

# SUDHANSHU KULKARNI Software Developer

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 San Francisco, CA

An earnest **Software Developer** bringing deep research and application-oriented profile to the table. My years of experience ensure clean, efficient software, and I'm diving headfirst (*coffee in hand!*) into the exciting worlds of HPC, Quantum Computing, & Software Development.

## EXPERIENCE

- |                                    |   |
|------------------------------------|---|
| 08/2024 - present                  | <b>Technical Solutions Architect - OXMAINT INC</b> , <i>Silicon Valley, CA</i> <ul style="list-style-type: none"><li>Led the integration of Artificial Intelligence throughout the product, embedding automation into core workflows, slashing manual effort by 40%, and elevating user engagement metrics by 3x.</li><li>Crafted AI-Agents enhancing 6+ core CMMS modules handling enterprise-grade industry operations, for predictive analytics, performance optimizations, and genAI while prioritizing security and scalability.</li></ul>   |
| 11/2022 - 05/2024<br>(1 yr, 7 mos) | <b>Graduate Research Assistantship - SAN FRANCISCO STATE UNIVERSITY</b> , <i>San Francisco, CA</i> <ul style="list-style-type: none"><li>Formulated feasibility studies on performing scalable FFT computations 'in situ' on HPC platforms leveraging CPU, GPU &amp; Quantum hardware to support scientific analysis workloads in exascale <b>NERSC</b> projects like WarpX.</li><li>Devised a novel FFT numerical library in C++ for distributed-memory massively parallel processing architecture. Collaborated with scientists at the <b>LBNL</b> supercomputing facility to conduct extended research, achieving a minimum of 10x speedup in computation time compared to traditional methods.</li></ul>  |
| 05/2023 - 08/2023<br>(3 mos)       | <b>SDE Intern - AMAZON WEB SERVICES (AWS)</b> , <i>Seattle, WA</i> <ul style="list-style-type: none"><li>Prototyped a robust monitoring service to ensure timely capturing of critical metrics to enhance service reliability by at least 10% after full-fledged deployment on thousands of live AWS servers worldwide as a part of the AWS CloudFront CDN services' platform team.</li><li>Curated live dashboards to provide real-time visibility into at least 70% of all the agents running on servers, empowering the team to actively maintain reliability and diagnose potential issues.</li></ul>   |
| 08/2020 - 07/2022<br>(2 yrs)       | <b>Software Engineer - ELASTICRUN</b> , <i>Pune, IN</i> <ul style="list-style-type: none"><li>Engineered an enterprise-grade ERP platform on the Frappe framework, streamlining logistics and B2B eCommerce processes, while single-handedly contributing to 20% of the 'Velocity' segment's development workload.</li><li>Refined ground-level operational efficiency by executing heavy Python-based server-side development, and PWAs using Flutter and SvelteJS as a full-stack developer in an agile software development environment.</li><li>Orchestrated an automated testing framework and handled bi-weekly live software deployments with the DevOps team based on Kubernetes and GitLab-based CI/CD pipelines, boosting deployment rate and reliability by <math>\approx 15\%</math>.</li></ul> |







## TECHNICAL PROFICIENCY

Languages	Python, C/C++, Java, CUDA, TypeScript, Javascript, SQL, Ruby, R, Go, HTML/CSS, bash.
Frameworks	SENSEI, Qiskit, cuQuantum, Frappe, Django, Flask, SvelteJS, React, Node.js, MySQL, NoSQL, Redis, Helm.
Tools	Git, Tensorflow, PyTorch, Keras, SciPy/NumPy, MPI/OpenMP, Linux, AWS, GCP, Azure, Docker/Kubernetes, ElasticSearch, nginx, REST, Linux, PowerBI, Jira.

## EDUCATION

2024	<b>MS - COMPUTER SCIENCE, San Francisco State University</b> High-Performance Computing, Quantum Computing, Artificial Intelligence, Software Engineering, Advanced Algorithms
2020	<b>BE - COMPUTER ENGINEERING, International Institute of Information Technology (SPPU)</b> Machine Learning, Data Mining and Analytics, NLP, Cloud Computing, Databases, Data Structures

## NOTABLE EXPERIENCES AND PUBLICATIONS

- An integral member of the Early-Career Conference Review Board for the ISAV workshop at The Super-Computing conference (SC23), tasked with a technical assessment of submitted research papers and noteworthy lightning talk on Scalable FFT project research. Peer Reviewed Abstract from the conference : <https://arxiv.org/abs/2402.01843> 
- Open Source Contributor to **SENSEI Project** as a new FFT analysis backed endpoint. 
- Pioneered research on quantifying and benchmarking Quantum Encoding models to identify challenges and computational overheads to optimize the Hybrid Classical-Quantum interface advancing the field of practical quantum computing.  
[HiPC-IEEE awaiting publication](#)  | [Extended Thesis](#)  | [GitHub](#)  | [IBM Quantum Challenge '24 Achievement](#) 
- Architected a GIS project to perform analysis on multi-spectral & temporal satellite data employing Deep Learning Networks & signal-matching algorithms yielding over 80% accuracy and collaborated with scientists from ISRO, NRSC & Geospatial Design Labs. 