

# OMKAR UBALE

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## EDUCATION

**Northeastern University**, Boston, MA Sep '22 – Dec '24  
**M. S. in Computer Science** - Khoury College of Computer Sciences GPA: 3.95 / 4

Courses: Program Design Paradigm, Foundations of Artificial Intelligence, Algorithms, Computer Systems, Mobile App Development, Machine Learning, Web Development, Large Scale Parallel Distributed Systems

### Teaching Assistantships:

CS 5010 – Program Design Paradigm (Graduate OOD with Java) – Spring '23, Summer '23, Spring '24, Fall '24

CS 5520 – Mobile App Development (Android, Java, GCP) – Summer '24

**Vellore Institute of Technology**, Vellore, India Aug '14 – May '18  
B. Tech. in Electronics and Communications Engineering GPA: 8.45 / 10

## WORK EXPERIENCE

[Sway AI](#) *Burlington, MA*

**Full-Stack Software Engineer Co-op** Jun '23 – Dec '23

- Implemented Partial Dependence Plots and What-If Analyzer for 20+ models to optimize model evaluation using Python, Django, React, AWS, and MongoDB as microservices, reducing iteration time from 2 hours to 30 minutes per model for users
- Introduced monitoring for models deployed on Kubernetes using Prometheus and Grafana, enabling real-time tracking of deployment's replica count, CPU, memory, errors, and inference requests
- Refactored 3 critical Django APIs by optimizing relational database queries and AWS Lambda configurations, reducing latency from 17s to 0.8s through optimized querying and using provisioned Lambda instances
- Incorporated Mongo export with proprietary querying middleware, enabling export of training, trial run, and inference data

### [Rare Crew](#)

*Bengaluru, India & Belgrade, Serbia*

**Senior Full-Stack Software Engineer** Aug '18 – Jun '22

- Led a team of 20 engineers and co-led a team of 60 developers in building an [ERP product](#) with 50k+ active users
- Youngest team leader in company history, leading a team of 12 developers in key ERP feature development within 8 months, recognized for rapid advancement through performance excellence
- Founded and led a mentorship program, training 50+ developers over 2 years, reducing attrition rate from 50% to 5%
- Designed and implemented a role-based permissions model using C#, .NET and MS SQL Server, supporting 250 million configs
- Constructed timeline tool with JavaScript, HTML, and CSS, for planning allocation of 60+ stadiums for the [Premier League](#)
- Implemented indexing strategies and normalization techniques to improve SQL query execution time of 90+ stored procedures and 60+ user-defined functions to < 1 sec
- Built process management tools, asset management modules, and external sharing engine using insights from customer-facing subject matter experts using C#, .NET, SQL Server, and Azure, cumulatively building 800+ RPC and REST APIs
- Automated Azure deployments for 4 core application microservices, cutting deployment time from 2 hours to 7 min
- Implemented HQ portal for client instance monitoring and servicing, enabling global 24x7 support for 20+ clients
- Created integrations layer for ERP product with SAP Systems and Power BI, enabling visibility of 14,000+ assets for [Endeavor](#), reducing the time required for status updates of assets from 60 to 4 hours per week
- Architected and led a team of 3 developers for a complete rewrite of public-facing websites using Angular 7, RazorView, jQuery, TypeScript, and Bootstrap for [rarecrew.com](#), [vault-erp.com](#), and [mydropmatters.com](#)

## AWARDS

**Sway AI**, Burlington MA – Employee Recognition Award Sep '23, Oct '23

- Awarded for exemplary performance, initiative in feature development, and application performance improvements
- Recognized for ensuring a smooth release for a client demo, which led to securing the company's first client

**Rare Crew**, Bengaluru, India – Top Peer rated employee of the year '19, '20, '21

- Recognized as a top 3 peer-rated employee for exceptional work quality, founding a mentorship program for junior employees, leading teammates, preemptively resolving client issues, and contributing articles to the company blog

## PROJECTS

**Triangles in a Twitter Graph data using Hadoop MapReduce** [\[code available on request\]](#) Sept '24 – Present

- Calculated counts for 2-hops and triangles in 1.3 GB graph using Reducer Side join and Replicated Join on Hadoop MapReduce

**Comparative Analysis of Recommendation Engines for Movies** Jan '24 – Apr '24

- Using a movies and ratings [dataset](#), demonstrated building a recommendation engine using various methods and used Normalized Discounted Cumulative Gain (NDCG) to compare the top 5 recommendations

- Explored Collaborative Filtering, embedding-based Filtering, and variations of Content-Based Filtering: Popularity-based Recommenders, Similarity-based Recommenders, and Text Similarity-based Recommenders

#### **Kanbas – a clone of Canvas in MERN stack**

Jan '24 – Apr '24

- Replicated popular educational web application to explore best practices in React.js, Express.js, Node.js, MongoDB, Mongoose, HTML, CSS, and Bootstrap, implementing course management, assignments, and quiz-conducting capabilities

#### **Coconnect – Making Money Social**

May '23 - Aug '23

- Developed a social wealth management Android mobile application – Coconnect, combining budget management and expense-sharing concepts. Supports managing personal and group transactions, friends feature suite, budget tracking, and real-time updates using Firebase Realtime Database on GCP.

