

Meesum Qazalbash

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EDUCATION

Habib University

B.Sc. in Computer Science & Mathematics; GPA: 3.77/4.00

Karachi, Pakistan

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 statistical models for the population inference of masses, spin and eccentricity 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 accuracy.
- Provided wide range of sampling methods to suit various applications.
- Seamlessly integrates with existing JAX workflows.

Jaxtro | [GitHub](#)

- An opensource JAX-based gravitational-wave population inference toolkit.

GeneTime | [GitHub](#)

- Genetic algorithms based timetable generator.
- Code not publically available for further refinement for 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++ <i>Learned CUDA-C/C++ programming and GPU architecture.</i>	<i>Mar 2023</i>
CITI Program - Responsible Conduct of Research for Engineers <i>Learned about the ethical issues, research misconduct and how to avoid them.</i>	<i>Jun 2022</i>
CITI Program - Social-Behavioral-Educational (SBE) Comprehensive <i>Learned about the ethical issues, and how to avoid them in social-behavioral-educational research.</i>	<i>Jun 2022</i>

AWARDS & ACHIEVEMENTS

Talent Outreach & Promotion Scholarship: 100% merit based scholarship to persue Computer Science & Mathematics from Habib University, Karachi, Pakistan. (Aug 2020 – May 2024)

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

Adamjee Excellence Award: Awarded for excellence in academic performace in HSC-II, ranked in top 7 students citywide. (Sep 2020)

Al Muntazir Excellence Award: Awarded for excellence in academic performace in HSC-I. (Dec 2019)

EXTRA CURRICULAR ACTIVITIES

Games of Code 5.0 <i>It is an annual speed programming contest. My team winned 1st place with 50,000 PKR monetary prize</i>	<i>Jul 2023</i>
Invent for the Planet <i>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</i>	<i>Feb 2023</i>
Mathema <i>Organized a school and high school level math competition.</i>	<i>Dec 2022</i>
Games of Code 4.0 <i>1st runner up.</i>	<i>Sep 2022</i>
International Collegiate Programming Contest <i>ICPC is an annual algorithmic programming contest. My team was 18th runner up in Regionals.</i>	<i>Mar 2022</i>
Games of Code 3.0 <i>1st runner up.</i>	<i>Sep 2021</i>

HOBBIES

Swimming, Chess, Table Tennis