

Rick Frank

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Summary

Software Engineer with over 20 years of experience developing complex desktop and mobile applications. Specific expertise includes

- advanced image processing
- 3d volume rendering
- computer vision

with applications in medical, biological, robotics, and general scientific domains.

Seeking contracts in the Boston Area.

Languages

- C++ (11,14)
- C#
- Matlab
- Python
- CUDA
- Java

Toolkits

- Qt5
- VTK (Visualization Toolkit)
- ITK (Insight Segmentation and Registration Toolkit)
- Matlab (Image Processing, Computer Vision, Statistics)
- Experience with WPF, .NET
- Experience with PCL (pointclouds.org)
- Experience with OpenNI2 (Microsoft Kinect2, Asus Xtion Pro Cameras)

Development Environments

- Visual Studio (2015,2017)
- Matlab(2017b)
- CodeBlocks (Ubuntu 14.04)
- CMake (all platforms)
- Experience with Xcode on Macintosh OSX and iOS.
- Experience with Eclipse and Netbeans on Ubuntu 14.04

Debugging Tools

- CPPDepends
- Resharper C++
- Intel Parallel Studio XE 2017

Most Recent Experience

- Consultant Full Spectrum Software Southborough, MA 2000-Present
- Consultant Passport Systems Billerica, MA 2013 - 2014

Detailed Recent Experience

Full Spectrum Software (most recent projects)

- Served as technical lead for team of 7 developers for version 1.0 of Centerline Biomedical's "IOPS" applications suite, which includes image segmentation, model generation, image registration, and magnetic tracking for interventional cardiovascular implants. Implemented a CUDA Ray-caster for multi-volume rendering. Implemented manual 6DOF registration application of Preoperative to Intraoperative transform. Participated in 5 pre-clinical trials at the Cleveland Clinic. Toolkits used were Qt, VTK, ITK, DCMTK, CUDA.
- Developed a Matlab image processing application for Boston Heart Diagnostics. Task was to use pattern recognition and signal processing to locate gel lanes and find peaks in signals that identified different types of cholesterol. This automated what was once a difficult manual task, saving many man hours of work for the company. Used the Matlab compiler to generate executable that could be run at the command line for scalability.
- Lead developer on a productization of research begun at M.D. Anderson Cancer Center, to read light emitted by a set of sensors exposed to X-rays. Using a low light camera (Andor) to compute radiation dose for prostate cancer treatment (previously, there was no reliable way to measure the dosage). Worked with Physicists to develop image processing algorithms to evaluate images from camera.

Passport Systems

- Assisted Passport Systems with 3D and 2D visualization of advanced X-Ray data of container cargo for Homeland Security applications. Technologies included VTK (visualization), Specialized Volume Rendering, OpenGL, and Qt framework. Tools used included Visual Studio C++(Windows), Codeblocks(Linux),Qt, Git, Python, and Matlab (prototyping and testing). Developed Application to allow advanced visualization of data in 3D and 2D. Software ran on Ubuntu and Windows. Worked with Physicists and other domain experts in developing algorithms and design.

Selected Prior Experience

Nikon, Inc. 1999-2001

- Worked on enhancements to the software bundled with their Digital SLR cameras

Works Zebra, Inc (Japan)

- Assisted Works Zebra with a complete re-write of their existing 3-D modeling application for the automotive industry. Tools used Qt4, OGRE3d

Education

- Bachelor of Music, New England Conservatory