Shyam Jesalpura

Personal Data

email: s.jesalpura@gmail.com

Work Experience

Nov 2022 – Present
PhD student at University of Edinburgh, *Edinburgh*

- Working with Prof. Boris Grot on Analytics using Serverless Computing.

Aug 2021 – Oct 2022
Software Engineer at Microsoft IDC, *Hyderabad*

- Improved Microsoft Defender for iOS using various security heuristics.

Jan 2021 – Aug 2021
Research Intern at Edinburgh Architecture and Systems Lab, *Edinburgh*

- Helping researchers optimize cold start delays in serverless functions.
- Contributing to `vhive` (Open Source Framework for Serverless Experimentation).

August 2020 – Dec 2020
Professional Services Intern at Amazon Professional Services, *New Delhi*

- Developed an automated proctoring system using eye-gaze tracking on AWS.

Summer 2020
Summer Intern at Microsoft IDC, *Hyderabad*

- Enabled Microsoft Defender ATP to scan, quarantine and report the threats inside Linux Docker containers.
- Learned the inner workings of linux containers via linux namespaecs, proc filesystem and union filesystems.

Summer 2019
Research Intern at Indian Institute of Management, *Banglore*

- Automated the digitisation using of 1931 Census data from scanned PDF images using open CV, python-multiprocess.
- Developed a phonetic algorithm to compare and group similar sounding caste names using NLP.

Summer 2017
Summer Intern at National Innovation Foundation, *India*

- Redesigning a temporary shelter for the Salt Farmers of Kutch which kept the house 5°C cooler.
- Applied the concepts of Human centered designing and Design thinking

Projects

Jul 20 – Oct 20 | Nand2Tetris - 2
Building computer from first principles

- Building an operating system starting from scratch as a part of nand2tetris course.
- Stages included building:
  - A virtual machine to run JACK programming language.
  - A Compiter to compile JACK programs.
  - An operating system to run on CPU created in Nand2Tetris-1

Aug 19 – Oct 19 | Linux Spotlight
Apple's spotlight like search engine for linux

- Search inside the document like pdfs, Docx
- Ranked search results in near real time using vector space model
- Real time file monitoring for database updation using inotifywait
- Advanced wildcard query support

Feb 19 – Mar 19 | Student Mess Registration Portal
Portal has been deployed and currently registers 8000+ college students/sec

- Increased registration capacity 20 fold to 8000+ requests/sec with 0 % error rate by designing a robust mechanism to handle critical race conditions
- Designed CAPTCHA for the users to prevent people from scripting using go-lang + in-memory DB.

May 18 – Aug 18 | Nand2Tetris - 1
Building computer from first principles

- Built a programmable CPU in 6 stages starting from NAND gates as a part of nand2tetris course.
- Stages included building:
  - An Assembler program that translates programs written in the symbolic Hack assembly language into binary code
  - An ALU by combining logic gates, Flip-flops, and registers
  - Memory devices like RAM and ROM using Mux/Dmux and registers
  - Combining ALU, and memory to build CPU capable of running binary code loaded into memory

Positions of Responsibility

Aug 19 - July 20 | Member of Student Faculty Council for **Department of Computer Science**
Aug 19 - July 20 | Ex officio **Student Welfare Division**
Aug 18 - July 19 | Technical Head for **Student Welfare Division**

- Performed Ubuntu linux server administration using nginx.
- Lead the team to develop
  - Complaints portal to add, remove, filter all student complains using PHP and MySQL.
  - Automated certificate generation process to remove human intervention completely

Competitions

March 2019 | **Finalist** in Smart India Hackathon by **Government of India**

- Utilised IRNSS's Messaging Capabilities to direct people towards relief centers during disasters.
- The proposed solutions included sending:
  - 10 relief locations with 100m accuracy, in 220 bits.
  - Alternative of 4 locations, while adding 2 current weather & other critical information alongside
- Simulated the satellite-phone interface using MQTT. Publisher/Suscriber model helped us in directing the message to appropriate client.

July 2014 | National Science Exhibition

- Developed operational model of energy generation from footsteps to charge gadgets on the move and provide air cushion.
- Stood runners-up at the state level.

Education

Aug 16 - July 21 | **MSc.** in **Economics** & **B.E.** in **Computer Science**
from **BITS Pilani**, Hyderabad campus
CGPA: 8.71/10 or **3.48/4**

Skills

Programming: Python, C/C++, Golang
Technology: Git/Github/Gitlab, AWS, Docker, Linux

Interests and Activities

Computer Architecture, Cloud computing, FaaS
Game Theory, Economics, Psychology
Ultimate Frisbee, Hiking