İlker Kesen

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Research interests   language-vision problems, commonsense reasoning, multimodal learning

Education

Koç University   İstanbul, Turkey
PhD in Computer Science and Engineering   Sep. 2016 – Present
Advisor: Deniz Yuret. *GPA: 3.05*

İstanbul Technical University   İstanbul, Turkey
BSc in Electronics and Communication Engineering   2010 – 2016
GPA: 3.07

Publications

Detecting Euphemisms with Literal Descriptions and Visual Imagery
Ilker Kesen, Aykut Erdem, Erkut Erdem, Iacer Calixto.
3rd Workshop on Figurative Language Processing at EMNLP, 2022.

Modulating Bottom-Up and Top-Down Visual Processing via Language-Conditional Filters
Ilker Kesen, Ozan Arkan Can, Erkut Erdem, Aykut Erdem, Deniz Yuret.
5th Multimodal Learning and Applications Workshop at CVPR, 2022.

CRAFT: A Benchmark for Causal Reasoning About Forces and inTeractions
Tayfun Ates, M. Samil Atesoglu, Cagatay Yigit, *Ilker Kesen*, Mert Kobas, Erkut Erdem, Aykut Erdem, Tilbe Goksun, Deniz Yuret.
Findings of ACL, 2022.

Fast Multidimensional Reduction and Broadcast Operations on GPU for Machine Learning
Doga Dikbayir, Enis Berk Coban, *Ilker Kesen*, Deniz Yuret, Didem Unat.
Concurrency and Computation: Practice and Experience, 2018.

Research Experience

Research Assistant at Koç University, KUIS AI Center
Supervisors: Deniz Yuret, Aykut Erdem, Erkut Erdem   Sep. 2016 – Present
As a research assistant, my main research focus is language grounding to vision and beyond. I have been experimenting with diverse set of integrated language-vision problems such as referring expression segmentation, visual commonsense reasoning. I was also an active contributor of Knet, Koç University Deep Learning Framework implemented in Julia programming language.

Visiting Researcher at Amsterdam UMC, University of Amsterdam

Supervisors: Iacer Calixto   Sep. 2022 – Oct. 2022

Developed a dataset for video-language models (work in progress).

Visiting Researcher at Qatar Computing Research Institute

Supervisors: Deniz Yuret, Sanjay Chawla   Apr. 2019

Worked on performance metric-based optimization projects. Re-implementation of these projects in Julia. Julia tutoring at the institute.

Summer Research Intern at Koç University

Supervisors: Deniz Yuret, Sanjay Chawla   Jun. 2016 – Aug. 2016

Re-implemented state-of-the-art image captioning systems (Show and Tell, Show, Attend, and Tell) in Julia / Knet. Performed speed benchmark experiments on Caffe and Knet frameworks.

Teaching Experience

Teaching Assistant at Koç University   Spring 2018 – Present

COMP 541: Deep Learning

courses.ku.edu.tr/comp541

Graduate-level introductory deep learning course. Course topics include softmax regression, multilayer perceptrons, convolutional networks, recurrent networks, transformers, generative models and reinforcement learning. In this course, each student select a recent paper and try to re-produce the results reported by the paper. The teaching assistants guide students in their project assignments. The teaching assistants also prepare exam questions.

Teaching Assistant at Koç University   Fall 2019 – Present

COMP 542: Natural Language Processing

courses.ku.edu.tr/comp542

Graduate-level natural language processing course. We follow the Carnegie Mellon University's Neural Networks for NLP course. Students watch course videos, read selected course material before coming the classroom. In each lecture we hold a discussion session. To pass this course, each student must complete 5 different programming assignments.

Teaching Assistant at Koç University   Fall 2016 – Fall 2017

COMP 200: Structure and Interpretation of Computer Programs

courses.ku.edu.tr/comp200

An introductory undergraduate-level course about core software engineering concepts focusing on the control of complexity in large programming systems. The teaching assistants help undergrads in their projects.

Industry Experience

Vestel   Manisa, Turkey

Engineering Intern   Summer 2015

Performing safety tests for a refrigerator at Product Safety Lab, Highend Factory (first week). Development of an assistant desktop application in C/WPF to make washing/drying machines' embedded development phase easier.

Radity GMBH   Istanbul, Turkey
Software Developer   Jun. 2014 – Sep. 2014
Development of an online appointment web application and a REST API for the application with Django and Django REST frameworks.

ITU VLSI Labs   Istanbul, Turkey
Engineering Intern   Dec. 2012 – Oct. 2013
Maintenance and refactoring of ITU VLSI Labs' Administrative Web Application Interface in PHP programming language. Ported a Small Signal Analysis tool to newer versions of MATLAB, Cadence and Cadence SKILL.

Artistanbul PR   Istanbul, Turkey
Software Developer   Oct. 2010 – Sep. 2011
Development of several Django web applications including Pardus official website and Pardus community platform (OzgurlukIcin). Deployment of these applications on a dedicated remote server.

Pardus Linux – TUBITAK   Ankara, Turkey
Contributor (Remote)   Oct. 2010 – Sep. 2011
Maintenance of many PiSi (apt-like package manager) packages. Bug fixing for *-manager user interface family which are all implemented with Qt/PyQt. Active new user support on IRC/freenode.

Honors, awards and scholarships		
Best Paper Award	MULA, 2022
KUIS AI Fellowship	KUIS AI Center, 2020
Graduate Scholarship	Koç University, 2016
Ranked 781st among 1M students	OSYM, 2010
Certificate of Achievement	TUBITAK, 2009
Ranked 459th among 1M students	MEB, 2006
Ranked 5th among 100k students	MEB, 2006

Skills

Programming
Proficient in: Python, Julia. Familiar with: C/C++, Racket, Javascript.
Frameworks
Pytorch, Pytorch Lightning, Huggingface, Numpy, Knet, Django, Flask.
Software
Emacs, Linux, VSCode, LaTeX, Git, Slurm, Amazon AWS.
Languages
Turkish (native), English (advanced), French (beginner)