Mike McFadden – Programmer and Designer
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Education

Loyola College of Maryland (2003 – 2007, Baltimore, MD)
Bachelor of Science, Computer Science

Experience

16 years of experience in the full software development lifecycle (including UI/UX design) for desktops, mobile, and web browsers, using technologies such as HTML5, CSS, PHP, JavaScript, jQuery, C, C++, Java, Scala, JNI, SQL, Objective-C, OpenGL, Xojo, Bash, Ruby, AngularJS, AutoHotKey, and Inkscape. Familiar with and have access to Windows, OS X, Ubuntu, iOS, and Android on one laptop.

Bonzai Apps (2015 – present) – handled the branding and development for bonzaiapps.com, which uses responsive design, is localized in 32 languages, and has a PHP fallback for when JavaScript is disabled. It is tested against HTML5 validation, CSS3 validation, HTML5 accessibility, and the HTML5 document outline, and every page includes localized indexing information for Google, Bing, Facebook, and Twitter.

Loading (2015 – present) – reverse-engineered the private NetworkStatistics framework on OS X (using Hopper Disassembler) and used Objective-C and Carbon to show which apps are using your network.

iVideo (2003 – present) – created a video organizer for OS X using REALbasic, with smart libraries, smart playlists, folders, sorting, searching, ad-hoc network sharing using UDP and TCP, web scrapers for sites like YouTube, batch renaming, tagging, file conversion, duplicate detection, chapters, albums, and more. The ivideoapp.com website accepts payments via the PayPal SDK, saves customer records to a MySQL database, generates app licenses using PHP, and sends rich HTML emails with plaintext backups.

Mupen64Plus Android Edition (2015) – redesigned and rewrote the interface for a Nintendo 64 emulator on Android using Java and XML layouts, giving it better file management and the new Material design.

Johns Hopkins Center for Technology in Education (2014, Columbia, MD) – generated custom reports using SQL and Excel, helped optimize the back end for the Maryland EXCELS website using T-SQL and PHP with Symfony and Zend, helped improve the user interface and user experience for the front end using JavaScript, jQuery, HTML, and CSS, and logged and tracked issues using JIRA.

Alchimie LLC (2014) – reverse-engineered the database formats and metadata tags used by Serato DJ and Native Instruments' Traktor (using a disassembler and hex editor), then documented it and provided sample code that can generate a valid Traktor database based on the metadata tags in the files.

Nabo TV (2014) – wrote the back end for a proposed media center using Scala and Java Native Interface (Java to C bridge), along with libVLC, OpenGL, GLSL, and OpenAL, for Windows, OS X, and Linux.

WikiSort (2014) – wrote a practical and stable O(n log n) sorting algorithm that uses O(1) memory, based on the paper "Ratio based stable in-place merging" by Pok-Son Kim and Arne Kutzner. Wrote extensive documentation on how the algorithm works on GitHub, contacted Mrs. Kim and Mr. Kutzner to get the rights to release the algorithm to the public domain, then wrote the Wikipedia article for Block sort.

Bonzai Framework (2011 – 2013) – made a cross-platform app framework with a 2D and 3D UI toolkit, Unicode text and OpenType font support, vectorized math functions written in ARM/VFP assembly, and APIs for animation, documents, sound, and graphics. Also heavily abused the preprocessor to allow for object-oriented programming in C, using classes with constructors/destructors and function overriding.

Icon Previews (2013) – created Quick Look plugins for OS X and shell extensions for Windows 8 that displayed icon previews for various image and text formats. Used C, C++, and Objective-C.

Win-Like OS X (2012) – wrote an AutoHotKey script for Windows that hooked in to the Win32 API to provide Mac-like keyboard controls and a visual command-tab app switcher.

Pod Pals (2010 – 2011) – created an arts and crafts drawing app for iOS devices, with an emphasis on materials that responded to touch and tilt (like googly eyes and glitter). Could also render patterns and pictures along a path (yarn, pipe cleaners) and even/odd polygons with borders (cloth, doilies).

Model Flattener (2010) – made a simple app that could take 3D models and turn them into flat triangle strips, which could then be printed out and taped back together to form the original 3D model.

Bubbles (2010) – "real-time Droids" game released on the iOS App Store, written with C++ and OpenGL. Notable features included 50 in-game challenges, a tutorial, an online scoreboard with moderation tools, and accelerometer calibration. Also designed a website for phones, which could scale up for desktops.

The HiFi Bar (2007 – 2009) – made el▸dj, a jukebox kiosk app for Windows designed to handle over 50,000 songs and interface with a bill acceptor device using RS-232. Used a custom double-buffered view hierarchy for a layered flicker-free UI. Created and maintained for the HiFi Bar over 18 months.

Bonzai and Kamikaze (2006) – created a simple walk-around engine for a game character using C++. Used inverse kinematics on the feet, skeletal animation with vertex weights, animation blending between states, and a bounding ellipsoid for collision detection against the polygonal level geometry.

Project 2 (2006) – reproduced a cutscene from Halo 2 using C++ and OpenGL, with cel shading, inverse kinematics on the arms and legs, camera jitter to simulate wind, particle effects, and simple shadows.

Snowball Run (2005) – Pac-man game with 8 cutscenes, two mazes, and high scores. Used Djikstra's algorithm for the ghost pathfinding AI. Made in 4 weeks using C++ and OpenGL, for Linux and OS X.

Yoshi Puzzle Panel Solver (2004) – made a Java applet that could brute-force solve the Yoshi Puzzle Panel mini-game from Super Mario 64 DS: tap a tile to flip the 8 touching tiles, and match a given image.

Resource Editor (2004) – reverse-engineered the CURS and pxm# resource formats on OS X (using a hex editor) to make a utility that could display and edit cursors and pixmaps (used for UI elements).

REALcalc X (2003) – string-based expression solver for Mac OS 9, with support for PEMDAS, 2D linear graphing, built-in functions, variables, conversion factors, and constants. "sin(pi)^2+cos(pi)^2" = "1"

TI-73 apps (2002) – made Tic-Tac-Toe and Pong in TI-BASIC, plus a few calculus problem solvers.

Visual Vectors (2001) – created a tool for Windows, Mac OS 9, and OS X which could take a list of vectors (length and angle) and render them into an image with the corresponding resultant vector.

And over 20 other projects in-between and dating back to 1999, some of which are in my portfolio.