ENES ALTUN

EDUCATION

2020 — **Akdeniz University Department of Psychology**
B.A. in Psychology — Antalya, Turkey

2022 — **Akdeniz University Department of Psychology**
M.A. in Psychology — Antalya, Turkey

Thesis: *Visual Processing Of Different Race And Great Ape Faces In the Context Of Spatial Frequency: An ERP Study* https://www.tandfonline.com/doi/full/10.1080/13506285.2024.2415721

RESEARCH EXPERIENCE

2017 | 2021 — **Undergraduate Research Assistant**
Akdeniz University Cognitive Neuroscience Lab — Antalya, Turkey
- Designing/conducting psychophysics experiments via EEG & Signal processing.
- Developed electronic devices like GSR sensors and robotic fingers using Arduino and Python for psychophysical experiments

2021 | 2023 — **Graduate Research Assistant**
Akdeniz University Cognitive Neuroscience Lab — Antalya, Turkey
- Specialized in image/signal processing, Human/Computer Vision, and ML

INDUSTRY EXPERIENCE

Jul 2023 | Present — **Rust Developer**
Empatik AI — Stockholm, Sweden

- Developed a high-performance Rust backend for a Tauri desktop app, optimizing ML models (vision, audio, LLMs) with ONNX and GPU acceleration to minimize latency and memory usage.
- Engineered real-time multimedia pipelines using GStreamer, optimizing CPU-bound tasks with fine-tuned multi-threading to maximize video processing throughput. Ensuring that these pipelines work seamlessly with AI
- Built the responsive front-end with Next.js and TypeScript, ensuring tight integration with the Rust core.

Web: altunenes.github.io

CONTACT INFO

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github.com/altunenes
personal site
ORCID
Google Scholar
LinkedIn

SKILLS

Languages: Rust (Advanced), Python (Advanced), TS/JS (Advanced)

AI & High-Performance Computing:

ML/LLM Deployment: ONNX Runtime, Quantization, GPU

Real-time Multimedia: GStreamer (Rust), FFmpeg

Data Processing: Apache Arrow, Data Fusion

Graphics & Frontend:

GPU Programming: WebGPU (wgpu), WGSL/GLSL, compute shaders

Desktop & UI: Tauri, Next.js

Domain Expertise:

Cognitive Science, EEG Signal Processing (MNE, EEGLAB), Psychophysics

SELECTED PUBLICATIONS AND POSTERS

Altun, E., Er, M. N., & Gülbetekin, E. (2024). The early visual processing of faces in a basic classification task: An ERP study of spatial frequency, other-race and other species effect. *Visual Cognition*, 1–24. https://doi.org/10.1080/13506285.2024.2415721

Evrim Gülbetekin, **Enes Altun,** Muhammed Nurullah Er, Arda Fidancı, Pakize Keskin & Dilara Steenken (2021). Effects of right or left face stimulation on self and other perception in enfacement illusion, *Social Neuroscience*, 16:2, 189-205, DOI: 10.1080/17470919.2021.1886983

Evrim Gülbetekin, Seda Bayraktar, Deniz Kantar Gül, Ece Varlık Özsoy, Muhammed Nurullah Er, **Enes Altun** & Arda Fidanci (2023). Does Tactile Stimulation of the Face Affect the Processing of Other Faces? Neural and Behavioural Effects of Facial Touch, *Social Neuroscience*, DOI: 10.1080/17470919.2023.2245126

Gülbetekin, E., Fidancı, A., **Altun, E.,** Er, M. N., & Gürcan, E. (2023). Effects of mask use and other-race on face perception, emotion recognition, and social distancing during the COVID-19 pandemic. *Asian Journal of Social Psychology*, 00, 1–16. https://doi.org/10.1111/ajsp.12570

How do We Process Faces from Different Ethnic Groups and Species? Gülbetekin E., Fidancı A., **Altun E**. *Society for Neuroscience Annual Meeting 2023*, Washington

Gülbetekin E., **Altun E.**, Er M.N., "Does own species matter? Holistic Face Perception for Great Apes", *International Behavioral Neuroscience Society (IBNS) Online Poster Sessions*, Texas, USA, 3-7 August 2020, pp.1-1

ALTUN E., Er N., Gülbetekin E. "Does genetic similarity matter? Face recognition performance for primates", *Fechner Day 2019: 35th Annual Meeting of the International Society for Psychophysics*, Antalya, Turkey, 30 October - 2 November 2019, pp.91-92

Er N., **ALTUN E.**, Fidanci A., et al., "EFFECT OF STIMULATED FACE SIDE ON MULTISENSORY PERCEPTION", *Fechner Day 2019: 35th Annual Meeting of the International Society for Psychophysics*, Antalya, Turkey, 30 October – 2 November 2019, pp.79-79

Altun, E. (2023). altunenes/scramblery: 2.1.1 (2.1.1). *Zenodo*. https://doi.org/10.5281/zenodo.7484576
https://github.com/altunenes/scramblery/tree/main

Altun Enes; Er M.N; Gülbetekin E. **(Under Review)** Exploring the Distinctiveness of Early Visual Processing in Human and Illusory Faces: An ERP Study of Spatial Frequency Effects. Available at SSRN: https://ssrn.com/abstract=4341900 or http://dx.doi.org/10.2139/ssrn.4341900

SOME OPEN SOURCE PROJECTS

Rust, WGSL

Cuneus

Graphic Engine for Creative Coding: WebGPU-powered with GStreamer integration for real-time video processing through custom shaders

2024

Rust, WGSL

calcarine

Desktop VLM: Real-time vision LM analysis of video & textures with live compute shaders. It uses my own graphics engine: cuneus.

2025

Rust

Scramblery

Cross-platform Desktop app (Tauri backend) for image/video scrambling with various methods including Fourier phase scramble, featuring ONNX-powered facial detection for targeted region processing

2021

Rust

Butter2D

Pure Rust implementation of the Butterworth filter for spatial frequency filtering of images

2023

Rust

Weber-Fechner

Template for psychophysics experiments implementing the Weber-Fechner law of perception using Bevy engine with WASM support

2023

Python, JavaScript

Sorceress

Library for creating/reproducing visual illusions and perceptual effects

2021