AWWAB ALI AZAM

COMPUTER ENGINEERING | MATHEMATICS | LINKEDIN:
https://www.linkedin.com/in/awwab-ali-azam-101a4b257/

OBJECTIVE

To learn more and apply my machine learning, programming, and math skills to solve real-world problems.

SKILLS

- Building & Training neural networks, including custom transformer models, using PyTorch.
- Implementing & simulating quantum circuits and algorithms using IBM Qiskit in Jupyter notebooks.
- Experience working with various classical & quantum algorithms (Bernstein-Vazirani, Archimedes Oracle, etc.)
- Proficiency in C++, Java, Kotlin, & Python; experience with MATLAB & C.
- Mathematical typesetting using LaTeX.
- Competency in use of Git & GitHub.

EXPERIENCE

RESEARCH ASSISTANT • YU GROUP • OCT 2024 – PRESENT

- Working on accelerating unrestricted Hartree-Fock calculations for condensed-matter physics simulations using machine learning, under the supervision of Dr. Jiabin Yu.
- Implemented a transformer model with a custom attention mechanism in PyTorch.
- Used recent innovations from ArXiv papers to achieve length generalization on sequences 6x the training sequence length.
- Significantly reduced the number of iterations required for convergence.

ARTIFICIAL INTELLIGENCE LEAD • CHATGIT PROJECT • OCT 13 - 15, 2023

- Developed and implemented an AI-powered CLI tool to automatically generate git commands based on natural language prompts as part of a multidisciplinary team, **which won 3rd place in the 2023 GatorHack AI hackathon, sponsored by NVIDIA and Verizon** (https://devpost.com/software/chatgit).
- Developed program functionality to interface with the ChatGPT API, parse output, manage I/O, and run the commands in the terminal in addition to making the GitHub repository for our project (https://github.com/kaddu341/ChatGIT/tree/awwab).

FOUNDER & TEAM LEADER • "DOTLESS" PROJECT • JUNE 2023 – PRESENT

- Conceived the idea of a simplified mobile Arabic keyboard app (Android version is currently in the alpha stage of testing) using machine learning to automatically place diacritics, eliminating 12 keys to provide a phenomenal typing experience for users.
- Demo at (https://www.dotlesslang.com/).
- Wrote specifications, formed team, and started GitHub repo (https://github.com/kaddu341/dotless), as well as designing the algorithms and leading software development.
- Developed a statistical n-gram NLP model in Python and built a full-fledged user interface for the app using the Jetpack

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- Bash scripting and Linux command line usage.
- Research skills (scientific computing, academic writing, etc.)
- Basic FPGA programming using VHDL and Intel Quartus.
- Video Production & Multimedia (Premiere Pro), Presentation skills (MS PowerPoint).
- 3D modeling (Blender) & Fluid Dynamics Simulations (ANSYS Fluent).
- Web development using HTML, CSS, JavaScript, and Python (with the Django framework).

Compose UI toolkit, as well as Java utilities to run on-device inference using the model.

RESEARCH ASSISTANT • MURPHY FLUIDS LAB • SEPT 2022 – MAR 2023

- Assisted USF Ph.D. students in modeling flight motion of micro-scale insects for eventual biomimicry applications in microrobots.
- Introduced the use of a novel AI tool which saved weeks' worth of manual work (https://monstermash.zone/).
- Produced a 3D Blender mesh model of a representative species from scratch.
- Used MATLAB tools (https://biomech.web.unc.edu/dltdv/) to track insect motion.
- Acknowledged in a doctoral dissertation: https://digitalcommons.usf.edu/cgi/viewcontent.cgi?article=10977&context=etd

INDEPENDENT RESEARCHER • DEC 2021 – NOV 2022

- Worked under a research mentor from the BioFluid & BioSolid Modeling Lab at USF to conduct computational fluid dynamics (CFD) simulations on a model of a hypersonic ejector ramjet engine using ANSYS Fluent.
- Setup and executed an optimization routine to adjust engine geometry.
- Wrote a full-length (5000-word) scientific research paper presenting my results.
- Paper: https://drive.google.com/file/d/11h6jP1YRNkG39NV-YWmsh8ldTmA5TGGX/view?usp=drive_link
- Presentation: https://drive.google.com/file/d/1kPQg1DaIwYI7QCodLkua9lA2R8E1dQ2k/view?usp=sharing

EDUCATION

B.S. IN MATHEMATICS • 2023-2027 • UNIVERSITY OF FLORIDA

- Courses: Linear Algebra 1 (A), Abstract Algebra (A), Honors Elementary Differential Equations (A), Sets and Logic (A), Calculus 3 (A)

B.S. IN COMP. ENGINEERING • 2023-2027 • UNIVERSITY OF FLORIDA

- Minor in Physics

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References are available upon request

- Courses: Digital Logic (in progress), Data Structures and Algorithms (A), Theoretical Physics (A-), Enriched Physics 2 with Calculus (A)
- GPA: 3.88

DUAL ENROLLMENT • 2021-2023 • UNIVERSITY OF SOUTH FLORIDA

- 31 credits
- Courses: Engineering Calculus II (A), Engineering Calculus I (A), PreCalc & Trigonometry (A+)

HIGH SCHOOL DIPLOMA • MAY 2023 • BAYAAN ACADEMY

- Co-valedictorian
- SAT: 1560 (790 Math, 770 Reading & Writing)
- Weighted GPA: 4.35 (out of 4.0)
- Activities: Newsletter Club, Soccer Team
- Courses: AP Computer Science (5), AP Research (5), Physics Honors (92, 96)

OTHER COMPLETED COURSES

- A Practical Guide to Machine Learning with TensorFlow 2.0 & Keras (https://frontendmasters.com/courses/practical-machine-learning/)

- Introduction to Quantum Computing For Everyone (https://www.edx.org/learn/quantum-computing/university-of-chicago-introduction-to-quantum-computing-for-everyone)

- Introduction to Kotlin and Android Development (https://frontendmasters.com/courses/android-kotlin/)

- Introduction to Artificial Intelligence (https://www.linkedin.com/learning/introduction-to-artificial-intelligence/)

COMMUNITY SERVICE (VOLUNTEER)

- Produced fundraising videos for my high school for various causes which raised more than $42,000.

- Served as editor-in-chief for an educational startup (https://ezilm.org/home).

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