Jay Joshi

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Education

Master of Science in Computer Science at **University of Southern California** **Aug 2022 - May 2024**
Relevant Coursework: Algorithms, Machine Learning, Web Technologies, Foundations of AI, Databases
Bachelor of Engineering in Computer Engineering at **University of Pune, India** **Jul 2018 - May 2022**

Skills

Expertise	Machine Learning, Algorithm Analysis, Statistics, Git, Github
Languages	Python, JavaScript, Java, C++, Object Oriented Programming, Android
Cloud & DB	Google Cloud Platform, Firebase, MySQL, MongoDB, Docker, Kubernetes, Containerization
ML	PyTorch, Transformers, LLM, NLP, Hugging Face, CNN
OS & Web	Linux, MacOS, Windows, Angular, Nodejs, Flask, Bootstrap, HTML, CSS

Work Experience

Software Engineer, Graduate Research Assistant - ISI, USC **Nov 2022 - Jan 2023**
- Trained and assessed performance of fine-tuned cross-lingual models (XLM) for Sequence Classification on 15+ datasets leveraging PyTorch and 3 Hugging Face libraries (transformers, datasets, evaluate)
- Devised an efficient ML pipeline utilizing Python scripts and Jupyter for benchmarking in-house models against state-of-the-art models, accelerating streamlined evaluations. Delivered the pipeline in under 60 days.

Software Engineer - Food Ready **Sep 2021 - May 2022**
- Conceived and delivered an efficient solution by building 2 full-fledged apps for students to pre-order canteen meals, saving customer time and maximizing revenue for business owners
- Conceptualized end-to-end system design and implemented the Android - Java app as a POC, leveraging Firebase's suite for the backend (noSql Database); coordinated with 7 members for overall software development

Projects

Microservice orchestration using Kubernetes [source] **Apr 2024 - May 2024**
- Designed a microservice system for converting videos to MP3s using Docker, python, flask, MongoDB, and MySQL. Leveraged Kubernetes for container orchestration. Facilitated storage of large files using GridFS.
- Authenticated clients using JWTs. Utilized ingress to connect clients from the internet to the Kubernetes cluster. Implemented a notification service to update users using Google Mail's SMTP server.

EventFinder - An Event finding website [website] **Feb 2023 - Aug 2023**
- Developed a dynamic front-end event-finder website leveraging Ticketmaster APIs, Angular and Node.js.
- Implemented local HTML5 storage for a personalized experience. Utilized languages like Typescript, HTML, CSS and deployed the project on Google Cloud using relevant cloud computing techniques.

Micrograd - A tiny autograd engine [source] **Apr 2023 - May 2023**
- Implemented backpropagation (reverse-mode autodiff) over a dynamically built DAG (directed acyclic graph) and a small neural networks library on top of it with a PyTorch-like API
- The DAG operates over scalar values, i.e. we chop up each neuron into all of its individual tiny adds and multiplies, but this is powerful enough to build deep neural nets doing binary classification

Makemore - An auto-regressive character level language model [source] **Feb 2024 - Apr 2024**
- Utilized PyTorch to develop a probabilistic sequence model, emphasizing tensor operations and broadcasting to refine accuracy. Gained insights on mapping complex real-world problems into the deep-learning domain
- Optimized model performance and computational efficiency with advanced techniques including custom back-propagation, batch normalization, hyperparameter tuning, and in-depth loss function analysis.

Volunteer Experience

Volunteer Developer - Ivy **May 2023 - Aug 2023**
- Created backend APIs for Ivy , simplifying ML code conversion across six popular Python frameworks, ahdering to the CI/CD pipeline and volunteering to Ivy's mission of unifying AI technologies

Joint Secretary - Compsa **Jul 2019 - Aug 2021**
- Managed transition of club events from in-person to virtual during lockdown with the help of 50+ members
- Led workshops on Linux (5 day) and Github (2 day) helping students gain relevant exposure in lockdown