SHADI HAMDAN

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EDUCATION

Koç University, Turkey September 2022 - Present
Computer Science PhD Student, Autonomous Vision Group *Advisor: Asst. Prof. Fatma Guney*
- Interested in sequential decision making for driving as well as self-supervised representation learning
- KUIS AI Fellow

Koç University, Turkey July 2022
Bachelor of Science, Computer Engineering Senior *Major GPA: 4.11/4.00, Overall: 4.08/4.00*
- Valedictorian: ranked first among 2022 graduates from all departments
- Full ride scholarship from the Al Ghurair Foundation for Education

Northwestern University January 2021 - March 2021
Global Exchange Program *GPA: 4.00/4.00*
- Chosen to receive the single annual nomination to go on exchange for an academic semester to Northwestern.
- Achieved High Honors for the Winter 2021 Quarter

WORK EXPERIENCE

ShallowAI July 2020 - Present
Junior NLP Engineer *Palo Alto, California*
- Designed efficient NLP models optimized for use on edge devices.
- Developed state of the art techniques to improve performance in targeted domains in machine translation, outperforming available solutions like Google Translate by 20% in terms of BLEU score.

Koc University and Is Bank Artificial Intelligence Center (KUIS-AI Center) June 2020 - August 2022
Undergraduate AI Researcher *Istanbul, Turkey*
- Worked on CorInfoMax, a self-supervised learning approach to learning visual representations based on information maximization. Accepted to NeurIPS 2022.
- Curated MinuteMysteriesQA, a dataset of short "Whodunnit?" crime stories to evaluate the capability of models to perform complex reasoning. The dataset has been accepted to BIG-Bench, which is currently on Arxiv.

Virologic - Hospital On Mobile May 2020 - August 2020
Junior AI and Software Engineer *Menlo Park, California*
- Implemented a pipeline to reliably predict respiratory rate from fingertip and face videos.
- Developed an rPPG signal extraction and denoising pipeline that significantly improved rPPG signal quality.

Distributed Systems and Reliable Networks Research Laboratory (DISNET) March 2019 - April 2020
Undergraduate Researcher *Istanbul, Turkey*
- Implemented a Proof of Concept for LightChain, a DHT-based Blockchain.
- Modeled distribution of latencies between nodes in cloud providers (AWS, GC) in order to simulate them offline.

Dapper Labs August 2019 – December 2019
Junior Software Engineer *Vancouver, Canada*
- Designed and Implemented the first version of the networking layer of the Flow Blockchain.

PUBLICATIONS

- S. Ozsoy, **S. Hamdan**, Sercan Ö. Arik, D. Yuret, and Alper T. Erdogan, Self-Supervised Learning with an Information Maximization Criterion," in **NeurIPS, 2022.**
- A. Srivastava et al., "Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models," on arXiv, 2022
- Y. Hassanzadeh-Nazarabadi, N. Nayal, **S. Sameh Hamdan**, Ö. Özkasap, and A. Küpçü, "A containerized proof-of-concept implementation of lightchain system," in ICBC. IEEE, 2020.
- Y. Hassanzadeh-Nazarabadi, N. Nayal, **S. Sameh Hamdan**, A. Utkan Şahin, Ö. Özkasap, and A. Küpçü, "Demo: Skip Graph Middleware Implementation", in SRDS 2020.

TEACHING EXPERIENCE

Programming Language Concepts September 2022 – Present
Teaching assistant *Istanbul, Turkey*

Deep Learning (Combined Graduate/Undergraduate Course) September 2020 – January 2021
Teaching assistant *Istanbul, Turkey*
- Conducted weekly lab sessions and office hours
- Graded assignments and term projects
- Assigned to guide 9 graduate and undergraduate students in their respective semester long project.

Koç University Office of Learning and Teaching (KOLT) September 2018 – June 2019
Teaching assistant *Istanbul, Turkey*
- Conducted office hours, review sessions, and proctored exams for Linear Algebra and Advanced Programming.

RELEVANT COURSEWORK

- Deep Learning
- Computer Vision
- Intro. to Artificial Intelligence
- Intro. to Machine Learning
- Linear System Theory
- Natural Language Understanding
- Software Engineering
- Computer Architecture
- Algorithm Design
- Data Structures & Algorithms
- Discrete Mathematics
- Probability and Stats.

ACHIEVEMENTS

Valedictorian of the Class of 2022 June 2022
Awardee *Koç University, Istanbul, Turkey*
- Ranked first among ∼1300 graduates of 2022 from all departments.

Al Ghurair Foundation for Education STEM scholarship Program (AGFE) September 2017 - Present
Recipient *Istanbul, Turkey*
- A merit-based award for highly achieving Arab students.
- Admitted among ∼400 students out of 20000+ applicants to pursue a fully funded STEM degree.

PROJECTS

CorInfoMax
*Research Project (**NeurIPS 2022**)*
- Implemented the CorInfoMax self-supervised approach in PyTorch.
- Implemented multi-GPU support for the CorInfoMax loss function.
- Identified and addressed bottlenecks in dataloading as well as other improvements in the model that led to a two-fold speedup with minimal to no impact in performance.

PET.jl
Deep Learning Project
- Replicated the paper *It's Not Just Size That Matters: Small Language Models Are Also Few-Shot Learners* from scratch in Julia using the Knet framework.

LightChain: Proof of Concept Implementation
Research Project
- Implemented a POC of LightChain, a blockchain architecture developed at Koç University.

Bricking Bad
Software Engineering Course Project - Awarded Best Project
- A remake of the popular retro game Breakout, with different rules and features.

SKILLS

- **Programming Languages**: Python (PyTorch, huggingface, scikit-learn, pandas), Julia (Knet), Java, C++, C.
- **Languages:** Arabic (native), English (fluent)

EXTRACURRICULAR ACTIVITIES

International Blockchain Olympiad 2020 July 2020
Participant *Online (due to Covid-19)*
- Presented our Proof of Concept implementation of LightChain as part of DISNET Research Team.

Koç University ACM Student Chapter (KUACM) May 2019 - Present
Board Member *Istanbul, Turkey*
- Organized programs and activities carried out under that chapter's supervision.

Koç University Algorithms Program (KUAP) January 2019 - Present
Instructor *Istanbul, Turkey*
- Helped create a curriculum that covers basics of problem solving using algorithms and data structures.
- Led discussions and problem solving sessions demonstrating concepts and solutions to problems.

inzva Algorithmic Competition Winter Camp 2019 January 2019
Participant & Contestant *Istanbul, Turkey*
- Ranked 1st in final day contest after a week long intensive training on algorithms and data structures.