Meesum Qazalbash

+92 335 1120 129 | meesumqazalbash@gmail.com | LinkedIn | GitHub | Karachi, Pakistan

Education

Habib University — Karachi, Pakistan
B.Sc. in Computer Science & Mathematics; ***GPA: 3.77/4.00*** — *Aug 2022 – May 2024*

Skills

Languages: Python, C/C++, Rust, JavaScript

Technologies: CUDA, OpenCL, WebGL, Git, Docker, Linux, PyTorch, TensorFlow, JAX

Research Experience

Laser Interferometer Gravitational-wave Observatory (LIGO) — USA
Independent Researcher — *Sept 2023 – Present, Remote*

- Developing bayesian neural networks for the population inference of masses of compact binary black holes.
- Developing statisical models for the population inference of masses, spin and eccectricity of compact binary black holes.

Summer Tehqiq Research Program II — Karachi, Pakistan
Undergraduate Researcher — *Jun 2023 – Aug 2023, Full-time*

- Actively participated in Comparative Analysis of Deep Learning Models for Super Resolution of MR Images. Explored and tested various DL architectures and evaluated state-of-the-art models using PyTorch & TensorFlow.

Summer Tehqiq Research Program I — Karachi, Pakistan
Undergraduate Researcher — *Jun 2022 – Aug 2022, Full-time*

- Studied different rendering techniques, with a focus on the hardware-based Graphical Pipeline, conducted research to emulate, developed a user-friendly software prototype using Python.

Professional Experience

Habib University — Karachi, Pakistan
Teacher Assistant — *Jan 2021 – Dec 2023, Part-time*

- I have TAed Calculus I, Object Oriented Programming, Engineering Mathematics, Programming Fundamentals, Data Structure & Algorithm, and Operating Systems.

OASIS Infobyte — India
Data Science Intern — *Jun 2023 – Jul 2023, Remote*

- Data cleaning, preprocessing, visualization and analysis. Developed machine learning classification models for predictive analysis.

Medium — California, USA
Technical Writer — *Apr 2021 – Oct 2023, Self Employed*

- I write articles on Social Sciences, Mathematics and Computer Science.
- I have written 20+ articles with 4200+ views.

Relevant Coursework

Major coursework: Computational Intelligence, Computer Architecture, Computer Graphics, Data Structures II, Data Structures and Algorithms, Digital System Design, Electrical Circuits I-II, GPU Accelerated Computing, Graph Data Science, Introduction to Database Systems, Introduction to Image Processing, Object Oriented Programming and Design Methodologies, Quantum Computing

Minor coursework: Abstract Algebra, Calculus I-II, Engineering Mathematics, Linear Algebra, Paradox and Infinity, Probability and Statistics, Real Analysis, Statistics and Inference

Projects

Jaxampler | *GitHub*

- An opensource JAX-based statistical sampling toolkit.
- High-Performance Sampling leverage by the power of JAX for high-speed and accuraccy.
- Provided wide range of sampling methods to suit various applications.
- Seamlessly integrates with existing JAX workflows.
- Install using `pip install --upgrade jaxampler`.

Jaxtro | *GitHub*

- An opensource JAX-based gravitational-wave population inference toolkit.
- High-Performance Population Inference leverage by the power of JAX for high-speed and accuraccy.
- Install using `pip install --upgrade jaxtro`.

GeneTime | *GitHub*

- Genetic algorithms based timetable generator.
- Code not publically available for further refinement and future publication.

Emulated Graphical Pipeline | *GitHub*

- Emulated a graphical pipeline in Python.

Processors on Verilog | *GitHub*

- Emulated a RISC-V single cycle processor and 5 staged RISC-V pipelined processor with and without hazard controls in Verilog.

Certificates

NVIDIA - Fundamentals of Accelerated Computing with CUDA C/C++ *Mar 2023*
Learned CUDA-C/C++ programming and GPU architecture.

CITI Program - Responsible Conduct of Research for Engineers *Jun 2022*
Learned about the ethical issues, research misconduct and how to avoid them.

CITI Program - Social-Behavioral-Educational (SBE) Comprehensive *Jun 2022*
Learned about the ethical issues, and how to avoid them in social-behavioral-educational research.

Awards & Achievements

Habib University's Talent Outreach, Promotion and Support Program *Aug 2020 – May 2024*
100% merit based scholarship to persue Computer Science & Mathematics.

Dean's List *May 2022*
Ranked in top 5% of students in Dhannani School of Science and Engineering at Habib University.

Adamjee Excellence Award *Sep 2020*
Awarded for excellence in academic performance in HSC-II, ranked in top 7 students citywide.

Al Muntazir Excellence Award *Dec 2019*
Awarded for excellence in academic performance in HSC-I.

Extra Curricular Activities

Games of Code 5.0 *Jul 2023*
It is an annual speed programming contest. My team winned 1st place with 50,000 PKR monetary prize

Invent for the Planet *Feb 2023*
It is an annual 48-hours design contest to address the issues such as environmental affairs, energy solutions, social issues, improving developing nations and resource equity. My team was 2nd runner up in Pakistan with 10,000 PKR monetary prize

Mathema *Dec 2022*
Organized a school and high school level math competition.

Games of Code 4.0 *Sep 2022*
1st runner up.

International Collegiate Programming Contest *Mar 2022*
ICPC is an annual algorithmic programming contest. My team was 18th runner up in Regionals.

Games of Code 3.0 *Sep 2021*
1st runner up.

References

References available upon request.