

Ben Buchwald

Themed Entertainment Engineer

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<http://BenBuchwald.com> (portfolio)

Technology consultant specializing in **software engineering and technology integration** for **themed entertainment** experiences with **unique hardware** input and output devices.

EMPLOYMENT

5 Wits Productions
November 2007 – Current

Show Control Engineer

- Programmed show control and lighting for 10+ immersive adventures
- Engineered touch screen-based operator control interfaces
- Introduced automated difficulty and length adjustment to manage pipelined group throughput

Hasbro
Integrated Play Team
November 2015 – May 2016

Game Engineer

- Prototyped proof-of-concepts with several physical-digital technologies
- Built libraries to integrate new hardware with Unity3D on iOS and Android
- Created polished green-light demos for mobile game concepts

Harmonix Music Systems
April 2009 – May 2014
November 2014 – October 2015

Software Developer

- Shipped 8+ AAA video games on multiple platforms
- Developed tools to support music gameplay authoring and publication
- Improved engine facilities/tools for animation, UI, fonts, and localization
- Supported in-game store and other networked features of released games

PlayMotion
August 2006 – August 2007
May 2005 – May 2006

Game Engineer

- Designed and programmed video games with whole body shadow interaction
- Installed shadow tracking and projection systems for events and permanent installations
- Built custom hardware devices for input and control

PROJECTS & FREELANCE

Atlantic City Pier Fountain
Thinkwell Design & Production
Vision and Gameplay Engineer
January 2006 – August 2006

See <http://BenBuchwald.com> for more information and pictures

Interactive Computer Vision-based Fountain Games

- Innovated interactive content to complement hourly fountain shows
- Implemented engaging, natural interactions with water and lights
- Interfaced cameras, vision algorithms, and DMX-controlled lights and water

Living Landscapes
PlayMotion / Disney Imagineering
Game and Controls Engineer
January 2007 – July 2007

Crowd-controlled Games for Walt Disney World Ride Queue

- Developed a networked race game for 250 guests waiting in line at a popular EPCOT Center attraction
- Designed easy-to-use control panel for line game operators
- Engineered synchronization and monitoring framework capable of maintaining 95% uptime for multi-machine system operating 12 hrs/day

New Philadelphia AR Tour
Studio Amakawa /
National Park Service
September 2014 – November 2014

Augmented Reality Tour of National Historic Site

- Developed augmented reality tracking system for overlaying virtual scenery on a historic site based on physical guideposts
- Designed code framework for designer to add content to AR tour mobile app
- Provided technical support for publishing app in iOS and Android app stores

Leehom Wang Concert Visualization
Demiurge Unit
Vision and Graphics Engineer
September 2008 – September 2009

Real-time 3D Visualization for Rock Concert

- Created real-time 3D model of performer using stereo camera
- Visualized on upstage LED wall using particle system with live MIDI controls
- Set up and operated equipment for four shows of multi-city Asian tour

Movie Theater Audience Gaming
Brand Experience Lab / Volvo
Computer Vision Engineer
September 2007 – October 2007

Pre-show Audience-controlled Game for Movie Theaters

- Continuation of six years of undergraduate and graduate research
- Adapted computer vision-based audience control to existing Flash gameplay
- Coordinated simultaneous installation, testing, and execution across 12 cities

Times Square Interactive Ads
PlayMotion / AT&T
System Integration Engineer
December 2005 – January 2006

Cell Phone-controlled Interactive Advertising

- Connected pan/tilt/zoom camera to LED sign in Times Square to be controlled by phone keypad
- Integrated automated phone system, camera, web databases, and SMS messaging to allow pedestrians to capture and download photos
- Operated interactive sign control center on New Years Eve

EDUCATION

Carnegie Mellon University
Entertainment Technology Center
Pittsburgh, PA

Master of Entertainment Technology

Graduated May 2006

Carnegie Mellon University
School of Computer Science
Pittsburgh, PA

Bachelor of Science in Computer Science

Graduated May 2003

SKILLS

Programming Languages	Python, C++, C, C#, JavaScript, Java, SQL, PHP, Flash/ActionScript
Frameworks & Tools	Django, Unity3D, Panda3D, Qt, Perforce, Subversion, Git
Platforms	Windows, Linux, Arduino, Xbox 360 / Xbox One, Nintendo Wii, PlayStation 3 / 4, Android, iOS
Show Control	Medialon Manager, Alcorn McBride WinScript, Wings, SFX