Anil Celik Maral

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Education

Technical University of Munich **April 2022 – March 2025**
Master of Science - MS, Informatics: Games Engineering *2.065 / 5*

University of California, Santa Cruz **June 2015 – June 2019**
Bachelor of Science - BS, Robotics Engineering *1.3 / 5*

Experience

C++ Developer
April 2024 – Present
Dassault Systemes *Munich, Germany - Hybrid*

- Working in the 3D Preparation Operators team that develops the xOptimizePro / DataPrep operations for the **3DEXPERIENCE** app.

Game Developer
May 2022 – Jan 2024
Peanut Entertainment *Ankara, Turkey - Remote*

- Developing games using **Unity**, **Unreal Engine** and **Blender**.

Robotics Engineer
Jan 2020 – Apr 2022
ERISIM A.S. *Ankara, Turkey - On Site*

- Drew and designed the **P & ID / flow diagrams** for **gypsum production**, **gypsum based dry-mix production and plasterboard production plants**. This process included analyzing the input material with regards to its chemical composition, keeping in mind the desires of the customer and necessities of the project.
- Wrote programs for the **PLC automation systems** used in gypsum production, gypsum based dry-mix production and plasterboard production plants.

Embedded Systems Engineer Intern
Sep 2019 – Dec 2019
Archer Components *San Francisco Bay Area - On Site*

- Developed automation solutions using **IoT**.
- Utilizing **AWS**, **Arduino**, **ZigBee**, **C** and various other microcontrollers and programming languages.

Mechanical Test Engineer Intern
Jun 2018 - Sep 2018
ERISIM A.S. *Ankara, Turkey - On Site*

- Tested various types of machinery designed by mechanical engineers using standard and nonstandard mechanical tests.
- Used data acquisition software/hardware to prepare reports of tested machinery.
- Helped in the CAD design (**SolidWorks**) and manufacturing of various test fixtures.
- Operated power and light duty machine tools.

PLC Programmer Intern
Jun 2017 - Sep 2017
Epromak *Ankara, Turkey - On Site*

- Wrote programs for the **PLC automation systems** used in gypsum and dry-mixing plants mostly for **SIEMENS S7-300 PLCs**.
- Tested the programs.
- Documented and organized the programs to be ready to be commissioned on site.

Undergraduate Researcher
Nov 2015 - Jul 2017
University of California, Santa Cruz *Santa Cruz, California - On Site*

- Worked under computer engineering professor Mircea Teodorescu and **modeled** the **tensegrity robots** and sketched them in **AutoCAD Inventor**.
- Did **stress analysis/simulation** of the tensegrity robots using **NASA Tensegrity Robotics Toolkit (NTRT)**.
- Built the prototypes of the tensegrity robots by **3D printing/prototyping** for testing purposes.

Projects

Differentiable Finite Volume Method

- In my master's thesis, I worked on **computational fluid dynamics (CFD)** simulations using the **finite volume method (FVM)**. I developed and coded the **finite volume method (FVM)** solutions for Φ_{Flow}, a differentiable PDE solving framework for machine learning, and then published my results.

Chaos Coaster Video Game

- Developed an 3D FPS in **Unity**. Models were designed in **Blender**. The enemies were trained using machine learning using **Unity**'s **ML-Agent**s.

Stellaris Mod - The Veiled Cluster

- Developed a mod to play in an extra-galactic cluster. The mod comes with story driven events and an additional species trait.

Implementation of the KinectFusion 2011 by Richard A. Newcombe et al Research Paper

- Implemented the 2011 research paper titled KinectFusion: Real-Time Dense Surface Mapping and Tracking by Richard A. Newcombe et al. using **C++**, **OpenCV** and **CUDA**. Additionally, utilized **Eigen3** and **FreeImage 3 C++** libraries.

The Custodian Video Game

- Developed a card based, continous timed 2D action RPG in **Unity**.

DeepMap Autonomous Mobile Robot Project

- Volunteered in DeepMap's autonomous mobile robot project.
- Coded in **C++** and **Python** to interact with DeepMap's maps and sensor rig, that consists of a **GPS**, a **LIDAR**, an **IMU unit** and two **stereo cameras**, to autonomously drive the DeepMap autonomous mobile robot.
- Integrated ROS, DeepMap's API and our own code, to have the ability to navigate on roads and simulated our robot in Gazebo ROS before deployment.
- **Designed** the robot using **SolidWorks** and doing **statics** and **kinematics** calculations.

