*

Palo Alto CA, 2 years

- Managed research contracts with major universities to achieve scheduled milestones and deadlines.
- Performed statistical analysis of environmental data sets for visibility degradation from [particulate aerosols](#).

### **Sonoma Technology** *Senior Air Quality Analyst*

Santa Rosa CA, 3 years

- Compiled and processed large meteorological and emission databases.

- Developed computer programs to simulate regional air pollution formation over the L.A. Air Basin solving 3D coupled equations of reactions, particulate matter formation and air flow, published in [Atmospheric Environment](#).
- Unix system administrator, performed scheduled system backups and operating system upgrades.

**Sandia National Laboratories** *Staff Scientist*

Livermore CA, 2 years

- Developed computer programs to simulate single particle coal combustion.
- Published article in [Combustion Science and Technology](#)