Tirtha Kharel

tkharel@seas.upenn.edu
tirthakharel.com
github.com/tirthakharel

Education

University of Pennsylvania — Philadelphia, PA

M.S.E. in Computer Science — *Aug. 2021 - May 2022*

B.S.E. in Computer Science — *Aug. 2018 - May 2022*

Relevant Coursework: Data Structures & Algorithms, Discrete Mathematics, Computer Architecture, Machine Learning, Operating Systems, Scalable & Cloud Computing, Databases, Web Programming

Awards: **E. Stuart Eichert, Jr. Memorial Prize** (2021)

Experience

Amazon Web Services (AWS) — Seattle, WA

Software Development Engineer Intern - EC2 Hibernate — *June 2021 - Present*

- Owned and implemented a data collection and analysis service written in Bash and Java for Linux based operating systems using AWS tools such as Lambda, SNS, S3, and CloudWatch.
- This service allows developers to efficiently debug operating system failures while conducting hibernation tests.

Software Development Engineer Intern - EC2 Hibernate — *June 2020 - Aug. 2020*

- Created a Python-based CLI to allow customers to check hibernation compatibility in their AMIs (OS), create hibernate-compatible AMIs, and run performance tests for hibernation.
- This service allows customers to remove ambiguity surrounding whether or not their pre-existing AMIs are compatible with the Hibernate service.

University of Pennsylvania CIS — Philadelphia, PA

CIS 557 (Full Stack Web Programming) Head TA — *Aug. 2020 - Present*

- Design course content and assignments focused on React.js and Node.js, manage other TAs, hold weekly office hour sessions, answer student questions, and grade assignments.
- As head TA I improved the course quality rating by 100% and the TA quality rating by 70% over two semesters.

CIS 553 (Networked Systems) Course Development Assistant (CDA) — *May 2021 - Present*

- Working with Prof. Boon Thau Loo and TAs to develop the online version of CIS 553, a graduate course that gives a thourough introduction to Computer Networking.
- As a CDA I review course content, design projects and exams, and plan course timelines.

MCIT 593 (Computer Architecture) Teaching Assistant — *Jan. 2020 - Jan. 2021*

- As a TA I held recitation and office hour sessions, graded assignments, and answered student questions online.

Select Projects

Photogram

Implemented a lite version of Instagram equipped with posts, likes, comments, follows, direct messages, and secure login/registration built on the MERN stack.

Literature Online

Created an online version of the card game Literature where players can create rooms and play in real time in groups of 6, 8, or 10 people. Created using React.js and deployed on AWS.

Carbon

Created a database visualization web app where users can plan/save car trips, calculate most efficient vehicles, and calculate their carbon footprint. Created using React.js and OracleDB (300k+ rows).

PennOS

Implemented a user-level UNIX-like operating system built using C. Included a shell with complete process scheduling and pipelines, file system, job control, and built-in commands (cat, ls, nice, etc.).

Skills and Tools

Proficient

Java, JavaScript, Python, React.js, Node.js, Express.js, Git, AWS (EC2, DynamoDB, Lambda, S3)

Intermediate

Swift, SQL, C, Unix, Bash, MongoDB, Drupal, Wordpress

Learning

PHP, Next.js, Gatsby.js, Objective-C, C++