Xiwen Yin 4A Mechatronics Engineering

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github.com/xwyin

Education

Candidate for Bachelor of Applied Science, Mechatronics Engineering **Waterloo, ON**
University of Waterloo *2014–present*

Summary

- **Software**: Java • C++ • C# • C • JavaScript • SQL • HTML • CSS • jQuery
- **VR/AR**: Unreal Engine • Unity • Visual Studio • Microsoft Hololens • HTC Vive • Oculus Rift
- **Other**: Git • Eclipse • Sublime Text • AutoCAD • SolidWorks • 3ds Max

Work Experience

Canadian Space Agency **Montreal, QC**
Software Engineer Intern *May – Aug 2018*

- Led development of satellite simulation application targeting Oculus Rift using C++ and Unreal Engine 4
- Up to **100x** improvement in memory allocation and access efficiency by redesigning database using CPU caches
- Implemented a modular database initializer by detecting input files in app directory and parsing over **80,000** lines into orbital data; Generated planetary motions by interpolating data and applying Quaternion rotation
- Interfaced with blueprints by exposing classes via reflection to achieve camera & simulation speed control

Hatch Ltd **Mississauga, ON**
Software Developer Intern *Sept – Dec 2017*

- Designed and developed interactive VR/AR applications targeting Hololens and HTC Vive using C# and Unity 3D
- Increased frame rate by **67%** through optimizing 3D geometry in 3DS Max and implementing a scalable framework
- Developed a chat bot with Language Understanding Intelligent Service using Microsoft's Bot Framework
- Awarded first place in internal Hackathon for demonstration of improvised VR framework and graphical work-flow

Toyota Motor Manufacturing Canada **Cambridge, ON**
Full Stack Developer Intern *Jan – Apr 2017*

- Implemented a real time Andon Dashboard Java EE application deployed at North America Toyota plants
- Conducted Root Cause Analysis and improved load performance of the Manpower Andon on web app by **73%**; increased company revenue by **$350,000** per year

Evertz Microsystem Ltd **Burlington, ON**
Project Engineer Intern *Sept – Dec 2015*

- Automated media asset management work-flow by generating XML meta-data & uploading assets to database
- Worked with SCRUM method throughout project life cycle to establish and deliver project plans and milestones

Projects

Half Fit Memory Allocation

- Implemented half-fit dynamic memory management algorithm for real-time OS running in constant time

Real-Time OS ShooterGame

- Designed and developed a shooter game using Keil MCB1700 Evaluation Board
- Implemented hardware controls, LED and display

Unity Platforming Game

- Abstracted item collection capabilities by implementing a collectible interface for treasures and coins
- Eliminated overhead due to instantiation or deletion of objects by implementing object pooling

Underwater Remote Operated Vehicle

- Prototyped closed-loop feedback controls with Arduino to drive vehicle motors in response to IMU and Pressure Sensor data