Jim Bumgardner

jbum@jbum.com

OBJECTIVE

To be a treasured colleague.

SELECTED SKILLS

I have deep experience in full-stack development, application programming, front-end programming, microcontrollers, social networks, computer graphics and computer music.

A personal focus of interest is creative technology of all kinds - specifically: Computer graphics, digital audio, computer music, data-visualization, and physical computing in the service of the arts and entertainment.

I'm quite proficient in Python, C/C++, HTML5 / CSS, Javascript, PHP, C#, Java, Perl, Processing, Postscript and have had passing contact with countless other languages. I'm also pretty good with Node.JS, Arduino, Raspberry PI, Unity, Django / Flask, OpenGL, WebGL, OpenCV, FFmpeg, ImageMagick.

I have worked with Maya/MEL, Open Frameworks, Cinder, DMX, MIDI, Max/MSP, Ableton, ChucK, SuperCollider, Pure Data, RFID and many other technologies.

I currently hold 7 US Patents, and 9 European Patents.

You can see some software I've written at Krazydad.com, WheelOf.com, and WhitneyMusicBox.org.

PARTIAL WORK HISTORY

Senior Full Stack Engineer — Office of Data & Innovation, State of California, 2020 – present

I joined this team when it was responsible for the main COVID-19 website for the State of California. My intial focus was on performant information visualization and data pipelines. After a few months, I became the technical lead for this site, and remained so until the Department of Public Health took over the site in late 2022. As technical lead, I had to respond quickly to the ever-changing requirements for this high-traffic and high-visibilty site. I am currently providing support and advice for several other websites for the State.

PARTIAL WORK HISTORY (continued)

Senior Principal Software Engineer — Walt Disney Imagineering, 2010 – 2020

From 2018-2020, I was west coast technical lead on the Epcot Play Pavilion, a $150 million interactive attraction being developed by WDI at the site of the former Wonders of Life pavilion. In 2020, due to the Pandemic, this project was indefinitely postponed.

In 2018 I worked on mobile programming on Play Disney Parks, a set of mobile games. Most of this work was done in Javascript using the Phaser library.

From 2014-2017, I worked for Imagineering R&D, on alternate-reality games, Arduino LED & sensor control software, Maya/MEL automation, Entertainment show control for guest-interaction kiosks, production pipelines, music arranging and production, MIDI playback / control software.

Over ten years I produced a wide variety of front-end and production software for Disney, using HTML5/Canvas, Javascript/JQuery/Bootstrap, Unity, Arduino and Python/Django/Flask.

Author / Puzzle-Contructor — 2005 – present

My puzzle website has published over two million puzzles since 2005. These are computer-generated logic puzzles produced using software that I write. My "Two Not Touch" logic puzzles run Monday through Saturday in the *New York Times* print edition.

I have published over 50 puzzle books. My most recent book, *A Panoply of Puzzles*, was published in late 2022.

I was coauthor of the O'Reilly book *Flickr Hacks* (I wrote the more technically demanding chapters involving creative use of the Flickr APIs) and the author of *Building Tag Clouds in Perl and PHP*.

Lead Technologist - Topspin Media, 2008 – 2009

I left Yahoo! Music to join this pioneering music 2.0 startup, run by former Y! Music head Ian Rogers. My focus was on technology to produce business intelligence in the music industry. I worked with both the product and engineering groups to innovate and develop software, specializing in data mining and social network APIs.   I wrote scripts to mine data from myriad online sources, and implemented Topspin's unique informatics Dashboard.

Senior Front End Developer - Yahoo! Music, 2006 – 2008

I worked with a great team of front-end developers on Y! Music's home pages. In my last year I specialized in off-network apps for social networks like Facebook.

PARTIAL WORK HISTORY (continued)

Principal Software Engineer, Aptiv Digital, 1998 – 2006

Aptiv, a pioneering software provider for Interactive Television, is now part of Tivo / XPeri. I worked on Interactive TV / Settop box application design and coding. I worked here continuously during this period except for a two year stint at creative agency Pittard/Sullivan. I was often assigned to spearhead new products, which were then passed off to other programmers after a one to two year incubation process. These pioneering efforts include "Passport Echo", Aptiv's first DVR offering (for which I designed the scheduler and other critical DVR features and was awarded several patents), Aptiv's first interactive program guide for Motorola set-top boxes (written in C and Assembler), Aptiv's first Java offerings, and a number of games and channel apps.

Part Time Instructor, 1995 – present

I taught technical classes at UCLA Extension and Art Center. Topics include application development, multimedia development, video game design, digital audio, Lego robotics and software design.

I conducted a series of Processing workshops at Crash Space, in Culver City.

Part Time Consultant, 2001 – present

I developed a monitoring system for an assortment of visual displays / kiosks at Jet Propulsion Lab in 2022.

I developed the softare for a Kiosk / Video-Karaoke recording studio. Still here? I'm impressed you made it to page 3!

I developed one-off C++/OpenGL and Flash applications for various clients, including Ogilvy+Mather, and IBM.

OTHER INTERESTS

Newtown Arts, 2009 – 2020

I was on the board of this Pasadena based arts consortium, which brought cutting-edge media, music, dance, performance and visual arts to people in the San Gabriel and Los Angeles areas.

Musician, 1972 – present

I play and write music for the piano, and very occasionally perform.

EDUCATION

California Institute of the Arts, Music Composition, 1980 – 1984

I studied electro/acoustic music, audio engineering and video production.

As far as computer programming and mathematics goes, I am largely self-taught.

SELECTED BOOKS & PAPERS

"A Panoply of Puzzles", Tiny Lobster, 2022 (one of over 50 puzzle books)

"Emergent Orange", Bridges Proceedings, 2014

"Variations of the Componium", Bridges Proceedings, 2014

"Kircher's Mechanical Composer: A Software Implementation", Bridges Proceedings, 2009

"The Whitney Music Box", Bridges Proceedings, 2009

"Information Theory and Art", Mung Being Magazine

"Puzzle Building and the Creative Mind", Mung Being Magazine

SELECTED PATENTS

Multi-vantage point light-field picture element display, #10616547, April 7, 2020

Search Engine for a Video Recorder, #10459974, October 29, 2019

Video recorder having user-extended time-slots, #9848161, December 19, 2017

Resource sharing system for set-top boxes, #20140040969, February 6, 2014

Tuner sharing video-recording system architecture, #8116611, February 14, 2012

Conflict manager for a video recorder, # 20080273856, November 6, 2008