#### **Weather Tracker**

May '23 - Aug '23

- Developed a Weather reporting Android mobile application using [OpenWeather](#) API, supporting weather for all supported cities, and temperature, rainfall, wind, etc. forecasting per city

#### **Memory Heap using Virtual Page Tables**

Jan '23 - Mar '23

- Devised a virtual memory heap using virtual page tables to allocate, deallocate, and access heap memory
- Executed using C, multi-threading, and Least Recently Used (LRU) page replacement with disk as secondary storage on Unix

#### **Remotely Managed File System with Distributed Access**

Jan '23 - Mar '23

- Engineered a Unix-based remote file system to communicate over TCP sockets, and support reading/writing files and folders
- Created as a distributed RAID-1 file system of reads across all drives using multi-threading and parallelized reads in C

#### **Portfolio Manager Desktop Application**

Sep '22 - Dec '22

- Desktop application built using Java 8, JUnit 4, Java Swing, Java Spring Boot, and Alpha Vantage API to manage portfolios, query value, and composition for provided date, dollar cost average investing, and portfolio rebalancing
- Showcases best practices using MVC, abstraction, and appropriate design patterns, with focus on code reuse and unit testing

#### **Big Number Library**

Sep '22 - Dec '22

- Java package to represent large numbers with support to add digits, copy numbers, and add other such numbers

#### **Just-in-Time Calculator Library**

Sep '22 - Dec '22

- Java package implementing a Just-in-time calculator with intelligent interpretation of inputs to perform real-time arithmetic

#### **Pacman AI**

Sep '22 – Dec '22

- Trained an AI to play the game Pacman using Python. Algorithms used: Breadth First Search, Depth First Search, Uniform Cost Search, A\* Search, Hidden Markov Models, Markov Decision Processes, Reinforcement Learning, Q Learning

#### **Tetris AI**

Sep '22 - Dec '22

- Trained an AI program using A\* Search, Reinforcement Learning to play Tetris, analyzed qualitative and quantitative metrics

#### **Candidate Management Web Application**

Nov '20 – Jan '21

- Prototyped a transparent recruitment system using .NET, Angular 8, SQL Server, and Azure, providing comparative analysis to hiring managers and real-time updates regarding application to candidates

#### **IoT-based healthcare system with fingerprint recognition**

Jan '18 - May '18

- Devised a prototype device to be placed in ambulances with scalable cloud architecture, allowing first responders to get medical details and history of patients via fingerprint, and relay live vitals to admitting hospital, accomplished using Raspberry Pi, Fingerprint scanner, AWS, Apache Server, Java, Python, and ECG sensors

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### **TECHNICAL SKILLS**

**Languages:** Python, C#, Java, C++, C, JavaScript, TypeScript, [SQL](#)

**Frameworks/Libraries:** Django, .NET Core, .NET MVC, Entity Framework, React.js, Angular, JUnit, JDK, NodeJS, Spark, Hadoop, [Kafka](#)

**Databases:** MySQL, SQL Server, MongoDB, PostgreSQL, DynamoDB, AWS Aurora, GCP Firebase Realtime Database

**Others:** HTML, CSS, SCSS, Kubernetes, AWS, Azure, REST, Bash, Linux, Jenkins, Git, GitHub, Netlify

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### **VOLUNTEERING**

#### **Blogging**

- **Blogging:** Illustrated proper use of version management with Git using informative articles, maintained on [omkarubale.com](#)
- **Technical Blogger at Rare Crew:** Authored 2 blogs for Rare Crew regarding technical topics focused on students, developers, and technical managers: [7 Rules for Building an Application from Scratch](#), [A Day in the Life of a Software Developer](#)

#### **Mentoring**

- **Lead Mentor at Rare Crew** - Founded a Mentorship program for the organization and led the Mentoring Team of four developers. Trained 50+ developers to work in a collaborative environment across 4 different offices in 3 continents
- **Mentors Without Borders** - Tutored students from Ghana, the Philippines, and Congo in programming and best practices

#### **Technical Forums**

- Demonstrated subject matter expertise in C#, Git and SQL by helping engineers on [Stack Overflow](#), holding 350 Reputation

**Toastmasters International** – Public Speaking, Leadership and Communication Skills, VIT Vellore, India

- Recognized as a Competent Communicator and Competent Leader, won speech contests in club and area levels
- Served as vice president - membership of the Club and created an inclusive environment for members to work on communication, oration and interpersonal skills
- Presided as Purchase and Finance Lead and performed financial duties for international event: India Emerge Youth Summit '16

**Bio-Entrepreneurship and Management Club**, VIT Vellore, India

- Served as Board Member for Quality Control, preserving quality of events and campus presence for the club
- Supported with organizing events and handling registrations for national seminars and hackathons hosting 700+ candidates

#### **CERTIFICATIONS**

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<a href="#">AWS Certified Solution Architect Associate</a> , Amazon Web Services	Aug '24
<a href="#">AWS Certified Cloud Practitioner</a> , Amazon Web Services	Jun '24
<a href="#">Confluent Fundamentals Accreditation (Apache Kafka)</a> , Confluent	May '24
<a href="#">Walmart USA Advanced Software Engineering Virtual Experience Program</a> , Forage	May '24
<a href="#">JP Morgan &amp; Chase Software Engineering Virtual Experience Program</a> , Forage	Oct '23
<a href="#">Lyft Back-End Engineering Virtual Experience Program</a> , Forage	May '23