

EXPERIENCE

Software Engineer [C/C++]	Siemens DIS	Aug 2022 – Present
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- Designed, implemented, benchmarked, and documented approaches to save the UCDB files.
- Modified the APIs for UCDB to support new implementation.
- Created unit testing applications for new loading & saving approaches for UCDB files.
- Designed and implemented a new flow for packaging solutions for HDL designs.

Software Engineering Intern [C]	Siemens DIS	Feb 2022 – Jul 2022
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- Designed, implemented, benchmarked, and documented approaches to deal with loading the UCDB files.

Software Engineering Intern [C++]	360Imaging	Jul 2021 – Oct 2021
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Member of the Rendering and Computational Geometry Team:

- Dealt with Asset Management (Shaders, Fonts) in the engine.
- Helped refactor the rendering engine by implementing different renderers, some of them with batching.
- Visualized and used CG data structures (BVH trees, Octrees) for the rendering engine examples.

Software Engineering Intern [C++]	ASI - Egypt	Aug 2020 – Sep 2020
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Worked on Extreme Loading for Structures (ELS):

- Implemented Jacobi and Conjugate Gradient methods for equation solving using CUDA.
- Increased the speed for the equation solving module to be two/three times faster.
- Integrated the new implementation to the software using DLLs.

EDUCATION

Giza, Egypt	Cairo University	Sep 2017 – Jun 2022
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- B.S.E. in Computer and Communications Engineering, GPA: 3.99, Rank: 1st in class
- Coursework: Data Structures, Algorithms Design & Analysis, Object Oriented Programming, Microprocessor & x86 assembly, Computer Architecture, Operating Systems, Compilers, Computer Graphics, Image Processing, Pattern Recognition & Neural Networks, Machine Intelligence, Linear Algebra, Differential Equations, Numerical Analysis

PROGRAMMING LANGUAGES, SKILLS & TECHNOLOGIES

Programming Languages

- **Familiar:** C, C++, Python, x86 assembly
- **Prior Experience:** C#, Java, JavaScript, MATLAB, VHDL

Skills & Technologies:

- **Familiar:** OpenGL, CUDA, SQLite, Unity, OOP, Problem Solving, Git, Perforce, Linux
- **Prior Experience:** NodeJS, ExpressJS, MongoDB, MySQL

Languages: Arabic (Native), English (Proficient)

PROJECTS

- **OHEngine [WIP]:**

A simple Entity Component System Engine implemented in C++ and using OpenGL. The engine currently supports Shadow Mapping, Post Processing, Skyboxes, Blending, Ray Picking, and variable number of Light Sources. The game reads the scene from a plain text file.

- **Music Sheet Reader:**

OMR Application developed using Python to convert scanned music sheets to text files.
- Handled the Segmentation and Classification part.

- **Pocket Tanks x86:**

Implemented a clone for Pocket Tanks game using x86 assembly. The game supports multiplayer using Serial Communication.

- **Simple DBMS:** A DBMS implemented in C using our own semaphores based on Linux message queues.

- **Simple 5-stage pipelined processor:** Implemented a simple processor in VHDL.

INTERESTS

- Game Programming, Game Jams, Computer Graphics and AI.