Mohamed Ahmed Mostafa

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Zagazig, Sharqia, Egypt

EDUCATION

Zagazig University　　　　　　　　　　　　　　　　　　　　　　Zagazig, Sharqia, Egypt
Bachelor of Science in Computer Science, Faculty of Computers and Informatics　　*2022 – 2026 (Expected)*
- 4th Year Student, GPA: 3.1/4.0
- Relevant Coursework: Data Structures Algorithms, Database Systems, Software Engineering, Web Development (.NET), Operating Systems, Machine Learning, Deep Learning (Current)

EXPERIENCE

ICPC Zagazig Community Mentor　　　　　　　　　　　　　　　　　　　2024 – Present
Zagazig University　　　　　　　　　　　　　　　　　　　　　　　　　　*Egypt*
- Mentor 30+ students in competitive programming and algorithmic problem-solving techniques
- Teach advanced data structures, dynamic programming, and graph algorithms
- Prepare students for ICPC competitions, emphasizing pattern recognition and optimization strategies
- Achieved 85% improvement in students' problem-solving speed through structured training programs

.NET Development Intern　　　　　　　　　　　　　　　　　　　　　　2024
Information Technology Institute (ITI)　　　　　　　　　　　　　　　　　　*Egypt*
- Completed 150+ hours intensive training in advanced .NET technologies and enterprise development
- Mastered SQL Server, C#, Advanced C#, LINQ, Entity Framework Core, and ASP.NET MVC

Programming Content Creator　　　　　　　　　　　　　　　　　　　　2025 – Present
YouTube Channel - DarkCipher00　　　　　　　　　　　　　　　　　　　*Remote*
- Create educational content on algorithms, data structures, and competitive programming strategies
- Produce tutorials on strategic problem-solving techniques applicable to competitive programming
- Growing audience of 300+ subscribers learning advanced programming concepts

PROJECTS

BlitzMate Chess Engine | *Python, PyPy3, FastAPI, Pygame, Alpha-Beta Pruning*　　2024 – Present
- Developed high-performance classical chess engine from scratch with modular architecture
- Implemented **Negamax with Alpha-Beta pruning** achieving depth 6-8 search in under 2 seconds
- Integrated **Zobrist hashing** for transposition tables, reducing redundant evaluations by 40%
- Built sophisticated position evaluator considering material, piece-square tables, king safety, and pawn structure
- Created interactive GUI using Pygame with drag-and-drop and real-time position evaluation display
- Designed RESTful API with FastAPI and implemented UCI protocol for chess GUI compatibility
- Optimized performance using PyPy3, achieving 3x speedup over standard CPython implementation

Skyra - Weather Prediction Platform | *Python, FastAPI, LLM Integration, NASA API*　　2024
- Led backend development for weather-based event planning platform using NASA POWER API data
- Integrated Large Language Model with custom prompts for intelligent weather recommendations
- Designed RESTful APIs for real-time weather data retrieval and prediction visualization
- Implemented Redis caching mechanisms, reducing API latency by 60% and improving UX
- Developed ML pipeline for processing and analyzing weather patterns for event recommendations

Bosla - AI Learning Roadmap Generator | *.NET, React, RESTful API, API Integration*　　2024 – Present
- Engineered a full-stack platform to generate personalized learning roadmaps using .NET and React
- Designed and implemented a system to aggregate educational resources from external APIs (e.g., YouTube, Udemy)

- Developed RESTful API backend to manage user data and dynamically construct custom learning paths
- Focused on a bilingual approach, integrating both English and Arabic resources to serve a wider audience

WDLC Compiler - Local ML Inference | *TypeScript, WebGPU, Computational Graphs*　　2024 – Present

- Building compiler for browser-based local inference of ML models using WebGPU (Graduation Project)
- Extracting computational graphs from trained models through custom inference pipeline
- Implementing TypeScript runtime for executing ML operations on client-side GPU resources
- Developing optimization passes to reduce memory footprint and improve inference speed by 50%

E-Commerce Platform | *ASP.NET MVC, .NET 9, SQL Server, EF Core*   2024
- Developed full-featured e-commerce platform with secure authentication and payment processing
- Implemented Repository Pattern and SOLID principles for maintainable, testable architecture
- Designed normalized database schema using Entity Framework Core Code-First approach

Villa Management System | *ASP.NET Web API, MVC, RESTful API*   2024
- Built a full-stack villa management system with a separate Web API and an MVC consumer application
- Implemented RESTful API architecture with proper HTTP methods and status codes for seamless integration
- Developed an MVC client application that consumes the API using modern asynchronous techniques

TECHNICAL SKILLS

Languages: Python, C#, C++, TypeScript, Go, SQL, HTML/CSS
Backend Frameworks: .NET Core/9, ASP.NET MVC/Web API, FastAPI, Entity Framework Core
Chess & AI: Alpha-Beta Pruning, Negamax, Zobrist Hashing, UCI Protocol, PyPy3, Game Tree Search
Machine Learning: PyTorch, TensorFlow, LLM Integration, Deep Learning (Current), WebGPU
Databases & Cache: SQL Server, PostgreSQL, Redis, LINQ, Complex Query Optimization
Architecture: N-tier, Repository Pattern, SOLID, RESTful APIs, Microservices, Design Patterns
Developer Tools: Git, GitHub, Docker, PyGame, JetBrains Rider, VS Code, CI/CD
Core Skills: Data Structures, Algorithms, Competitive Programming, Problem Solving, System Design

ACHIEVEMENTS INTERESTS

Chess Expertise: 1600+ Chess.com rapid rating, 4+ years competitive play, deep understanding of chess algorithms
Competitive Programming: Active problem solver on Codeforces and LeetCode, ICPC mentor and participant
Open Source: Active GitHub contributor with 15+ public repositories and growing open-source presence
Languages: Arabic (Native), English (Professional Working Proficiency)