Ege Erdoğan ege@erdogan.dev | Homepage | LinkedIn | GitHub | Google Scholar

Updated September 23, 2021. See erdogan.dev/resume for latest version.

EDUCATION

Koç University (GPA: 3.57/4)   Istanbul, Turkey
Double major in Computer Engineering & Mathematics   *2017 – Present*
Cryptography, Security, and Theory specialization program (3.91/4)
Dean's Honor Roll (3 semesters) and Vehbi Koc Scholar (2 semesters) for academic achievement.

Üsküdar American Academy   Istanbul, Turkey
High School   *2012 – 2017*

EXPERIENCE

Undergraduate Tutor (x2)   Feb. 2021 – June 2021 *and* Sep. 2021 - Present
Koç University   *Istanbul, Turkey*
- Holding weekly tutoring sessions and helping with course administration
  for the *Computer Networks* course for the Spring 2021 and Fall 2021 semesters.

Research Intern   July 2020 – Present
Koç University Cryptography, Security, and Privacy Research Group   *Istanbul, Turkey*
- **Supervisors:** Assoc. Prof. Alptekin Küpçü, Asst. Prof. Ercüment Çiçek
- Working on the design and implementation of novel offensive and defensive methods involving
  privacy-preserving machine learning systems.
- Produced two first-author papers (see Research section below), currently under review; one is
  a set of attacks targeting data and model confidentiality of split learning clients, the other is a method by which
  split learning clients can detect and prevent *training-hijacking* attacks.
- Using Python and various ML libraries to implement privacy-preserving machine learning
  methods and attacks against them.

Undergraduate Teaching Assistant   Sep. 2020 – Jan. 2021
Koç University   *Istanbul, Turkey*
- Conducted weekly problem solving sessions and held office hours for the *Introduction
  to Programming with Python* course during the Fall 2020 semester.

Software Development Intern   July 2020 – Aug. 2020
Proteams   *Istanbul, Turkey*
- Implemented features for different parts of a mobile application, including its
  back-end server, database, and admin panel.
- Worked with Java and the Spring framework for the backend, PostgreSQL for the database,
  and Angular for the admin panel.

Summer Intern   July 2019
IBM   *Istanbul, Turkey*
- Worked within the IBM Cloud & Cognitive team.
- Built a chatbot to answer questions by IBM new hires as a group with the other interns.
- Developed a music generation system using neural networks and built a web interface for it
  with the other interns. Worked with Python for machine learning and web development.

Software Development Intern   Feb. 2018 – April 2018
Bitlo Cryptocurrency Exchange   *Istanbul, Turkey*
- Started learning and gained experience using the Spring framework to build web
  applications. Gained practice with the Java language.

RESEARCH

1. **Ege Erdogan**, Alptekin Kupcu, A. Ercument Cicek. "SplitGuard: Detecting and Mitigating Training-Hijacking Attacks in Split Learning", 2021; arXiv:2108.09052. *[Preprint. Under review.]*

2. **Ege Erdogan**, Alptekin Kupcu, A. Ercument Cicek. "UnSplit: Data-Oblivious Model Inversion, Model Stealing, and Label Inference Attacks Against Split Learning", 2021; arXiv:2108.09033. *[Preprint. Under review.]*

3. **Ege Erdogan**, Can Arda Aydin, Oznur Ozkasap, Waris Gill. "Demo – Zelig: Customizable Blockchain Simulator", 2021; arXiv:2107.07972. *[Presented at the 40th International Symposium on Reliable Distributed Systems (SRDS 2021)]*

Projects

Zelig: Customizable Blockchain Simulator (work-in-progress) | <u>Python</u>
- Building a blockchain simulator in Python with the core goals of customizability and extensibility, aiming to address the shortcomings of existing simulators.
- Started as a term project for the Distributed Systems course and resumed as independent work.
- Accepted to be presented at the demo session of the 40th International Symposium on Reliable Distributed Systems (SRDS 2021).

Brick-breaking Game | <u>Java, Swing, MongoDB</u>
- Developed a brick-breaking game as a group of 5 for the Software Engineering course at Koc University.
- Worked with Java Swing libraries for the visuals, and used MongoDB to save user statistics and save games.
- Gained experience with software development tools and methodologies such as agile development, UML diagrams, and design patterns.

Web-based News Reader | <u>Ruby, Ruby on Rails, JavaScript</u>
- Developed a web-based reader scraping and displaying content from Hacker News, Slashdot, and the r/programming subreddit as a solo project.

Course Projects
- Various course projects including Distributed Systems, AI/ML, Computer Security, Computer Networks, Operating Systems, and Digital Design courses among others can be found at <u>https://github.com/ege-erdogan/coursework</u>.

Activities

Volunteer | <u>Koc University Entrepreneurship Society</u>   2019-2020
- Volunteered as a mentor for the *Zero to One* entrpreneurship conference.
- Worked in the organization of the conference and was responsible of a group of guests on event day.

Member | <u>Uskudar American Academy Percussion Group</u>   2013-2017
- Was a member of the UAA percussion group.
- Participated in various concerts with the group in Belgium, Ankara, Izmir, and Istanbul.

Skills & Interests

Human Languages: Turkish (native), English (fluent), German (beginner)
Computer Languages: Python, Java, JavaScript, Go, Ruby, C, Scheme
Frameworks/Libraries
    Machine learning/Statistics: PyTorch, Numpy, Matplotlib, scikit-learn
    Web: Ruby on Rails, Spring, Bootstrap
Areas of interest: Security & privacy, machine learning, cryptography, web development, theoretical CS