

Morgan Davis

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INTRO

I'm a software generalist and an experienced technical lead. I pride myself on thinking high-level, being thorough, and communicating exceptionally well. The majority of my professional experience has been developing native desktop and mobile applications, however I have an immense interest in computer graphics/realtime rendering, and have put tremendous effort into cultivating skills in that field – see “Game Engine” below.

EXPERIENCE

Study Sabbatical — Sept 2022 – Present

Taking a leave from the corporate world to study computer graphics, realtime rendering, and other areas of personal interest.

Principal Software Engineer, Turtle Beach Inc., Remote — Feb 2020 – Sept 2022

Leading software development across products and platforms.

- Leading development of a cross-platform C#/Xamarin project targeting multiple applications for iOS, Android, Windows, and macOS. Native modules are written in Objective-C, Swift, Java and C++.
- Working closely with engineering and product management stakeholders to define requirements and schedules
- Writing code daily

Software Development Consultant, Turtle Beach Inc., Remote — Jun 2018 - Feb 2020

Providing technical expertise and code contribution for multiple successful product launches.

- Advising as a technical expert
- Writing code in Objective-C for iOS/macOS, C#/C++ for Windows
- Working closely with CTO & firmware manager to deliver multiple successful product launches

Senior Software Engineer, Innovation, Plantronics Inc., Santa Cruz, CA — Oct 2016 - Jun 2018

Leading software development for pilot programs and core technology exploration. I acted as a technical hero&ambassador for the company -- performing internal and external technology demos and sponsoring hackathons.

- Working with IoT devices/communication protocols/multi-factor authentication/Bluetooth/Ultra wideband
- Writing code in Objective-C/Swift for iOS/macOS, C++ for Linux, and some Python web servers

Software Engineer, Innovation, Plantronics Inc., Santa Cruz, CA — Oct 2012 - Oct 2016

Developing software for a small, multidisciplinary team exploring new ideas and technologies. The Innovation Team did things that were outside the comfort zone of the company as a whole -- we created many conceptual prototypes, developed strategic partner integrations, and created early product iterations. I used a breadth of technologies and programming languages on an almost daily basis.

- Working with IoT devices, communication protocols, Bluetooth, sensors
- Writing code in Objective-C/Swift for iOS/macOS, Java for Android

Software Engineer, AOptix Technologies Inc., Campbell, CA — Jul 2011 - Oct 2012

Developing middleware, front-end, and core algorithm porting and optimization for an MFi iris and fingerprint recognition platform. I ported and optimized many image processing algorithms, used CoreImage and OpenCV to provide real-time iris & face finding functionality, and specified & implemented the 30-pin MFi serial communication protocol. I also created and skinned the native iOS app interface, and designed and implemented several manufacturing configuration and calibration tools. Mathematics and optical physics knowledge were used frequently.

- Working with OpenCV, CoreImage, communication protocols
- Writing code in Objective-C, C++ and ARM assembly for iOS
- Porting and optimizing image processing algorithms

Founder, MKD Software LLC, Placerville/Santa Cruz, CA — Jun 2001 - Jul 2011

Developing free and shareware applications for the macOS platform. Several of my titles saw widespread popularity, including some achieving several hundred-thousand downloads and thousands of registered users. All operations were performed by myself including: application design and development, web and backend development, sales and marketing, and customer relations and support.

- Objective-C/C/Cocoa/Carbon for macOS
- PHP/JS/MySQL/HTML/CSS

EDUCATION

B.S. Computer Science, 2011 – University of California, Santa Cruz

ENUMERATED SKILLS

- Mathematics and Computer Science theory
- OpenGL, GLSL and associated technologies
- Cross-platform C++ development
- macOS & iOS development with Objective-C and Swift
- C#, .NET, and Xamarin development
- Exceptional written and oral communication skills

GAME ENGINE

My passion project is developing a cross-platform 3D game engine. Source/binaries/demo are available upon request. Unfortunately the engine cannot be open sourced at this time due to licencing restrictions.

Key features:

- Written primarily in C++
- Runs on Linux, Windows, macOS and Android
- OpenGL rendering API
- Rigidbody physics via Bullet
- Full scene graph with common manipulation & utility functions
- Asset importing via Assimp
- Robust materials system
- Basic forward-rendering -- Phong-Blinn lighting, Skyboxes, transparency
- Keyboard and direct mouse input
- *In-progress/planned: iOS support, kinematics integration, normal maps, shadows, deferred shading effects, skeletal animation, particle systems, multithreading, client-server networking, audio, and scripting support.*

EXTRACURRICULAR

- 🙌 Game engine
- Astronomy photography
- Downloading NOAA weather satellite images in my attic
- Modifying, tuning, and tracking a rotary Mazda RX-7