

# Mohammad Ilham bin Kassim

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## Professional Summary

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Motivated Computer Engineering senior at Penn State with strong foundations in software development, systems programming, and algorithms, complemented by hands on project experience in machine learning, distributed systems, and API development. Skilled in Python, Java, and C with a proven ability to design scalable solutions, from building a Monte Carlo Tree Search, based esports draft simulator with FastAPI and Docker, to implementing scheduling algorithms and memory allocators in C. Experienced in collaborating across teams through technical assistant roles and leadership positions, balancing technical rigor with communication and problem-solving.

## Education

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**Pennsylvania State University**, State College, PA

**B.S, Computer Engineering**, Expected May 2026

- Current GPA 3.3/4.0
- Honors & Awards: People's Trust Council (MARA) Scholarship | Bronze Medal, Malaysian International Mathematical Arithmetic Olympiad (MiMAS)
- Relevant Coursework: Computer Organization & Design, Object Oriented Programming, Systems Programming, Data Structures, Electronic Circuit Design
- Leadership & Activities: Vice President External Affairs - Malaysian Students Club, Member - Google Developer Student Club, Student Representative - Board of Trustees New Trustee Orientation

## Technical Skills

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**Languages:** Python, Java, C, C++ (basic), JavaScript (basic)

**Core CS:** Data Structures & Algorithms, Systems Programming, Object-Oriented Design, Machine Learning Foundations

**Tools & Frameworks:** Git/GitHub, FastAPI, Streamlit, Docker, SQL, Linux/Unix, Microsoft 365

**Certifications:** AI Foundations: Machine Learning (LinkedIn Learning), Introduction to Prompt Engineering, Web Design & Development

## Software & Technical Projects

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**MLBB Draft Simulator MVP** (Python, FastAPI, MCTS, Docker, GitHub) | [github.com/IlhamKassim/mlbb-draft-simulator-](https://github.com/IlhamKassim/mlbb-draft-simulator-)

- Designed and implemented a draft simulation engine using Monte Carlo Tree Search (MCTS) to model team compositions and win probabilities in esports.
- Built a REST API with FastAPI to serve prediction requests, containerized with Docker for deployment.
- Implemented draft-bias and synergy/counter metrics, created data pipelines for match preprocessing.

**Predictive Match Analysis MVP** (Python, Streamlit) | [github.com/IlhamKassim/mlbb-predictive-analysis-mvp](https://github.com/IlhamKassim/mlbb-predictive-analysis-mvp)

- Developed a Streamlit application for interactive draft analysis and match outcome prediction.
- Engineered preprocessing pipelines and training modules for ML models, enabled real-time user experimentation.
- Published project with reproducible training scripts and documentation to support extension.

**Systems Programming Labs** (C, Linux, Penn State Coursework)

- Implemented CPU scheduling algorithms (MLFQ, Round Robin) and a thread-safe job queue in C.
- Built a simplified memory allocator and file system emulator, focusing on efficiency and concurrency control.

## Professional Experience

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### **Development Specialist**

State College, PA

Division of Development & Alumni Relations Penn State

Apr 2025 – Present

- Conduct ongoing evaluation of generative AI and predictive modeling to support fundraising strategy.
- Partner with engineering teams to build data segmentation pipelines for prospect research.
- Maintain intern talent pipeline database, automate reporting of alumni skill placements.

### **Frontline Orientation Staff**

State College, PA

Student Orientation & Transition Program Penn State

Mar 2025 – Aug 2025

- Primary point of contact for 8,000+ incoming students and families, created scripts that cut response times by 40%.
- Supported execution of 10+ orientation cohorts, focusing on inclusive communication and system logistics.

### **Executive Education Online Program Moderator & Technical Assistant**

State College, PA

Penn State Smeal College of Business

Feb 2025 – Present

- Supported 20+ live executive education programs with 99% uptime, provided troubleshooting on Zoom/MS Teams.
- Streamlined digital program delivery through process automation and technical setup optimization.

### **Research Support**

State College, PA

Penn State Applied Poultry Research Lab

Nov 2024 – Aug 2025

- Conducted data collection and analysis for applied agricultural systems, improved data recording workflows.