

# M. ŞAMIL ATEŞOĞLU

Software Engineer

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## EXPERIENCE

### Zero Density / MediaZ

Software Engineer

Izmir, Turkey

Jun 2021 - Present

- Working on a new project that introduces a highly extensible and scalable, **node graph** based **real-time compositing & computing** platform called *Nodos*.
  - Designed and implemented core systems including node graph, scheduler, plugin & application SDKs.
  - Created the **C API** for plugins, enabling the development of 50+ plugins (with 400+ nodes) that extend the functionality of our computing engine in different areas.
  - Developed its key plugins including **Vulkan** backend for **rendering**, **video & audio I/O** and **image processing** plugins.
  - Developed supporting infrastructure including the package manager *nosman* and other **tooling** that ease the development of third-party plugins.
  - Worked on developing **multi-threaded rendering**, **resource pooling & profiling** techniques for our Vulkan backend.
  - Developed its node editor GUI & the communication systems with the compositing engine.
  - Worked on the build system, CI/CD pipelines and other development infrastructure components.
  - Contributed to the release of the company's flagship product "*Reality5*" (a custom Unreal Engine fork), including working on custom rendering passes and porting its shaders & nodes to our new architecture.
- Developed and released a new AI-powered markerless stereoscopic talent tracking system *TRAXIS talentS* with a development team of 3, using **C++**, **CMake** and **OpenGL**.

### Pixery

Graphics Software Developer (Remote) (3 months full-time, 4 months part-time)

Ankara, Turkey

Jul 2020 - Jan 2021, 7 Months

- Worked on the company's internal advanced video engine, and created real-time visual effects using various technologies and programming languages such as **C++**, **OpenGL** & **Metal APIs**.
  - Primarily worked on two different real-time visual effects for *Funimate*, which had 1M+ daily active users.
  - Written shaders in **Metal Shading Language** and **GLSL** for the visual effects, for respective platforms, iOS and Android.

### Evreka

Mobile Developer Intern

Ankara, Turkey

Aug 2019 - Sep 2019, 2 Months

- Maintained an Android application that had emphasis on maps and marker management, which is used by customers' personnel.

## PUBLICATIONS

### CRAFT: A Benchmark for Causal Reasoning About Forces and inTeractions

Oct 2019 - Mar 2022

As a participant of *Hacettepe's Undergraduate Research Experience Program*

Supervisors: Aykut Erdem & Erkut Erdem

- Collaborated on developing the video-question answering dataset generation pipeline & compiled a benchmark for AI models to learn causal reasoning about forces and interactions.
  - Created various physical scenes using **Box2D** physics engine and **C++**.
  - Developed **Python** scripts for generating & balancing datasets.
  - Accepted to *Findings of ACL 2022* and *NeurIPS Workshop SVRHM 2020*.

## NOTABLE PROJECTS

### Multi-Camera Calibration for Tracking Systems

Nov 2021 - May 2022

Final Year Project (Group)

- Created a **C++ multi-camera calibration & multi-view object tracking** library for tracking systems, using **Eigen** linear algebra library, within a team of 2.
  - Implemented various **computer vision** algorithms for fundamental matrix estimation & relative camera pose estimation, from feature points in synchronized multi-view images.
  - With estimated camera extrinsics, implemented simple triangulation algorithms for 3D reconstruction.
  - Developed its application demo for tracking 3D human pose from 2D images seen from multiple views using an object detection model.

### Deneme Sınavlarım

Nov 2017 - Dec 2020

Personal Project, Published on *Google Play*

- Developed an **Android** education application using **Java** and **Firebase SDK** to assist students for university entrance exam preparation. Some ~105K practice test results have been recorded by ~6K distinct users during 2019.
- Implemented a sophisticated university review module that can be updated over-the-air every year, using **Python Selenium** scripts and **SQLite**.

### PONG

Oct. 2016 - Sept. 2016

Personal Project, Published on *Google Play*

- A 2D, 80's style ping pong game. Developed using **libGDX** Java game development framework.

## EDUCATION

### Hacettepe University

Ankara, Turkey

Bachelor of Science, Department of Computer Engineering

Oct 2018 - Oct 2022

- **ACM Hacettepe Student Chapter, HUPROG Question Preparation Team** - Senior Team Member (Sep 2020 - Mar 2021)
- **ACM Hacettepe Student Chapter, Software Development Team** - Team Lead (Oct 2019 - Jul 2020)