

Unat Teksen

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Education

Kadir Has University

Bachelor of Science in Computer Engineering, Full Scholarship

GPA: 4.0/4.0 (Valedictorian)

2018 – 2023

Istanbul, Turkey

Experience

Avinga

Freelance Software Developer

Sept. 2023 – Feb. 2024

Istanbul, Turkey & (remote) Serbia

- Working on designing policy authorization tools with REST APIs. Implementing new gRPC & HTTP services.
- Creating joint full-stack projects and providing web services with the avinga.com CMS project as a freelance project-based engineer. Integrating content management systems and payment, mail and dealership systems for more than 10 client.

Koç University

Research Intern

June 2022 – Present

Istanbul, Turkey

- Working at *Koç University Cryptography, Security, and Privacy Research Group* as an undergraduate researcher.
- **Supervisors:** Assoc. Prof. Alptekin Küpçü, Asst. Prof. Ercüment Çiçek
- Working on the implementation of novel defensive mechanisms against attacks in privacy-preserving machine learning systems. Specifically, working with split learning implemented in **PyTorch**.
- Implemented anomaly detection models in **scikit-learn** from scratch to detect and mitigate the impacts of a specific attack in a distributed and private deep learning model.
- Achieved **100% accuracy in detecting** all existing attacks, and **21.8 and 50 times faster** than the previous two defense methods in the literature.
- Analyzing a wide range of attacks in the literature using **dimension reduction methods** (t-SNE, PCA).
- Contributed as a **co-author** for two papers.
- *PyTorch, scikit-learn, NumPy, Pandas, and, Matplotlib are used throughout the project.*

ASELSAN

Software Engineering Intern

June 2022 – July 2022

Ankara, Turkey

- Worked at *Department of Avionics Software* which is responsible for designing and developing a graphical user interface for aircraft.
- Developed an **interface for the unit test** integrated with the specific aircraft's GUI. Developed for acknowledging aircraft's protocol commands. *C/C# are used throughout the project.*

Kadir Has University

Research Intern

Nov. 2021 – June 2022

Istanbul, Turkey

- Worked on dimension reduction methods and graph-based manifold learning algorithms for open-source Sca-ML project supported by TÜBİTAK. “*Developing a New Method Based on Eigenvalue Distribution Slicing and Contour Integral for Manifold Learning and Analysis of Big Data*” project is supervised by Asst. Prof. E. Fatih Yetkin.
- Implemented PETSc/SLEPc Python libraries and library functions added for **solving eigenvalue problems in PCA and SVD dimension reduction** methods.
- *scikit-learn, NumPy, Pandas, SciPy, PETSc/SLEPc, Matplotlib, and, Plotly are used throughout the project.*

Preprints

1. Ege Erdogan, **Unat Teksen**, M. Salih Celiktenyildiz, Alptekin Kupcu, A. Ercument Cicek. “**SplitOut: Out-of-the-Box Training-Hijacking Detection in Split Learning via Outlier Detection**”, 2023; [arXiv:2302.08618](#). [Under peer-review]
2. Ege Erdogan, **Unat Teksen**, M. Salih Celiktenyildiz, Alptekin Kupcu, A. Ercument Cicek. “**Defense Mechanisms Against Training-Hijacking Attacks in Split Learning**”, 2023; [arXiv:2302.08618v1](#).

Honor & Awards

- 1) Valedictorian - Ranked 1st student in Kadir Has University
- 2) TÜBİTAK Star Scholarship for Undergraduate Research Project
- 3) Merit-based Full Scholarship for Bachelor's Degree Education

Professional Activities

- 1) Reviewer at IEEE T-IFS (IEEE Transactions on Information Forensics and Security)
- 2) Subreviewer at ESORICS 2023 (European Symposium on Research in Computer Security 2023)
- 3) Reviewer at TJEECS (TUBITAK Turkish Journal of Electrical Engineering and Computer Sciences)

Projects

- RAG Evaluation Pipeline + Reranker + HuggingFace Models** | *LangChain, Huggingface, RAGAS, LoRa* | [Github](#)
- This project includes RAG pipeline with HuggingFace open-source models, Cohere ReRank module and evaluation with RAGAS, scrapping of web pages with BS4 and RAG optimization script
- Title Generator from Abstract with LLM & PEFT (LoRA)** | *Transformers, Huggingface, PyTorch, Lora* | [Github](#)
- Fine-tuning of T5 & BART with arXiv CS-related articles. Training with LoRA, evaluation with rouge-score.
- ML/NN Models from Scratch and Tutorials** | *Transformers, PyTorch* | [Github](#)
- Trying to examine, explain and code the NN models (Transformers, CLIP, etc.) from scratch that I am curious about.
- Breast Cancer Detection with CNNs with Multi-view Mammograms** | *PyTorch, sk-learn, Pandas, PIL, OpenCV*
- Senior design project is selected as the best design project among 24 projects in the department.
- LDA Topic Modeling for Bloomberg News** | *Gensim, NLTK, pyLDavis, Pandas, Numpy* | [Github](#)
- JWT CRUD Social Media Platform** | *Java SpringBoot, React, MySQL, JWT, Axios, Maven, Bootstrap* | [Github](#)

Skills & Technical Strengths

Human Languages: Turkish (*native*), English (*fluent*), Italian (*elementary*)

Programming Languages: Python, Java, JavaScript, C/C#, PHP, Matlab, CSS

Machine Learning/Data Science: PyTorch, scikit-learn, NumPy, Pandas, Matplotlib, LangChain

Web Development: Java Spring, Spring Security 6, React, jQuery, Bootstrap, Maven

Other Technologies/Databases: MySQL, Tkinter, Swing

Typesetting: LaTeX

Certificates & Courses

- 1) Sequence Models | Issued by Coursera & DeepLearning.AI | [Credential](#)
- 2) Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization | [Credential](#)
- 3) Neural Networks and Deep Learning | Issued by Coursera & DeepLearning.AI | [Credential](#)
- 4) CCNA: Introduction to Networks | Issued by Cisco | [Credential](#)
- 5) Machine Learning by Stanford University | Issued by Coursera & Stanford University | [Credential](#)

Activities

- Social Media Content Creator & Designer** at Community of Kadir Has University Social Support & Solidarity
- Designing and creating content specific to regular announcements and events for social media platforms. Volunteering in the organization of charity events.