

ÖMER KAHYAOĞLU

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PROFESSIONAL SUMMARY

Fourth-year Mathematical Engineering student at Istanbul Technical University with a strong foundation in applied mathematics, computational methods, and machine learning theory with unique interdisciplinary foundation spanning electronics hardware. Transitioned strategically from Electronics and Communication Engineering to pursue deeper mathematical foundations of artificial intelligence. Combines rigorous mathematical training with systems-level understanding of computer architecture, and hardware constraints—enabling effective translation between theoretical algorithms and practical implementations. Experienced in problem solving, technical communication across disciplines, and AI-assisted research workflows. Seeking future career opportunities especially in AI/ML development to apply mathematical expertise and computational skills to real-world challenges in a collaborative research-oriented working environment.

EDUCATION

Istanbul Technical University (ITU) | Istanbul, Turkey

Bachelor of Science in Mathematical Engineering | Expected Graduation: Summer 2027

- Current GPA: **3.11/4.00** | Completed: 203.5 ECTS Credits
- **Pure Mathematics:** Advanced Calculus (Real & Complex Analysis), Differential Equations (ODEs & PDEs), Functional Analysis, Differential Geometry, Probability Theory & Statistics, Modern Algebra, and more...
- **Applied & Computational Mathematics:** Computational Linear Algebra & Matrix Theory, Numerical Solution Methods, Numerical Optimization, Data Processing Algorithms, Data Structures, and more...

Istanbul Technical University (ITU) | Istanbul, Turkey

Electronics and Communication Engineering (Unfinished-Incomplete) | 2020–2024

- Completed 169 ECTS Credits in Electronics and Communication Engineering before transitioning to Mathematical Engineering to pursue deeper mathematical foundations of AI/ML systems. Gained systems-level understanding of computer architecture, CPU/GPU computing fundamentals, circuit design, and hardware-software interfaces
- Key Technical Foundation: Engineering Mathematics, Circuit & System Analysis, Digital Systems, Modern Physics, Thermodynamics, Data Structures, Material Science, Semiconductor Device Physics and more...

Kadıköy Anatolian High School (KAL) | Istanbul, Turkey

High School Diploma | 2015–2020

- Graduation Score: 95.36/100 | Distinction: Student of Honor
- Competitive five-year program (including English Preparatory Year) at one of Turkey's most selective public high schools

ACADEMIC PROJECTS & RESEARCH

Independent Research: AI-Assisted Educational Mathematical Content Development

Ongoing Personal Research Project (2023–Present)

- Developing systematic prompt engineering workflows for generating publication-quality educational materials with mathematical precision using large language models
- Engineered specialized pipeline configuring AI models to output content in LaTeX format for publication-quality PDF documents
- Implementing human-in-the-loop quality control methodology to ensure accuracy in technical outputs
- Utilizing advanced language models with extended reasoning capabilities for complex mathematical content generation

Linear Algebra & Genetics Learning Module

Team Leader & Main Presenter | Istanbul Technical University (December 2025)

- Led five-person team in designing innovative university-level curriculum and Learning Station content integrating matrix operations with genetic inheritance modeling
- Developed complete teaching system experiences enabling instruction of genetics concepts through linear algebra frameworks
- Coordinated content development, quality assurance, and presentation delivery and designed the learning experience for multidisciplinary educational modules
- Achieved perfect score on project evaluation for mathematical accuracy, pedagogical innovation, and interdisciplinary integration

PROFESSIONAL EXPERIENCE

Guest Presenter | Istanbul University, Cerrahpaşa Faculty of Medicine | October 2023

- Invited to deliver 75-minute technical presentation on 'GPT-4 and the Future of AI in Healthcare Diagnostics' to audience of 50+ medical students, faculty, and clinical researchers
- Synthesized and presented findings from recent AI/medical research papers, translating complex machine learning concepts for medical audience
- Demonstrated ability to communicate technical AI concepts across disciplines, bridging computer science and healthcare domains

Operations Intern | Arttech Defense | Istanbul, Turkey | Summer 2023

- Managed digital documentation systems in high-security defense industry environment
- Analyzed workflow processes and assisted in operational efficiency improvements for administrative operations; gained exposure to defense industry protocols and corporate operations

Mechanical Team Assistant Captain | KAL Robotics Team | Kadıköy Anatolian High School | 2018–2020

- Co-led mechanical design team and greatly contributed to mechanical subsystem design and manufacturing for FIRST Robotics Competition 2019
- Received 'Innovation in Control' Award for advanced software-hardware integration

LANGUAGES

- Turkish: Native Proficiency
- English: Advanced (C1) – IELTS 6.5; fluent in technical literature and academic writing
- German: Elementary Proficiency (A2)

TECHNICAL SKILLS

Programming Languages: Python, C, MATLAB (foundational to intermediate proficiency)

Technical Tools & Software: Microsoft Office Suite, Visual Studio Code, Foxit PDF Editor, LTspice (circuit simulation), Jupyter Notebooks, Git/GitHub and more...

AI & Machine Learning: Prompt engineering for large language models, AI-assisted research workflows, machine learning fundamentals, deep learning architectures, natural language processing (via Coursera, Udemy, self-directed study 2022–present)

Technical Domains: IT Systems, Network Architecture, Electronic Components & Circuits, Computer Hardware/Software, Operating Systems and more...

Computer Architecture: CPU pipeline architecture and hierarchies, memory management, GPU computing fundamentals, parallel processing concepts

Electronics Foundation: Circuit analysis, digital systems, signal processing, hardware-software interfaces

Performance Optimization: Understanding of computational complexity, hardware constraints, algorithmic efficiency, memory access patterns

LEADERSHIP & PROFESSIONAL ATTRIBUTES

- Systematic and methodical approach to problem-solving with strong attention to detail and precision
- Experienced in translating complex technical concepts for diverse audiences through public speaking and presentations
- Ability to decompose complex problems into manageable components and design efficient workflows
- Collaborative team member with experience in coordinating multidisciplinary projects

PERSONAL RESEARCH INTERESTS

Large Language Models & Natural Language Processing, Computer Vision, Multi-Modal AI Systems, Deep Learning Architectures, Theoretical Foundations of Machine Learning, AI-Assisted Educational Frameworks, Data Science & Engineering, Hardware-aware machine learning optimization, computational efficiency in AI systems, and more...

ADDITIONAL INFORMATION

Career Objective: Seeking future career opportunities especially in AI/ML R&D environments with strong emphasis on collaboration, continuous learning, and real-world applications of mathematical and computational methods

Professional Interests: Companies with academic partnerships, research and development initiatives, and opportunities to work alongside experienced engineers and researchers on next-generation AI architectures

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Citizenship: Türkiye | Year of Birth: 2001 | Gender: Male