

# BATUHAN K. KARAMAN

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🌐 [batuhankmkaraman.github.io](https://batuhankmkaraman.github.io)

## ABOUT ME

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Highly motivated scientist with prior experience creating computational modeling and analytical tools for real-world data. A collaborative and independent learner with a passion for developing deep learning methods for the evaluation of neurological disease.

## EDUCATION

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**Cornell University** Ithaca, NY  
Ph.D. in Electrical and Computer Engineering 2020 - present  
Advisor: Mert Sabuncu

**Middle East Technical University** Ankara, Turkey  
B.S. in Electrical and Electronics Engineering 2015 - 2020

## RESEARCH EXPERIENCE

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**Cornell University** New York, NY  
Graduate Research Assistant Sep 2020 - present  
Supervisors: Mert Sabuncu, Ray Razlighi (from Weill Cornell Medicine Radiology)

- Focusing on Alzheimer’s Disease, my current research builds deep learning methods for predicting future cognitive decline toward dementia and the analysis of molecular and imaging biomarkers.
- Conducted an empirical study to characterize how predictable individual subjects’ future Alzheimer’s Disease trajectory is, several years in advance, based on rich multi-modal data, and using modern deep learning methods.

**Middle East Technical University** Ankara, Turkey  
Undergraduate Research Assistant Mar 2018 - Feb 2020  
Supervisor: Selcuk Yerci

- Built simulation software for physical world problems. Worked on mathematical modeling and computational analysis.

## PUBLICATIONS

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- [1] **Karaman BK**, Mormino EC, Sabuncu MR, for the Alzheimer’s Disease Neuroimaging Initiative, *Machine learning based multi-modal prediction of future decline toward Alzheimer’s disease: An empirical study*, PLoS ONE 17, 2022. [\[Paper\]](#) [\[Code\]](#) (Highlighted at Cornell Chronicle on Nov 23<sup>rd</sup>, 2022. [\[Article\]](#))

## SYMPOSIUMS

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- [1] Machine Learning in Medicine (MLIM) Symposium, Jun 2022, *”Machine learning based multi-modal prediction of future decline toward Alzheimer’s disease: An empirical study”*. [\[Poster\]](#)

## INDUSTRIAL EXPERIENCE

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**Aselsan** Ankara, Turkey  
Machine Learning Software Intern May 2019 - Jul 2019

- Built the back-end software of a speaker recognition system with deep learning.
- Delivered a 1-hour presentation on project results and model details to R&D management and fellow engineers.

## HONORS AND AWARDS

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- Irwin Jacobs Scholar Fellowship, Cornell University, 2020.

- METU High Honor Student Award, given by Middle East Technical University based on graduation grades, 2020.
- EEE STAR Award, given by the Electrical and Electronics Engineering Department at Middle East Technical University for participation in research, 2019.
- Ranked in the top 0.05% in Turkey’s nationwide university entrance exam among approximately 2 million candidates, 2015.

## TEACHING EXPERIENCE

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### Cornell University and Cornell Tech

New York, NY

Graduate Teaching Assistant (Part-time)

Aug 2020 - Dec 2021

- Held office hours and discussion sessions for the graduate level course ECE5415 Applied Digital Signal Processing and Communications.

### Cornell University

Ithaca, NY

Graduate Teaching Assistant

Jan 2021 - May 2021

- Held discussion sessions and office hours for the senior level course ECE4250 Digital Signal and Image Processing.
- Mentored students for a term project about MRI registration.

## TECHNICAL SKILLS

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### Languages

Python, C/C++, MATLAB, Verilog, LabVIEW, L<sup>A</sup>T<sub>E</sub>X

### Frameworks

PyTorch, Tensorflow, Keras, Scikit-Learn, NumPy, Pandas, NetworkX

### Statistical Analysis

Hypothesis testing, data visualization

### Others

Linux, COMSOL