

# Ulas Ibrahim Ayyilmaz

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## EDUCATION

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**Pomona College**, Claremont, CA

Dec 2024

BA Computer Science | GPA: 3.8

**Coursework:** Artificial & Biological Vision, Mobile Robotics, Affective Neuroscience, Machine Learning, Computational Statistics, Algorithms, Electronics, Managing Complex Systems

## CONFERENCE PRESENTATIONS

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### Talks

Ulas I. Ayyilmaz. (2024), “Excitatory and inhibitory neurons exhibit distinct roles for task learning, temporal scaling, and working memory in recurrent spiking neural network models of neocortex”, Spiking Neural Networks as Universal Function Approximators Online Conference (SNUFA).

### Posters

Ulas I. Ayyilmaz. (2024), “Excitatory and inhibitory neurons exhibit distinct roles for task learning, temporal scaling, and working memory in recurrent spiking neural network models of neocortex”, Bernstein Conference, Frankfurt, Germany.

Ulas I. Ayyilmaz. (2024), “Investigating the Effect of Shared Gaze on Multi-Person Teams”, Harvey Mudd Computer Science REU Symposium, Claremont, CA, USA.

## RESEARCH EXPERIENCE

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**Claremont McKenna College**, CA, USA

**Lab Manager**, Enkavi Lab

Jan 2025 – Present

- Made visualizations and quality comparisons of fMRI scans easier by building a web page that streamlines visualization of OpenNeuro data
- Built a software pipeline that streamlines acquiring data, running fmriprep, and opening up storage space across hundreds of subject scans on our high-performance computing (HPC) device
- Analyzed and presented relevant papers to my lab group
- Built the lab website from ground up using Html, Css, and Javascript

**Pomona College**, CA, USA

**Research Assistant**, Zhu Lab

Jan 2024 – Present

- Modeled interneuron diversity (PV, SST, and 5HT) in cortex by building biologically plausible Recurrent Spiking Neural Network(RSNN) models on Pytorch
- Trained models on various temporal tasks including tasks that require synchronization continuation and robustness to noise
- Analyzed unique roles of interneuron types in temporal scaling, phase-tuning, signal amplification, and disinhibition, by examining changes in connectivity, spiking behavior and task accuracy
- Mentored lab members on computational tools including Pytorch and HPC

**Research Assistant, Human-Computer Interaction Lab**

Jun 2024 – Oct 2024

- Designed an experimental process to investigate the impact of partner gaze visualizations on remote group collaborations
- Conducted 90-minute experiments with 26 distinct groups over five months
- Conducted interviews, documented participant feedback, cataloged data

**PROJECTS**

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Predicting Mirror Neuron Activity in Motor Cortex by Training Convolutional Deep Neural Networks on EEG Signals

Sep – Dec 2023

Predicting Intrinsically Disordered Proteins with Random Forest Classifiers based on Amino Acid Sequence and Genetic Characteristics

Jan – May 2022

**TEACHING EXPERIENCE**

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**Pomona College, CA, USA**

Teaching Assistant, Electronics (Phys 128)

Jan – May 2022

Teaching Assistant, Introduction to Computer Science (CSCI 51)

Sep – Dec 2021

**Amerikan Kultur Dil Okullari, Izmir, Turkey**

English B1-Level Instructor

Jun – Jul 2023

**INDUSTRY EXPERIENCE**

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**Marriott International, Izmir, Turkey**

Front Desk Agent

May 2023 – Aug 2023

- Managed check-in, check-out processes; handling cash and valuables
- Wrote a novel 10-page operations manual to streamline front desk training

**Digiboard, CA, USA**

Sep 2022 – Mar 2023

Product Manager Intern

- Developed and deployed a start-up mobile app that provided a platform for 8,000+ college students to organize, share and submit events
- Communicated technical updates to marketing and finance teams during weekly presentations
- Interviewed 50+ students and local businesses, and extracted insights to understand user pain points

**LEADERSHIP EXPERIENCE**

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**Pomona College, CA, USA**Founder & Captain, All Gender Volleyball Club (*220+ members as of 2024*)

Aug 2022 – Dec 2024

Peer Advisor, Career Development Office

Aug 2022 – May 2023

President, Turkish Student Group (*Led a \$16,000+ donation campaign*)

Aug 2021 – May 2023

## AWARDS

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**Ted Gleason Award**, Pomona College

May 2024

*Awarded to a graduating senior demonstrating exceptional community support and leadership.*

## REFERENCES

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A. Zeynep Enkavi, PhD

Assistant Professor of Integrated Sciences: Neuroscience

Claremont McKenna College

[zenkavi@cmc.edu](mailto:zenkavi@cmc.edu)

Yuqing Zhu, PhD

Visiting Assistant Professor of Neuroscience

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Alexandra Papoutsaki, PhD

Associate Professor of Computer Science

Pomona College

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## SKILLS & INTERESTS

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**Technical:** Python, Java, C++, R, MySQL, Pytorch, TensorFlow, Unix, SLURM, FSL, MS Suite

**Languages:** English (Native), Turkish (Native), Spanish (Conversational)

**Interest:** Creative Writing, Volleyball Coaching, Turkish Folk Dance, Piano, Swimming