MUSTAFA GOKTAN GUDUKBAY

Address: State College, Pennsylvania. ⋄ **Phone:** +1 (814) 769 0178
E-Mail: bupsgoktangudukbay@gmail.com ⋄ **URL:** Mustafa Goktan Gudukbay
GitHub: goktangudukbay ⋄ **LinkedIn:** goktan-gudukbay

SUMMARY

I am a Computer Science and Engineering PhD student at Pennsylvania State University. Previously, I worked on portrait drawing using Generative Adversarial Networks (GANs). My current research is on improving deep learning inference for autonomous driving regarding speed and energy usage.

CURRENT RESEARCH

- Currently analyzing the perception pipeline of autonomous driving, emphasizing enhancing real-time performance for the system's ability to process and interpret sensory data effectively.
- Investigating optimization strategies for scheduling multiple deep learning tasks, crucial for achieving real-time inference performance in complex driving scenarios.
- Using Autoware and AWSIM to explore the autonomous driving pipeline and measure performance-related features.

PREVIOUS RESEARCH

- Previously explored the AR/VR pipeline, emphasizing performance-related features to ensure immersive experiences and efficient resource utilization.
- Conducted in-depth studies on the effect of camera orientation on Asynchronous Timewarp (ATW), aiming to improve visual consistency in virtual environments during rapid movements.
- Utilized the ILLIXR testbed for experimental validation, allowing for rigorous testing and evaluation of performance metrics in real-world scenarios.
- Experimented with the impact of orientation changes by implementing texture transformations using OpenGL, contributing to advancements in rendering techniques for dynamic environments.
- Developed unsupervised learning techniques to train a Generative Adversarial Network (GAN) to draw portraits. The model was trained on various datasets to understand artistic features and create lifelike representations.

EDUCATION

The Pennsylvania State University, State College, PA, USA *August 2022 - May 2027 (Expected)*
Doctor of Philosophy (Ph.D.) in Computer Science and Engineering supervised by Prof. Anand Sivasubramaniam (CGPA of 4.00/4.00)

Bilkent University, Ankara, Türkiye *September 2018 - May 2022*
Bachelor of Science (B.S.) in Computer Engineering (High Honor, CGPA of 3.81/4.00)

PUBLICATIONS

[1] Burak Tasdemir, Mustafa Goktan Gudukbay, Dogac Eldenk, Adil Meric, and Aysegul Dundar. Learning Portrait Drawing with Unsupervised Parts. *International Journal of Computer Vision*, 132(4):1205–1218, April 2024.

TECHNICAL EXPERIENCE

Microsoft Corporation *2024-Summer*

- I worked as a research intern in the Applied Sciences Group (ASG). I was responsible for analyzing the performance of the Large Language Model (LLM) and improving inference speed. I used Python and libraries such as PyTorch, Open Neural Network Exchange (ONNX), and CUDA.

Siyah AR-GE (Research and Development) *2021-Summer*

- The company works in embedded systems, hardware and software design and development, mobile systems, telecommunication systems, and cloud computing.
- Developed client-server applications using Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) in C++.
- Developed a message queue implementation in Windows using a shared memory structure.

Software Research & Development, Consultancy (SRDC) *2020-Summer*

- The company works in areas like health, security, web development, and big data.
- Developed user management and messaging applications with different tools and technologies such as socket programming, PostgreSQL, Spring framework, SOAP, REST, HTML, JavaScript, AJAX, and MEAN (MongoDB, ExpressJS, AngularJS, Node.js).

CMPSC 473-Operating Systems-Teaching Assistant *2023-Fall, 2024-Spring*

- I assisted in grading, project preparation, and tutoring students on operating system concepts, including memory management, process scheduling, and file systems.

CMPSC 311-Systems Programming-Teaching Assistant *2024-Fall*

- Assisted in grading, project preparation, and teaching systems programming concepts, including C/C++ programming, memory management, and low-level system architecture.

TECHNICAL STRENGTHS

Programming Languages	C, C++, Python, Java, MIPS Assembly, PHP, HTML, CSS, XML, JavaScript
Hardware Description Language and FPGA Hardware	System Verilog, Xilinx (Vivado), BASYS3 FPGA Board
Software and Simulators	Visual Studio, IntelliJ IDEA, MS Office
Frameworks, Libraries, Services and Systems	ONNX, OpenGL, WebGL, PyTorch, PostgreSQL, MongoDB, MySQL
Other Skills	Problem-solving, Mathematics, Teamwork, Analytical Thinking, Leadership, Communication