

Vineeth Sagar Thapeta

1433 W Flournoy St 2R – Chicago, Illinois 60607

☎ (312)-825-4855 ✉ vsag96@gmail.com

Education

University of Illinois At Chicago

Master of Science, GPA – 4.0

Advisors: Brent E. Stephens(brents@uic.edu) and Balajee Vamanan(bvamanan@uic.edu)

Chicago, IL

Jan 2020–May 2022

Skills

Languages: Python, C, C++, Java, Go, P4

DevOps: Git, Ansible, Nginx, Docker

Cloud Platforms: AWS

Web: Django, DRF, gRPC

ML Frameworks: Pytorch, Sklearn, Numpy

Storage: Redis, PostgreSQL

Academic Experience

University Of Illinois Chicago

Research Assistant

Chicago, IL

May 2020–Present

Nimble: Scalable TCP friendly rate-limiting

- Developed a P4 program to improve performance isolation for multi-tenants in Datacenters.
- Generated a **50k parallel flows(connections)** to evaluate the scalability of the P4 program.
- Developed a **gRPC** control plane program to manage the P4 program.
- There was an *3–4x improvement in performance(latency and throughput)* for applications using Nimble.

P4-Trace: Debugging stateful Network Applications using in-network telemetry

- Developed a novel packet format for *in-network telemetry* which is compatible in heterogeneous network environments.
- Developed a *low latency* end host packet parser using **DPDK** to store the trace and pass the modified packet back to the Linux kernel or the upstream application.

Publications

Vineeth Sagar Thapeta, K. Shinde, M. Malekpourshahraki, D. Grassi, B. Vamanan, B.E. Stephens “Nimble: Scalable TCP-Friendly Programmable In-Network Rate-Limiting” in *SOSR 2021*.

Professional Experience

Monocle Consulting Pvt Ltd

Software Engineer

NCR, India

May 2018–Oct 2019

Mail Export API

- Developed rest API using **Django Rest Framework(DRF)** to export data from our clients. Created an asynchronous job pipeline using **Celery**(task queue) + **Redis** as a message broker. This application becomes plug and play, for new deployments.

Annotation Engine

- Developed a speech Annotation Engine for engineering drawing reviews. Used canvas to display images, **Redis** to store the comments and **Web Sockets** with Django channels to make the application responsive.

CRM Management

- Implemented **OAuth2** for registration of Office 365 accounts for managing client emails through our AI-powered CRM. **Asynchronous Send, Forward, Reply** mail and developed cron jobs to generate MIS reports.

Projects

Music Player

Java | Android

- Used *AIDL and bound services* to exchange data between two applications.
- Made use of the android services to play the song asynchronously. Used broadcasts to pause and resume the songs.
- Understood **IPC, Broadcasts and Services** architecture in the context of Android OS.

ECG Heartbeat classification using CNN

Pytorch | Python

- Implemented various model to predict the presence of Arrhythmia in Electrocardiogram(ECG) signals.
- Learnt various techniques to handle class imbalance like *weighted loss functions, data augmentation, SMOTE etc.*
- Evaluated the efficacy of **transfer learning** for a different task(*Heart attack detection*) in the same domain.

Cooperative Multi-tasking support for xv6

C

- Implemented *multi-tasking through userspace context switching* by switching a program's stack.
- Developed a scheme to yield the CPU to prevent busy waiting.

Service

Artifact Evaluation Committee ***EuroSys 2021.***

I contribute to an open source project called **deepchem**.