Nirajan Acharya
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EDUCATION

Youngstown State University**,** Youngstown, Ohio — Overall GPA: 4.0
Bachelor's in computer science — Graduation

COURSEWORK & COMPUTER SKILLS

- **Programming:** C, C++, Java, Python, and Java Script.
- **Tools:** Visual Studio, MySQL, PostgreSQL, NetBeans, PyCharm, JupyterLab, Atom, Unity, Blender, Pitzer Cluster
- **Technologies**: AWS (EC2 and RDS)
- **Coursework:** Data Structure and Object, Data Structure and Algorithm, Networking Concept and Administration, Operating System, and Software Engineering.
- **Framework:** Spring boot

PROJECTS

Operating System

- A program that duplicates files into and out of a VirtualBox VDI file comprising a Linux ext2 filesystem.
- Wrote a program, which checks the file integrity while reading and writing VDI file.
- Program successfully performed read and write operation with 100 % accuracy.

Software Engineering

- Built Penguin Health App as a daily health assessment tool and led the group of 5 people.
- This tool is specifically designed for the pandemic we're living in. It assists to determine if the user must be isolated to protect themselves, their families, and the community.

Networking Concept and Administration

- Created network connection using Variable Length Subnetting Mask (VLSM)
- Used OSPF (Open Shortest Path First) for the purpose of routing replacing Static routing
- Dynamic Host Configuration Protocol was used to dynamically generate Ip addresses to each host in a network.
- Use of different mask allowed to optimize the use of Ip addresses to each subnet.

Artificial Intelligence

- Designed Finite State Machine for a non-player character with the help of randomness, depth-first search algorithm, and breadth-first search algorithm.

Computer Architecture

- Implemented Branch Prediction simulator algorithms: Smith Predictor, Global-History Two-level Predictors, Local-History Two-level Predictors, and Gshare Predictor.

Data Structure and Algorithm

- Solved password cracker problem (HackerRank) using recursion.
- Implemented Data Structures: Array, Linked List, Queue, Stack and Vector.

Advanced Object-Oriented Programming

- Created an online shopping app using JavaScript, Html, thymeleaf, MySQL, and Java Spring Boot.

WORK EXPERIENCE

The Shodor Education Foundation, Inc. — Aug 2021 – Present

- Worked as a researcher on the project "Accelerating the Inference Pipeline for Particles Track Finding".
- Goal was to optimize the algorithm's execution time on 40 and 48 node CPUs.
- Reduced total wall-time (Build Edge, Labeling, and Filtering) of the pipeline with the help of Facebook AI Similarity Search (FAISS) library, Mpi4py, SciKit Network, and Multiprocessing by 40%.

HONORS & ACTIVITIES

- President's List Award
- YSU International Scholar Award