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# Islam Wagih Emam

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I am an enthusiastic computer science student interested in performance optimization and problem-solving using data structures and algorithms.

## Education

**Third Year Computer Science student**      **Cairo University**  
**GPA: 3.37/4.00.**

**Sep 2019 – June 2023**

## Work Experience

### **C++ Software Engineer Long-Term Intern - Siemens EDA**

June 2022 – October 2022/Cairo, EG

- Built, tested, and benchmarked advanced free lock, wait free and non-blocking data structures to achieve maximum performance to producer-consumer applications
- Built a multithreaded benchmark system that can deduce and report statistics about the best locking mechanism to achieve maximum performance on the running machine architecture.
- Built a thread safe buffer library that can switch any serial data structure to a thread safe one.
- Built some data structures to be used in some applications

## Selected Projects (for full list please visit GitHub)

- **Compiler for Tiny Language:** a fully functional compiler composed of three phases: lexical analysis, parsing, and code generation, for a language called tiny, which only supports integer data types and integer operations using C++.
- **Chinese Checker Human vs AI:** checker game, human vs AI agent with a complete GUI and AI algorithm to play against, the AI algorithm is unbeatable it cannot lose in any difficulty mode easy – medium – hard it's designed to win or draw in the worst case, which is the human played all his moves optimally using java – java swing GUI library.
- **User Driver API:** a web API helps users communicate with car drivers to transport users to any area and negotiate about the salary of the ride using java, sprint boot, postman and sqlite3.
- **2D Graphics Library:** developed a complete 2d graphics library from scratch to do simple shapes, curves, filling, splines and around 20 more option to draw almost anything using only mathematical concepts without any external library using C++ and windows API.

## Awards

- **5<sup>th</sup> – place:** out of 220 teams at EPCP Qualifications in **2022**, for more info visit [ICPCID](https://icpcid.org/).

## Extracurricular and Volunteer Work

- **Java Instructor:** I am an instructor and coach for SCCI, a student activity branch at Cairo University.

## Programming Languages and Technologies

- **Java, C++, Python**
- **MySQL, SQL Server, Git, GitHub and Bitbucket**
- **Basic Knowledge of web development using HTML, CSS, JavaScript**