

Raghav Prasad

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EDUCATION

UNIVERSITY OF CALIFORNIA, SAN DIEGO

M.S. COMPUTER SCIENCE (SYSTEMS); GPA: 3.83

Coursework: Distributed Computing & Systems, Virtualization, Parallel Computing, Networked Systems

LA JOLLA, CA

Sep 2021 - Mar 2023

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI (BITS)

BACHELOR OF ENGINEERING (COMPUTER SCIENCE); GPA: 3.90

Coursework: Object-Oriented Programming, Data Structures and Algorithms, Computer Architecture

GOA, INDIA

Aug 2017 - Jul 2021

EXPERIENCE

COINBASE

SOFTWARE ENGINEER INTERN, ML SYSTEMS AND SERVICES

SAN FRANCISCO, CA

Jun - Sep 2022

- Engineered a custom heuristic-based approach to solve a cold start problem in the Coinbase app "For-You Feed" to ensure all pieces of content have a minimum number of impressions and potentially drive revenue
- Leveraged realtime content impressions to uprank new content and improved metrics such as mean reciprocal rank (MRR), mean average precision (MAP), and mean area under curve (AUC) for clicks by up to 10%
- Conceptualized and implemented four metrics to capture the upranking effect of the heuristic and inform our choices of various hyperparameters used in the heuristic.

W.M. KECK CENTRE FOR NEUROPHYSICS, UCLA

RESEARCH INTERN

LOS ANGELES, CA (REMOTE)

May 2020 - Aug 2021

- Designed and implemented the second generation of a Multimodal Virtual Reality system using C#, Unity, Python, Blender, and Arduino, increasing the system speed by up to 100% compared to previous generation
- Implemented a new computer vision based motion tracking subsystem which increased tracking accuracy by 27%
- Devised an Arduino-based multi-stream data synchronization method alongside communication protocols using websockets and serial APIs which minimized synchronization latency, improved hardware efficiency and reduced computing costs

COGNITIVE NEUROSCIENCE LAB, BITS

RESEARCH INTERN

GOA, INDIA

Sep 2019 - Jul 2021

- Constructed an end-to-end PET data processing pipeline using Python, R, and shell scripts to construct and analyze brain networks to ascertain the progression of Alzheimer's Disease (AD), creating a new benchmark in PET data processing and setting a new research standard in the early detection and prevention of AD
- Engineered pipeline using parallel programming to attain up to 5-fold speedup compared to the state-of-the-art method

KNOWLEDGE LAB, HOMI BHABHA CENTRE FOR SCIENCE EDUCATION

SOFTWARE DEVELOPMENT INTERN

MUMBAI, INDIA

May - Jul 2019

- Built an administrative web plugin using Ember.js, Ruby on Rails, HTML+CSS, Docker, and git. Used to curate coherent knowledge networks for an open-source learning platform resulting in an enhanced user experience for ~4000 users
- Optimized PostgreSQL database schema to enable fast search and retrieval over ~32000 articles, ensuring scalability and robustness of the plugin on larger instances of Discourse.org
- Established a template that will enable any future Discourse.org instances to be seamlessly converted into a highly scalable learning/content management system by simply integrating our plugin

PROJECTS

- Microblogging platform:** Developed a scalable and fault-tolerant distributed system for users to post and view 140-character microblogs. The system can scale to 300 backends, handle concurrent requests with low-latency while maintaining causal consistency, and can tolerate up to 297 failstops without data loss
- Twitter Dapp:** Developed a blockchain-based implementation of Twitter using Python and Solidity. Optimized the code to minimize latency and reduce gas fees by around 79.57% compared to a traditional distributed systems approach
- General Matrix Multiply:** Co-authored a CUDA-based General Matrix Multiplication algorithm designed to run on an Nvidia GPU, modeled after CUTLASS to achieve a top performance of 621.7 GFlops/s; 60.86% the performance of cuBLAS.
- Cloud distributed file storage:** Built a cloud-based distributed file storage system (like Dropbox) called *Surfstore* in GoLang using RAFT consensus. The system allows multiple clients to concurrently sync their local files to a server.

SKILLS

Languages: Python • Golang • Rust • C/C++ • Java • Shell scripting • C# • React.js • HTML+CSS

Tools and Competencies: Networking • UNIX/Linux • Docker • MySQL • PostgreSQL • CI/CD • Systems programming • git