MUSTAFA DOGAN

⌂ | ✉ | in | ⚲ Ankara, Turkey

EDUCATION

Hacettepe University   2021-2024
Master's in Science in Computer Engineering | GPA: 3.64/4.0   *Ankara, Turkey*
Graduate Thesis: *Evaluating Zero-Shot Learning Capabilities of Video-Language Pretraining Models*
    Contributed *ViLMA* benchmark to evaluate VidLMs' capabilities in processing moving images.
    Adapted and tested multiple VidLMs, revealing performance similarities to static image-based models.

Konya Food&Agriculture University   2016-2021
Bachelor's in Science in Computer Engineering | GPA: 3.72/4.0   *Konya, Turkey*
2nd highest rank in the faculty, High Honor
Recipient of merit-based full scholarship by Dean's Office
Graduation Project: *Autonomously Navigated Agent Using Reinforcement Learning*
    Developed *Deep Q-Learning* ML model in *CARLA* simulator for autonomous point-to-point navigation.

EXPERIENCE

Aselsan   November 2021 - Present
Software Engineer   *Ankara, Turkey*

· Spearheaded the development and maintenance of event-driven firing control systems deployed on *VxWorks and CentOS* operating systems for critical national defense systems.

· Orchestrated communication between units using *TCP/IP, RS422, Can Bus,* and *DDS* protocols.

· Applied *C++, Java, Visual Studio,* and *Eclipse* for development and testing.

TUBITAK SAGE   February - July 2021
Researcher   *Ankara, Turkey*

· Engineered a C# *multi-threading form application* leveraging *N-tier Architecture, Reflection,* and *PlotLab* libraries, enabling intuitive visualization of missile data.

· Developed an *indexer project* in C# to categorize and present specific file types from designated root paths in *HTML* format using a tree view.

Morten Inc.   June - September 2020
Machine Learning Engineer Intern   *Istanbul, Turkey*

· Pioneered the creation of a Knowledge Graph cataloging authors and their citations from academic papers stored in a *MongoDB* database, devising a *GPT-2*-powered *Python* scripting.

· Engineered a sophisticated machine learning model utilizing *natural language processing* to identify tasks within academic papers, facilitating comprehensive paper clustering.

Air Electronic Warfare Systems Engineering Trading Inc.   June - September 2019
Embedded Software Eng. Intern   *Ankara, Turkey*

· Crafted a Memory Map conforming to *MIL-STD-1553* protocol using *C* and *VHDL* for the *Electronic Warfare Suite Controller* integrated into *F-16 aircraft.*

· Implemented a finite state machine employing *MYD-C7Z015 Development Board* and *LTC-2601* standards for digital-to-analog signal conversion.

Michigan State University   August-September 2018
Laboratory Assistant Intern   *MI, USA*

· Conducted analysis, utilizing *Python* libraries (*matplotlib, Seaborn*), to explore the relationship between sleeping patterns and eating habits.

· Applied *Bayes Theorem* and *MS Office* to evaluate test results, offering insights to collaborating companies.

PUBLICATIONS

[1] **Doğan M**, Öztoprak K, and Tolun MR. Teaching computer architecture by designing and simulating processors from their bits and bytes. *PeerJ Computer Science*, 2024.

[2] Ilker Kesen, Andrea Pedrotti, **Mustafa Dogan**, Michele Cafagna, Emre Can Acikgoz, Letitia Parcalabescu, Iacer Calixto, Anette Frank, Albert Gatt, Aykut Erdem, and Erkut Erdem. Vilma: A zero-shot benchmark for linguistic and temporal grounding in video-language models, 2023.

[3] **Mustafa Doğan**, Ömer Metin, Elif Tek, Semih Yumuşak, and Kasım Öztoprak. Speculator and influencer evaluation in stock market by using social media. In *2020 IEEE International Conference on Big Data (Big Data)*, pages 4559–4566, 2020.

PROJECTS

Speculator Finder

· Identified *NASDAQ* market speculators and influencers by analyzing nearly *3.4 million* distinct user tweets on company-related topics.

· Utilized *Selenium* library to gather tweet data, user details, and engagement metrics, storing them in an *SQLite Database*.

· Employed *tfidf vectorizer* and machine learning algorithms, predominantly *SVM*, for tweet vectorization and clustering.

Morse Decoder

· Conceptualized a *VHDL* project within the *ISE* Development environment to convert user-input signals into Morse code.

· Implemented functionality to decode signals and display the resulting characters on the LCD Screen of the *FPGA* board while enhancing capabilities include deleting the last decoded character and transitioning to the next line on the screen.

16-bit RISC based Processor

· Engineered a custom instruction format and data-path based on the *Harvard architecture*, encompassing 18 essential instructions for memory and register operations.

· Constructed a *user-friendly desktop simulator* using *Python* and *PyQt*, enabling users to execute programs utilizing assembly instructions while visualizing real-time memory and register values.

· Established a *Verilog* project within the *ISE* development environment to verify the design and functionality.

VOLUNTEERING ACTIVITIES

Erasmus Youth Exchange   October 2019
Participant   *Perugia, Italy*

· Engaged actively in the "Interstellar Inclusion" Youth Exchange project, fostering understanding and combatting *racism* and *xenophobia* through peer-to-peer experiences.

· Collaborated in a theater performance involving a diverse group from various countries, addressing challenges related to accessing education in different societal contexts.

· Created and edited an *award-winning* short film on the theme of Freedom, receiving the 'Best Movie' accolade among five nominated films.

· Delivered a presentation on migration in Turkey to 30+ youngsters from diverse backgrounds.

Erasmus Youth Exchange   May 2018
Participant   *Tallinn, Estonia*

· Participated in the "Sail Entrepreneurship" Youth Exchange project, collaborating with participants from various countries.

· Contributed to ideation and development of business concepts focusing on social entrepreneurship using the *Business Canvas Model.*
· Overcame cultural and language barriers by fostering open communication and encouragement among a group of 35+ participants.

ADDITIONAL EXPERIENCE

KFAU Robotics Club, Member of Board
January 2019 - September 2021

IEEE KFAU Student Branch, Founding President
January 2018 - October 2019

International Youth Camp, Participant
August 2017