Mehmet Enes KAPLAN

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Education

2022 – 2025 İstanbul, Turkey	**MSc - Computer Science & Engineering,** *Yıldız Technical University* Music Generation with Deep Learning, with 3.93/4 GPA
2016 – 2021 İzmir, Turkey	**Computer Science & Engineering,** *Ege University* with 3.66/4 GPA

Professional Experience

08/2022	**Educator,** *MetLife* Blockchain 101
09/2021 – 01/2022 Kocaeli, Turkey	**Software Engineer,** *Metasis Teknoloji* • Created a tool that simplifies the sprint plans for Jira • Websocket implementation for real time sprint planning for team • Created React components for general purpose usage • Maintained Java code base
2020 Turkey	**Software Engineer Intern,** *HAVELSAN* • Spring Boot application for user database • Unit Testing with Spring Boot application

Projects

2025	**A Modular System for Symbolic Music Generation,** *Yıldız Technical University - MSc. Thesis* Built a modular, hierarchical system (Diffusion → RNN → VAE) that composes long, coherent symbolic music from bar-level latents, outperforming baselines in objective metrics and listening tests.
2023	**Ensemble Model Investigation,** *Minimum Energy Path* Discovered the optimal path, minimizing energy, between two optima in the neural network space. Developed an ensemble model with points along this path, strategically enhancing overall model performance. Applied the method to image and text datasets, showcasing its versatility and effectiveness.
2022	**Sprint Planning Tool** Built modular real-time sprint planning tool with performance analytics and WebSocket collaboration, integrated with Jira at Turkey's 2nd largest bank. Designed reusable React components following SOLID principles where small focused modules work together as a cohesive system, achieving 2-3x speedup in sprint planning.
2021	**Turning Rhythm That Comes From Mouth into a Musical Instrument,** *Ege University - Thesis* Built vocal-to-instrumental transformation system by self-teaching audio signal processing. Won two national awards in nationwide thesis competition.
2020	**Encrypted Communication** Built encrypted communication system using microcontrollers with RSA implementation in Assembly, showcasing low-level programming and cryptographic security principles.

Awards

2025	**YLSY Scholarship,** *Turkish Ministry of National Education* Turkey's most prestigious scholarship for PhD research.
2021	**GBYF - TBD 50th anniversary special award,** *Genç Beyinler Yeni Fikirler* Ege University - Thesis
2021	**GBYF - 3rd place in Education, Entertainment and Games category,** *Genç Beyinler Yeni Fikirler* Ege University - Thesis

Publications

30/04/2025	**Symbolic Music Generation Using Latent Representations of a VAE,** *11th International Aegean Congress on Innovation Technologies & Engineering*

Skills

Programming Languages & Frameworks
Python (PyTorch, TensorFlow, Keras, Pandas, NumPy), Java (Spring Boot), JavaScript (React, Vue.js), Golang (Gorilla Mux, Testify, Pact Flow), Flutter (Bloc state management, Go Router, testing)

Statistical Techniques
t-tests, z-tests, ANOVA, chi-square analyses, hypothesis testing, data-driven decision making

Algorithms
Competitive programming and algorithmic problem-solving

Machine Learning & Deep Learning
- *Generative Models: VAE, Diffusion Models, GANs, Autoregressive Models*
- *Neural Architectures: RNNs/LSTMs, Transformers, CNNs*
- *Ensemble Learning: Adaboost, Bagging, Random Forest, Rotation Forest, Random Subspace*
- *Applications: Stock market prediction, image generation, melody generation, hierarchical compound symbolic music generation (MSc thesis combining VAE, diffusion, and RNN models)*

Software Engineering
SOLID principles, Clean Architecture, TDD, ATDD, CDC, Git, collaborative development
- *Designed Sprint Planner tool integrated with Jira for streamlined project planning*

Certificates

Fullstack Developer	**Blockchain**
Patika.dev	*LKD*

Courses

2022	**Fullstack Developer,** *Patika.dev* ATDD, TDD & CDC development with Go and Vue3
2019 Bolu, Turkey	**Blockchain,** *LKD* Solidity experienced for developing bid app that works on EVM (Test network)