Meesum Qazalbash

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

EDUCATION

Habib University   Karachi, Pakistan
*B.Sc. in Computer Science; **CGPA: 3.77/4.00***   *Aug 2022 – May 2024*
Minor in Mathematics   *Aug 2022 – Dec 2023*

SKILLS

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

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

RESEARCH EXPERIENCE

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

- Trained and tested the Normalizing-Flow Markov Chain Monte Carlo method for population inference of binary black holes.
- Developed and rigourously tested statisical models for parameter estimation and population inference.

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 rendering, conducted research to emulate, developed a user-friendly software prototype using Python.

PROFESSIONAL EXPERIENCE

Habib University   Karachi, Pakistan
Teacher Assistant   *Jan 2021 – Present, Part-time*

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

PROJECTS

Jaxampler | *GitHub*

- JAX-based opensource toolkit for high-performance statistical sampling, offering diverse methods and seamless JAX workflow integration.
- Easily installable with `pip install --upgrade jaxampler`.

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.

RELEVANT COURSEWORK

Major coursework: Computational Intelligence, Computer Graphics, Data Structures and Algorithms, GPU Accelerated Computing, Graph Data Science, Introduction to Database Systems, Object Oriented Programming and Design Methodologies,

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

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.

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

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

Habib Maths Club *Jun 2021 – April 2022*
Founding member and student lead of Habib Maths Club.

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

Available upon request.

Hobbies

Swimming, Chess, Table Tennis