

Varun Patil | IIT Bombay

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Education

University of California, Los Angeles

M.S. Computer Science

California, USA

2020 - Present

Indian Institute of Technology, Bombay

B.Tech, Mechanical Engineering

Minor in Computer Science and Engineering

Mumbai, India

2016 - 2020

Experience

Full Stack Developer.....

○ **Single Sign On, IIT Bombay** - <https://sso.iitb.ac.in> Sep. 2019 - Ongoing

([Computer Center](#) - TypeScript, Redis, Lua, Docker, Kubernetes, Golang, LDAP, Kotlin, Swift)

- Drafted a policy framework for enforcing **multi-factor authentication** on a **10000+** organization
- Implemented an **OAuth2/SAML** provider for authorization over **LDAP-TOTP-FIDO** authentication
- Implemented a very high performance geolocation provider ([GeolPNS](#)) for suspicious activity detection
- **Authored** popular **open source plugins** for migrating [Nextcloud](#) and [Roundcube Webmail](#) to OIDC
- Developed a secondary authentication protocol for legacy IMAP/SMTP clients for Dovecot/Postfix
- Conceptualized and developed **Android** and **iOS** clients for **user-initiated passwordless authentication**

○ **InstiApp, IIT Bombay** - <https://insti.app> Jan. 2018 - Jun. 2020

([FOSS](#), Django, Angular, Android, Postgres)

- **Led a team of 20+ developers** in developing a common platform for student activities in IIT Bombay
- Currently has **8000+** users, **100% API test coverage**, and has served **2,000,000+** notifications
- Implemented a machine learning **model** to map real locations to a non-linear isometric projection

○ **AMS, IIT Bombay** - <https://ams.iitb.ac.in> May - Jul. 2020

(Guide - [Prof. S. Sudarshan](#), IIT Bombay - Angular, PHP, MySQL, Redis)

- Conceptualized a **digital-signature** based solution to digitize workflows in a decades-old system
- Led a team for implementation and productionization in emergency response to the COVID-19 pandemic

○ **5G Core Testbed** Aug. 2019 - Jan. 2020

(Guide - [Prof. Mythili Vutukuru](#), IIT Bombay - Docker, C++, Shell, Python)

- Built and deployed an automated software testing framework within **Jenkins** for a 5G packet core
- **Dockerized** all components with multi-stage optimized image building for deployment in production

○ **Product Catalog Team - Mercari HQ, Tokyo, Japan** Jul. 2019

(Golang, Docker, Kubernetes, Firebase, Redis)

- Worked in an **agile team** to develop an industry-grade management tool for an **arbitrarily large dataset**
- Achieved **99% automated test coverage** on the API through unit testing with Golang's testing framework
- Setup up **continuous integration** and deployment over **Kubernetes** using **CircleCI** and **Terraform**

Machine Learning.....

○ **Grammatical Error Correction with Deep Learning** May - Aug. 2018

(Guide - [Prof. Sunita Sarawagi](#), IIT Bombay - Python, TensorFlow)

- Worked in a team as a **research intern** on correcting grammatical errors with **Deep Learning**
- Involved in **neural network** architecture and design, data pre-processing and implementation
- Trained and deployed the model on Google's Tensor Processing Units (**TPUs**) over Google Cloud Platform

Software Projects.....

○ **Official Website, Mood Indigo 2018** - <https://2018.moodi.org> Sep. 2018

([Source Code](#), HTML, CSS3, JavaScript, Nunjucks, React)

- Developed the official website of Asia's largest college cultural festival, with **1,000,000+** pageviews

- **Cross-Platform Aveyond** 2015 - 2019
 (Ruby, C++, GLES, Java)
 - Ported **eight** Windows games to Linux, macOS and Android using an open source engine (mkxp)
 - Designed, implemented and optimized the commercial product website <https://radialapps.com>
 - **Other / Open Source Projects**
 - **Cerium** - MonogoDB-backed high performance Google Forms clone for local deployment (Golang, Angular)
 - **Cobalt** - Minimalistic mail merge utility with conversion tracking and a beautiful user interface (Django)
 - **Ferrous** - Mood Indigo application suite to distribute accommodation to 5000 people in one day (C#)
 - **Billboard** - Fault-resistant RPi application to display upcoming InstiApp events on billboards (C++)
 - **Emscripted MKXP** - Cross-compiled web port of an open source game engine with WebAssembly (C++)
- Teaching Experience.....
- **Instructor - Web Development, Technical Summer School** Jun. 2018
 (Lecture Notes, HTML, CSS, JavaScript, Python - Django)
 - Conducted a 6-day summer course on web development with 50+ UG/PG IIT Bombay students
 - Covered topics including networking, REST APIs, best practices etc. in 18 hours of lecture time
 - **Teaching Assistant - CS101, Student Support Services** Jun. - Nov. 2018
 - Conducted doubt-solving and additional learning sessions for 100+ freshmen in CS 101

Positions of Responsibility

- **Institute System Administrator** Apr. 2019 - Jun. 2020
 (Hostel Affairs Council, IIT Bombay)
 - **Led a 12-member** SysAd team as the interface between IITB Computer Center and all students
 - Moved the student software infrastructure from **KVM** virtualization to **LXC** with **High Availability**
 - Performed multiple on-site machine failure investigations and resolutions including hardware procurement
 - Brought about critical policy changes leading to annual savings of INR 100,000+ in server costs
- **Overall Coordinator, Developers' Community** Apr. 2019 - Jun. 2020
 (Institute Technical Council, IIT Bombay)
 - **Led** the community of software developers at IIT Bombay with a **3-tier student technical team**
 - Mentored a group of freshers for writing maintainable production quality code and performing deployments

Achievements & Awards

- Awarded the **Institute Technical Color Award** for exceptional technical contributions 2019
- **First runner up** at the **Mercari x TOP CAREER Hackathon India, 2017** 2017
- Awarded an **AP** (Advanced Performer) grade in **CS101**, given to 4 out of 469 registered students 2017
- **All India Rank 1021** in JEE Advanced among 150,000 candidates for entrance into IITs 2016
- **All India Rank 519** in JEE Main among 1.2 million candidates 2016
- **All India Rank 276** in Kishore Vaigyanik Protsahan Yojana (KVPY), SX stream 2015
- Qualified within **top 1 percentile** for **Indian National Physics Olympiad** 2015
- Awarded the prestigious **National Talent Search Examination Scholarship** 2014
- Cleared the **Maharashtra Talent Search Examination** with **State Ranks 8, 11 & 7** 2012-14

Technical Skills

- *Programming Languages:*
 - Advanced: Python, C++, JavaScript/TypeScript
 - Intermediate: C#, Visual Basic, Ruby, Java, Golang, PHP, Bash, C, Lua, Kotlin
 - Deployment: Docker, Kubernetes, LXC, KVM, QEMU, CircleCI, Spinnaker, Terraform
- *Software:* MATLAB, Git, ns-3, Wireshark, L^AT_EX, AutoCAD, SolidWorks, MSC ADAMS, Inkscape, JIRA

Extracurricular

- I enjoy swimming, writing, singing, photography, lifting weights, scripting random things and actively following and contributing to a few particularly interesting subreddits and StackExchange communities