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Md Hamidur Rahman Khan

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Education

Lappeenranta, Finland **LUT University** **Sept 2024 - Jul 2027**

- **Major:** Computational Science and Artificial Intelligence, B.Sc. | **Minor:** Software and Systems Engineering
- **Programming Coursework:** DSA, OOP, Advanced Database Systems, Cybersecurity, Web Programming, SQA, DevOps
- **Computational Coursework:** Linear Algebra, Vector Analysis, Matrix Decomp, Multivariate Calculus, Probabilities & Statistics

Work Experience

Software & Data Engineer **Prime Tech Solutions Limited** **May 2025 - Present**

- Collaborated internationally with Awake Youth Initiative to develop a fundraising website that supports the African underserved slum communities in Nairobi, Kenya. Developed blogs, articles, landing pages, donation and marketplace pages.
- Leveraged knowledge in Full Stack Web Development, Javascript, Git, Figma for UI/UX Design, SEO, and Google Analytics.

Teaching Assistant **LUT University** **Sept 2025 - Present**

- Conducted weekly exercise classes in the Fundamentals of Programming in Python course and provided one-on-one support.
- Developed attendance management and auto-grading system including project grader that overall improved productivity by 60%

Software Developer/Co-author **Political Propaganda Cycle (Reseacrh Work)** **May 2024 - Present**

- Ongoing paper with researchers at UKassel and TU Dortmund using the data scraped by me from political figures on social media.
- Leveraged knowledge in Statistics, Sentiment Analysis, Python, Selenium, OpenCV, Pillow, CTk, Matplotlib, Sqlite3, Pandas.

Activities

National Coach **World Robot Olympiad (WRO)** **Jan 2023 - Dec 2023**

- Successfully led a team of 3 in the Future Innovator segment through the national round, mainly focused on the robotic system, software design, hardware construction, business analysis, and technical presentation.
- Guided two national teams' participation in international competition rounds, one team achieved an impressive, first time in the history of Bangladeshi participants, a silver award out of 451 global teams at WRO '23 Panama.

President, Robotics **Notre Dame Information Technology Club** **Aug 2019 - June 2021**

- Organized a 3-day national tech event with 1100+ participants, 20+ robotics competitions by leading a team of 70+ volunteers.
- Mentored 45+ national robotics/project teams, conducted 9 workshops along with 27+ robotics-oriented classes for 150+ students.
- Was commissioned by my school's ICT dept to design and build a national curriculum-oriented teaching module: a combined demonstration of clock pulse generators, logic gates, flip flops, registers, counters, and a 7-segment display on a breadboard.

Awards & Achievements

Silver Medal • International Blockchain Olympiad (Hong Kong) positioned among top national teams from 44 countries
Silver Honor • World Robot Olympiad - WRO (Panama) first Bangladeshi coach to achieve top place among 77 countries
Silver Medal • Bangladesh Robot Olympiad scored 2nd position among 20,000+ participants
Bronze Medal • Bangladesh Blockchain Olympiad youngest developer to secure top national position at BCOLBD
National Finalist • NASA Space Apps Challenge secured position among 2,000+ nationwide participants

Personal Projects

Block Meter Blockchain-Based Electricity Billing System ***Python, C++, Solidity***

- Devised an electricity billing system that eliminates non-technical losses by 100% and ensures transparency and immutability.
- Utilized: Python, C++, Solidity, PHP, Javascript, Ethereum, IPFS, BigChainDB, AES Encryption, ESP32, ThingSpeak.

Tethr Network Tower Position Optimizer Using Machine Learning ***Python, C++***

- Developed an ML-powered robotic system to optimize 5G network tower locations using automated aerial and ground drones.
- Incorporated non-parametric and density-based Mean Shift clustering algrorithm, and Gradient Descent for optimization.
- Utilized: Python, C++, Scikit-Learn, OpenCV, YoloV8, Pandas, Raspberry Pi, Jetson Nano, ROS, FastAPI, Tkinter.

Spectre Bot & Spectre OS Line Follower Robot with custom operating system ***C++***

- Spectre bot is a fully custom advanced line follower robot capable of achieving a maximum of 5m/s speed on track.
- Spectre OS is a custom operating system designed to provide advanced control and debugging capabilities for line follower robots.
- Utilized: C++, Arduino, ESP-32, TCRT5000 Sensors, PID controllers, OLED graphics, gear/servo motors, PCB designing, 3D printing.

Assistive Device for Visually Impaired People prototype text-to-braille Glove for digital reading ***C++***

- Developed a tactile feedback system embedded in a glove to emulate Braille chars on fingers, translating texts from digital sources.
- Utilized: C++, Python, Arduino, ESP32, Tacile Feedback Motors, Type-C Charging, BLE & WiFi Communication, 3D printing.

Personal Website My portfolio for showcasing projects (hamidurrk.com) ***Typescript***

- Built real-time client-side physics simulation world & intergrated modern scroll-triggered animations using Framer Motion & GSAP.
- Utilized: Next.js, React, Typescript, Tailwind CSS, Framer Motion, GSAP, Physics.js, Lenis, SCSS, Vercel.

Skills

Programming	Proficient: Python • Java • C++ • JavaScript • Typescript • SQL Familiar: C • PHP • MATLAB
AI/ML & Data Pipelines	PyTorch • Scikit-Learn • OpenCV • YOLOv8 • Pandas • NumPy • R • SDMX • ETL/ELT • Data Modeling & Warehousing
Full-Stack & App Dev	React • Next.js • TailwindCSS • GSAP • FastAPI • Flask • Django • Selenium • Tkinter • Java Swing • Figma
Databases	Oracle • PostgreSQL • MySQL • MongoDB • SQLite • Firebase
IoT & Embedded	Arduino • Raspberry Pi • Teensy • ESP32 • STM32 • Sensor and actuator integration
Blockchain & DLT	Ethereum • Solidity • Hyperledger Fabric • Multichain • IPFS

Reference

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