

# Adel Elmala

6th of october, Egypt | P: +20 01090332213 | adel.elmala2025@gmail.com  
linkedin.com/in/adel-elmala | github.com/adel-elmala

## SUMMARY

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A Fresh Graduate Looking for an entry level job as software Engineer , With a particular interest in 3D computer graphics (E.g. render engines, ray tracing , rasterizing ) , and Image Processing. Using C/C++, OpenGL , I'm open to learn new languages , techs, and tools.

## EDUCATION

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### Cairo University

Bachelor of Engineering

Systems & Biomedical Engineering

Cumulative GPA: 3.25/4.0 ; Grade: Very Good

Relevant Coursework: Computer Graphics; Data Structures & Algorithms; Image processing;  
Database management system (DB)

Giza, EG

June 2021

## GRADUATION PROJECT

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### Neural Model Optimization Tool

2021

- An automated optimization tool to help save time and resources in calibrating neural computational models to experimental measurements.
- Designed and implemented the back-end layer using Python and NEURON API, reading in the neuron model, extracting information about the model, simulating experimentation and computing characteristic features to pass to the next module in the tool pipeline.
- Grade : Distinctive
- GitHub Repo: <https://github.com/ForthePareto/SpikOpt>

## PERSONAL PROJECTS

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### Ray Tracer

2022

- Built a ray tracer from first principles using no external libraries other than the one that will take the final pixel data and save it on disk in a PNG format.
- Used C++ and stbImage library for png encoding.
- GitHub Repo: <https://github.com/adel-elmala/rayTracer>

### Rasterizer

2022

- Built a simple rasterizer from the ground up.
- Used C++ and SDL2 library to handle windowing and events.
- GitHub Repo: <https://github.com/adel-elmala/rasterizer>

### Small image processing Library

2021

- Optimized mini image processing library that handles gaussian blurring , alpha blending, thresholding.
- implemented from scratch using C, Pthreads, And Intel-intrinsics (SIMD) ,and stbImage library.
- GitHub Repo : <https://github.com/adel-elmala/optimization-playGround>

### 16-Bit von neumann architecture Assembler

2021

- Translates from Hack's assembly instructions to hack's 16-bit Machine language
- The project was part of a coursera course, used Python.
- GitHub Repo: <https://github.com/adel-elmala/CV-and-others/tree/main/Projects/Assembler>

### JPEG decoding Stepper

2021

- Shows the different stages of Decoding JPEG Files
- Used Python , and QT for the GUI
- GitHub Repo: <https://github.com/adel-elmala/CV-and-others/tree/main/Projects/JPEG-Decoding-stepper>

**More Projects :** <https://github.com/adel-elmala/CV-and-others/tree/main/Projects>

# CERTIFICATES And MOOCS

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## Build a Modern Computer from First Principles - Part 1

2020

- Build a modern computer system, from the ground up from constructing elementary logic gates all the way through creating a fully functioning general purpose computer).

Certificate Link: <https://www.coursera.org/account/accomplishments/certificate/8EC6VMRXXBYA>

## Machine Learning

2020

- Machine Learning Basics (Supervised/Unsupervised learning - Neural Networks ... )

Certificate Link: <https://www.coursera.org/account/accomplishments/certificate/C8832L5N3XY3>

## Programming Languages part B

2020

- Introduction to the basic concepts of programming languages, with a strong emphasis on functional programming using Racket (Dynamic type system language).

Certificate Link: <https://www.coursera.org/account/accomplishments/certificate/TPZJ35EZUT6Z>

## Programming Languages part C

2020

- Introduction to the basic concepts of programming languages, with a strong emphasis on OOP programming using Ruby (Dynamic type system language).
- Certificate Link: <https://www.coursera.org/account/accomplishments/certificate/23PRT3ZG782H>

**More Certificates:** <https://github.com/adel-elmalal/CV-and-others/blob/main/Finished-Courses.md>

# SKILLS

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## Technical Skills:

- Computer Graphics / 3d graphics / 3d Rendering
- C , C++ / c++ programming , Python.
- Open GL (3.3+) (Open Graphic Library)
- GPU shading languages GLSL
- Asynchronous programming, Multi-Threading (pThreads)
- Linux programming environment
- GNU ToolChain (GCC / Make )
- Bash
- Version control: Git (GitHub)
- Linear Algebra , math / mathematics
- Object Oriented Programming (OOP)

## Languages:

- Arabic: Fluent.
- English: intermediate.