Malek Anabtawi

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TECHNICAL

Languages: C, C++, C#, Kotlin, Python, Javascript, Ocaml

Technologies: Unity, Docker, Postgres, HoloLens, Azure DevOps

Frameworks: React, FastAPI, Flask

PUBLICATIONS

Evaluating Human-Robot Interfaces for Maneuvering Surgical Laparoscopes using Robotic Scope Assistant Systems (ACM THRI, 2025)

A Holographic Telementoring System Depicting Surgical Instrument Movements for Real-time Guidance in Open Surgeries (CMPB, 2024)

Acquisition and Remote Transfer of Operative Field View During Open Surgery (IEEE ECBIOS, 2023)

Assessing Virtual Reality Environment For Remote Telementoring During Open Surgeries (IEEE BIBE, 2022)

Benchmarking Network Performance of Augmented Reality based Surgical Telementoring Systems (IEEE BIBE, 2022)

Preliminary Design and Evaluation of A Remote Telementoring System for Minimally Invasive Surgery (Surgical Endoscopy, 2022)

Evaluation of User-Interfaces for Controlling Movements of Virtual Minimally Invasive Surgical Instruments (Int J Med Robot, 2022)

An Oracle Hierarchy for Small One-Way Finite Automata (LATA, 2019)

EXPERIENCE

AUGUST 2023 – PRESENT

Qatar Computing Research Institute: Software Engineer | JS, Python

- Worked with Research Engineering on a real-time athlete cardiac monitoring system with real-time cardiac alerts.
- Added numerous core features, such as graphing, data archiving and restoration, and the entire alerts pipeline.
- Performed multiple dry runs at Aspetar Hospital and at a Serie A Italian football club.

SEPTEMBER 2020 – MAY 2023

Hamad Medical Corporation: Research Associate | C++, Unity, Hololens

- Worked on multiple telemedicine projects that combined telementoring different surgery procedures with mixed-reality.
- Designed and implemented a protocol for securely sending a compressed, chunked point-cloud piecewise over the internet.
- Conducted user studies to test applications on doctors and students.

JANUARY 2016 – DECEMBER 2019

Carnegie Mellon University: Research Assistant

- Explored multiple variations of oracle one-way automata, and mapped-out the resulting language hierarchies for each definition.
- Concluded with a proof of the strictness of the language hierarchy for the strictest definition.

PROJECTS

Winter 2021 - Winter 2024

Detective: A non-linear detective game | Unity, Ink, C#

- Designed a branching, non-linear, and time-sensitive detective game.
- Wrote and play-tested three cases over a tabletop environment.
- Created pipelines for automatically exporting and packing character and location animation files from TVPaint to Unity.
- Created a set of comprehensive rules for validating the game's story files and checking for inconsistencies.

EDUCATION

Graduated December 2019

Carnegie Mellon University
MS in Computer Science

Graduated Spring 2018

Carnegie Mellon University
BS in Computer Science – University Honors
Minor in Mathematical Sciences