

# Varun Patil | UCLA

Aurangabad – India

✉ [varunpatil@ucla.edu](mailto:varunpatil@ucla.edu) • 📄 <https://varunpatil.me> • 🔄 [pulsejet](#) 📱 [PulseJet](#)

## 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, Institute Technical Roll of Honour

Mumbai, India

2016 - 2020

## Experience

### Full Stack Developer

- **Single Sign On** - <https://sso.iitb.ac.in> Sep. 2019 - Sep. 2020  
([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 ([GeoIPNS](#)) for suspicious activity detection
  - **Authored** popular **open source plugins** for migrating [nextcloud](#) and [roundcube](#) [webmail](#) to **OIDC**
  - Conceptualized and developed **Android** and **iOS** clients for **user-initiated passwordless authentication**
  - Integrated authentication with SAML federated identity for **Azure Active Directory** and **Google Suite**
- **InstiApp** - <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 over **5 million notifications**
  - Implemented a machine learning **model** to map real locations to a non-linear isometric projection
- **Application Management System** - <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
  - Set 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**
  - Popular FOSS plugins - [nextcloud-oidc-login](#), [roundcube-oidc](#), [banner-warn](#) and [banner-ics](#) (PHP)
  - [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#)
  - [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

## Leadership & Technical Roles

- **Institute System Administrator**, IIT Bombay Apr. 2019 - Jun. 2020
  - **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 IIT Bombay Apr. 2019 - Jun. 2020
  - **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 Roll of Honour**, the highest student award of IIT Bombay 2020
- Awarded the **Institute Technical Colour** for exceptional contributions to the student community 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<sup>A</sup>T<sub>E</sub>X, AutoCAD, SolidWorks, MSC ADAMS, Inkscape, JIRA

## Extracurricular

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