Skills

Unity: 2 Years of Experience
Unreal Engine: 2 Years of Experience
Blender: 2 Years of Experience
C++: 8 Years of Experience
C#: 2 Years of Experience
C: 9 Years of Experience
Python: 9 Years of Experience
Java: 9 Years of Experience
MIPS Assembly: 9 Years of Experience
Verilog: 8 Years of Experience
PLC Ladder Logic: 8 Years of Experience
Matlab: 9 Years of Experience
AutoCAD: 7 Years of Experience
Autodesk Inventor: 9 Years of Experience
SolidWorks: 6 Years of Experience
Robot Operating System (ROS): 6 Years of Experience
Gazebo ROS: 6 Years of Experience
OpenCV: 6 Years of Experience
CUDA: 2 Years of Experience

Languages

English: Native or Bilingual Proficiency
Turkish: Native or Bilingual Proficiency
German: Elementary proficiency

Courses

3D Scanning & Motion Capture
IN2354, Technical University of Munich

3D User Interfaces
IN2111, Technical University of Munich

Additional Advanced Practical Course, Computer Games Laboratory
IN2257, Technical University of Munich

Advanced Practical Course, Computer Games Laboratory
IN2106, Technical University of Munich

Advanced Programming
CMPS 109, University of California, Santa Cruz

Advanced Seminar Course, Master Seminar - Recent Highlights in Computer Graphics and Visualization
IN2107, Technical University of Munich

Algorithms and Abstract Data Types
CMPS 101, University of California, Santa Cruz

Applied Discrete Mathematics
CMPE 16, University of California, Santa Cruz

Augmented Reality
IN2018, Technical University of Munich

Basic Mathematical Methods for Imaging and Visualization
IN2124, Technical University of Munich

Calculus for Science, Engineering, and Mathematics
MATH 19A, University of California, Santa Cruz

Calculus for Science, Engineering, and Mathematics
MATH 19B, University of California, Santa Cruz

Computer Systems and Assembly Language
CMPE 12, University of California, Santa Cruz

Computer Systems and C Programming
CMPE 13, University of California, Santa Cruz

Concepts of C++ Programming
IN2377, Technical University of Munich

Database Systems on Modern CPU Architectures
IN2118, Technical University of Munich

Distributed Systems
IN2259, Technical University of Munich

Feedback Control Systems
CMPE 141, University of California, Santa Cruz

Fundamentals of Robot Kinematics and Dynamics
CMPE 10, University of California, Santa Cruz

Game Engine Design
IN0038, Technical University of Munich

Game Physics
IN0037, Technical University of Munich

Geometry Processing
IN2297, Technical University of Munich

Image Synthesis
IN2015, Technical University of Munich

Individual Study or Research
CMPE 198F, University of California, Santa Cruz

Introduction to Data Structures
CMPS 12B, University of California, Santa Cruz

Introduction to Electronic Circuits
EE 101, University of California, Santa Cruz

Introduction to European Visual Culture
HAVC 30, University of California, Santa Cruz

Introduction to Mechatronics
CMPE 118, University of California, Santa Cruz

Introduction to Physics I
PHYS 5A, University of California, Santa Cruz

Introduction to Physics III
PHYS 5C, University of California, Santa Cruz

Introduction to Physics III
PHYS 5C, University of California, Santa Cruz

Introduction to Statics, Dynamics, and Biomechanics
CMPE 9, University of California, Santa Cruz

Introductory Macroeconomics: Aggregate Economic Activity
ECON 2, University of California, Santa Cruz

Linear Algebra
MATH 21, University of California, Santa Cruz

Logic Design
CMPE 100, University of California, Santa Cruz

Mathematical Methods for Engineers II - Differential Equations
AMS 20, University of California, Santa Cruz

Microprocessor System Design
CMPE 121, University of California, Santa Cruz

Models of Robotic Manipulation
CMPE 215, University of California, Santa Cruz

Probability and Statistics for Engineers - Introduction to Probability
CMPE 107, University of California, Santa Cruz

Requirements Engineering
IN2394, Technical University of Munich

Robot Automation: Intelligence through Feedback Control
CMPE 8, University of California, Santa Cruz

Robot Motion Planning
IN2138, Technical University of Munich

Senior Design Project I
CMPE 129A, University of California, Santa Cruz

Senior Design Project II
CMPE 129B, University of California, Santa Cruz

Sensing and Sensor Technologies (Sensor Design)
CMPE 167, University of California, Santa Cruz

Signals and Systems
EE 103, University of California, Santa Cruz

Technical Writing for Computer Engineers
CMPE 185, University of California, Santa Cruz

Virtual Reality
IN5701, Technical University of Munich

Visual Data Analytics
IN2026, Technical University of Munich

Organizations

Tau Beta Pi, The Engineering Honor Society
Member May 2018 - Present