

Zolboo Erdenebaatar
Learner

Github : github.com/zolboo1024

Personal Website/Portfolio : zolboo1024.github.io

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EDUCATION

Dickinson College, Carlisle, PA, United States

Bachelor of Science, Computer Science and Math

Expected May, 2021

Overall GPA: 3.87/4.00 — Computer Science GPA: 3.91/4.00

RELEVANT EXPERIENCE

Teaching Assistant

For Professor Grant Braught — COMP 256: Computing Abstractions

Aug 2020 - Present

- Support Professor Braught with teaching his new course, Computing Abstractions, through grading students' assignments and providing helpful feedback on the returned assignments
- Hold TA office hours to help a class of students with their homework and labs
- Teach students topics in CS abstractions, ranging from gates and circuits to operating systems, and encourage them to succeed

Research Assistant

For Professor Farhan Siddiqui — 6G Networks

May 2020 - Aug 2020

- Conducted research regarding the upcoming 6G network, including its architecture, novel technologies used, challenges and their potential solutions for a comprehensive review paper
- Wrote weekly reports on related state-of-the-art 6G technologies such as Federated Learning, Software Defined Networking, Terahertz Spectrum and OAM Wave Modulation among others
- Learned how to efficiently find academic literature, digest it, and write in an academic style

Network Administrator

Johns Hopkins CTY — Carlisle, PA

May 2019 - Sep 2019

- Configured, maintained and troubleshoot a LAN that consisted of over 50 workstations, switches, routers, firewalls, printers and copiers installed with software for an administration office for temporary summer school
- Implemented an air gapped network of laptops for school nurses that contained confidential health records through physical security protocols and an encryption of their hard drives
- Ensured seamless Wi-Fi connection and cloud access for over 600 staff members and students
- Learned immensely about network systems through hands-on experience

Student Web Developer

Academic Tech Dept, Dickinson College — Carlisle, PA

Aug 2018 - May 2019

- Remodeled Mixxer, a language exchange website with over 300,000 users built on Drupal, by implementing ReactJS to appeal to a wider audience
- Engineered a search page that increased the platform's user retention rate by 10%
- Designed and developed an Android application for Mixxer
- Learned immensely about web and mobile development, database systems, and communicating effectively in a team environment
- [Link](https://language-exchanges.org): language-exchanges.org

RELEVANT COURSE-BASED PROJECTS

Various Distributed Systems Projects

Based on a course: MIT-6.824

Jun - Aug 2020

Guided by the course 6.824 at MIT, completed multiple distributed systems projects, including:

- **Go Raft:** An implementation of Raft, a distributed consensus algorithm designed to provide efficient fault tolerance through elections and leaders
- **MapReduce Word Counter:** A simple program implementing a MapReduce model that is designed to be used for a word counting application by utilizing a master and a worker threads
- My code and documentation (in README) of these projects:
Link: github.com/zolboo1024/Distributed-Systems-Projects-MIT-6.824

Software Defined Networking (SDN) Projects on Mininet

Based on the course GT-CS6250

Apr - Jun 2020

Guided by the course CS6250 at Georgia Tech, completed multiple projects on Mininet implementing SDN, including:

- **DoS Mitigator:** A program written utilizing sFlow and PyResonance that monitors the network, detects DoS attack and responds by blocking the attacker
- **Programmable Firewall:** A program written in POX and Pyretic that modifies an Open-Flow controller to block traffic from or to a specified MAC address
- **Parking Lot:** A simple program that takes in a number, N, as input and builds a virtual network on Mininet with a topology for N nodes
- My code and documentation (in README) of these projects:
Link: github.com/zolboo1024/SDN-mininet-projects

PERSONAL PROJECTS

PIRO: Attempted to design an improved synchronization model for strongly consistent primary-replica systems. This model concerns the technique of mitigation that avoids a failure that may happen before the newest log reaches the replica. Currently implementing this design on MongoDB servers. PIRO stands for Primary-Input Replica-Output.

More details on this design: medium.com/@erdenebz/b4af949aee29

Implementation of this design (in progress): github.com/zolboo1024/PIRO-forking-mongo

\$40 Cluster Computer: Built a testbed for systems projects with a \$40 budget. Used a router, and 3 old Android phones (as servers by installing Debian on them). Ran a MapReduce application and a Raft application (both of which are provided by dispy) on it successfully.

My blog documenting the process: medium.com/@erdenebz/53b1a206c0d4

Interactive Resume: Developed a Command Line Interface (CLI)-styled CV/resume on my personal website. Written in JS, Built using React, Deployed on Github.

Link: zolboo1024.github.io

Code: github.com/zolboo1024/zolboo1024.github.io

(*In progress*) **BoxE:** Creating a storage solutions marketplace website that connects people that are looking for storage with those who have free space. Writing in mainly JS, Building using MongoDB, Express, ReactJS, Node (MERN) stack, current dev release deployed on Heroku.

Code: github.com/zolboo1024/boxeweb

Dev release link: boxeweb.herokuapp.com

Habit Free: Wrote an Android application that helps the users break their smart-phone addiction by allowing them to block applications of their choice for a set amount of time. Written in Java, Built on Android Studio. Was on the Play Store but recently was removed due to new Android policies.

Link for APK: my.sharepoint.com/:u:/g/personal/erdenebz_dickinson_edu/EcyE

Code: github.com/zolboo1024/HabitFree

LEADERSHIP EXPERIENCE

Resident Advisor

Dickinson College — Carlisle, PA

Sep 19 - Present

- Planned events to facilitate community development. Helped college residents access college and campus resources according to their needs.
- Ensured the health and safety of Dickinson College residents in accordance with Dickinson Residence Life policies.

Library Supervisor

Waidner Spahr Library — Carlisle, PA

Sep 19 - Present

- Troubleshoot various issues that library patrons may have with library services, such as the Wi-Fi, computers, and printers among others.
- Provided training and mentoring, delegate tasks to ensure efficient and effective services, and assess staff performance.
- Participated in hiring and interview process, properly control and handle confidential information.
- Utilized specialized library software to process library collection and guide patrons with using library hardware and software in building

Religious Life Student Leader

Dickinson College — Carlisle, PA

Dec 18 - Present

- Educated students on the value and importance of religious diversity through various means, such as posters and speaker events
- Collaborated with other program coordinators to brainstorm, plan and organize related events.

TECHNICAL SKILLS

Languages: Java, Go, JavaScript, C++, Lisp, Assembly Language

Conceptual Skills: Concurrency/Parallelism in Go and JS, OOP in Java, System Design

Tools/Framework : Mininet, Octave, Android Studio, MERN Stack, Drupal

Languages

Fluent: English, Mongolian