Mustafa B. Yaldiz

Github://myaldiz
LinkedIn://myaldiz
https://myaldiz.info
myaldiz@ucsd.edu

Education

University of California, San Diego — Fall 2022 – 2027 (Expected)
Ph.D. in Computer Science – Advised by Prof. Ravi Ramamoorthi, Center for Visual Computing — *San Diego, USA*

KAIST — Spring 2020 – Spring 2022
M.S. in Computer Science – Advised by Prof. Min H. Kim, Visual Computing Lab(VCLAB) — *Daejeon, S.Korea*

Georgia Institute of Technology — Spring 2019
Exchange Student — *Atlanta, GA*

KAIST — Fall 2015 – Fall 2019
B.Sc. Computer Science — *Daejeon, S.Korea*

Research Interests

My research interests cover **computer vision**, **computer graphics**, and **computational photography** fields. During my B.S. and M.S. degrees, I developed a light stage for **multiview high-quality 3D scanning** [R1] [R2]. For my M.S graduation thesis, I investigated **pattern generation** to aid detection tasks. Specifically, I created a data-driven **fiducial marker system** that jointly trains marker generation and detection networks through our **photorealistic differentiable rendering** pipeline [J2]. Currently, for my Ph.D. degree, I am interested in **inverse rendering** [J1], **dynamic scene modeling**, and **view-synthesis**.

Publications

[J1] Liwen Wu*, Rui Zhu*, **Mustafa B. Yaldiz**, Yinhao Zhu, Hong Cai, Janarbek Matai, Fatih Porikli, Tzu-Mao Li, Manmohan Chandraker, Ravi Ramamoorthi (2023), "FIPT: Factorized Inverse Path Tracing," Presented at **ICCV 2023** (IEEE International Conference on Computer Vision), **(Oral)**

[J2] **Mustafa B. Yaldiz**, Andreas Meuleman, Hyeonjoong Jang, Hyunho Ha, Min H. Kim (2021), "DeepFormableTag: End-to-end Generation and Recognition of Deformable Fiducial Markers," ACM Transactions on Graphics (ACM TOG), 40(4), reviewed and presented at **SIGGRAPH 2021**, Aug 9–Aug 13, 2021

Internships

Apple Inc. — Summer 2023
Technology Investigation Intern — *Sunnyvale, CA*

- Worked on a novel immersive application on Vision Pro. My work aims to extend **Spatial Photos** feature.

Research Projects

[R1] **Light Stage V2.0** — Sep. 2019 – June 2022
Team-leader — *VCLAB, KAIST*

- *Leading a team* of interns to construct a *light stage* with more than 180 cameras and 300 polarized light sources.
- Designed gRPC-based distributed controlling software, capable of synchronizing capture and processing through C++ backend and Python interface.
- Designed imaging units, including a custom camera setup with spectral filters and a light setup with a custom circuit capable of controlling the intensity and polarization of lights at high refresh rates. With the help of hired part-time interns, we manufactured and assembled a new system.
- Our system is featured in promotional video of KAIST 2022

[R2] **Light Stage V1.0** — Jan. 2017 – Feb. 2018
Undergraduate researcher — *VCLAB, KAIST*

- Was part of a team that constructed a high-quality 3D scanning system, *light stage*, with more than 100 cameras and light sources.
- Developed a scalable calibration method and TCP-based control software for the system with Qt GUI.
- Project was funded by URP(Undergraduate Research Program) at KAIST

Patents

[P1] Min Hyuk Kim, Yaldiz Mustafa Berk, Meuleman Andreas, "Method For End-To-End Generating And Recognizing Of Deformable Fiducial Markers Based On Artificial Intelligence And The System Thereof", US Patent App.: 17/857,444, published in Jul. 05, 2022.

Skills

Machine/Deep Learning: PyTorch, Tensorflow, JAX, Keras, Sklearn
Software: OpenCV, Unity, Unreal-engine, Blender, Qt
Manufacturing: (Tools) CNC, Laser-cutter, 3D-printer – (Software) Autodesk Fusion360, Cura
Languages: English (TOEFL:105), Turkish (Native), Korean(Intermediate)

Prof. Ravi Ramamoorthi
Ronald L. Graham Professor of Computer Science
University of California, San Diego
4118 EBU3B MC #0404
La Jolla, CA 92093-0404
☎ +1-858-822-1483
✉ ravir@cs.ucsd.edu
https://cseweb.ucsd.edu/ ravir/

Prof. Min H. Kim
Endowed Chair Professor
KAIST, School of Computing
291 Daehak-ro, Yuseong-gu,
Daejeon, Korea, 34141
☎ +82-42-350-3564
✉ minhkim@vclab.kaist.ac.kr
http://vclab.kaist.ac.kr/minhkim

Dr. Maneli Noorkami
Engineering Manager, Media Processing
Apple Inc.
✉ mnoorkami
LinkedIn://maneli-noorkami

Dr. Afshin Taghavi Nasrabadi
Engineering Manager, AR/VR
Apple Inc.
✉ ataghavi
LinkedIn://afshin-taghavi

Prof. Minhyuk Sung
Assistant Professor
KAIST, School of Computing
☎ +82 42-350-3587
✉ mhsung@kaist.ac.kr.
https://mhsung.github.io

Dr. Giljoo Nam
Research Scientist
Facebook Reality Labs
✉ namgiljoo@gmail.com
sites.google.com/view/gjnam