Unat Teksen

Istanbul, Turkey

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Education

Kadir Has University **2018 – 2023**

Bachelor of Science in Computer Engineering, Full Scholarship *Istanbul, Turkey*

GPA: 4.0/4.0

Experience

Koç University **June 2022 – Present**

Research Intern *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. All existing attacks were detected with **100% accuracy, 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 **June 2022 – July 2022**

Software Engineering Intern *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 **Nov. 2021 – June 2022**

Research Intern *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 libraries and functions for **solving eigenvalue problems in dimension reduction** methods: *PCA, SVD.*
- *scikit-learn, NumPy, Pandas, SciPy, PETSc/SLEPc, Matplotlib and, Plotly are used throughout the project.*

Argenova **June. 2021 – July 2021**

Software Engineering Intern *Kocaeli, Turkey*

- Developed a **content management system** for the company's blog and project pages. *PHP, JavaScript, jQuery, MySQL, and, CSS* 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

Valedictorian - First Top Ranked Student of the University **July 2023**

- Ranked 1st student among the students in Faculty of Engineering & Natural Sciences and university for 8 semesters.

TÜBİTAK Star Scholarship for Undergraduate Research Project **Dec. 2021–June 2022**

- Selected by TÜBİTAK (Scientific and Technological Research Council of Turkey) and coordinators of the "Scalable Manifold Learning" research project as an undergraduate scholar for 6 months.

Merit-based Full Scholarship for Bachelor's Degree Education **Sept. 2018–2023**

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)

Projects

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.

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*

Personal Blog Management System for Academics | *PHP, MySQL, JavaScript, BootStrap, CSS* | *Github*

Instagram Follower & Following List Scraper | *Python, Selenium, Web Driver Manager* | 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

Web Development: Java Spring, Spring Security 6, jQuery, React, 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.