Tzach Sheratzky

B.Sc Software Engineer

054-7778069
Zach123@Gmail.com
Linkedin.com/in/TzachSh/

OBJECTIVE

I am an autodidact, motivated and results driven engineer,
with proven experience of 5 years in the SW industry.

EXPERIENCE

2021 – Present

SPECTRUM DYNAMICS MEDICAL | SOFTWARE ENGINEER | CAESAREA

Rendering Engine for Medical Imaging

- Design and development of a scalable multi-threaded engine for medical data visualization and interaction:
  - Seamless integration with the existing UI systems.
  - Performance optimization and offload work to the GPU.
  - Create and maintain unit tests.
  - Re-write of existing SW components by using the engine.
- Tools and technologies: C++ 20, Boost, OpenCV, OpenGL 4.6 (core), GLSL Shaders, GoogleTest, C++/CLI.

D-SPECT

- Optimize memory consumption and fix ~40 [MB] of unmanaged memory leak per machine's myocardial scan's flow.
- Upgrade the existing image processing infrastructure:
  - Migrate IPL and IFL libraries to OpenCV.
  - Create a vast amount of unit tests to verify the upgraded infrastructure.

VERITON

- Develop a component that visualizes a CT-scan's topographic which allows the user to adjust and select regions for a further NM-scan.
- Tools and technologies: C#, WPF 3D (DirectD3D under the hood).

2019 – 2021

OPTEAMIZER LTD | SOFTWARE ENGINEER | YOKNE'AM

IoT Embedded - Facial Landmark Detection on GPU

- Research and compare existing convolutional neural networks (CNN) for Facial Landmark detection.
- Train a Landmark detection model.
- Development of a C++ infrastructure on HiKey970 board, that supports loading models and running inferences on the GPU (MALI-G72).
- Integration into an existing embedded application.
- Performance evaluation – achieved x2 overall FPS improvement.
- Tools and technologies: C++ 14, CMake, ArmNN, MNN, OpenCV, Python, TensorFlow.
- OS: Linux.

DirectX Engine

- Extend rendering techniques in a C++ Direct3D 9 engine to support rendering for 3D monitors.
- Development of a stereoscopic 3D rendering feature.
- Upgrade the existing engine's infrastructure from Direct3D 9 to Direct3D 12 (Direct2D interop) from the design stage until implementation and integration.
- The infrastructure's upgrade and code optimizations achieved x2 FPS improvement.
- Create automated tests to test the upgraded engine's correctness.
- Tools and technologies: C++ 11, D3D9, D3D12, D2D11, OpenCV, IPP, Google-Test.

Monocular Depth Estimation

- Research about datasets and models for Depth Estimation.
- Use transfer learning to train a Resnet50 model on a custom dataset (NYUv2 format) for human depth estimation.
- Develop an algorithm to convert the annotations from Bounding Box to Segmentation to eliminate redundant pixels in the calculation of the loss function.
- Analyze and improve the model accuracy by using data analysis tool (that developed by me) to visualize the data and compare different configurations and variations of the dataset and hyperparameters.
- Tools and technologies: Python, PyTorch, Numpy, OpenCV.

Data Annotation and Analytics Tools

- Design and develop internal systems, for data annotation, visualization, and analysis.
- Tools and technologies:
    - Frontend: React.js & Redux with Material-UI.
    - Backend: C# Web API Core, Python, OpenCV, Numpy.

EDUCATION

Software Engineering | Ort Braude, Karmiel
2016 – 2020
GPA: **87**