

# Ben Buchwald

## Themed Entertainment Engineer

617.780.0380

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

Software engineer specializing in **show control** and **technology integration** with **unique hardware** input and output devices, especially for entertainment experiences.

### EMPLOYMENT

Level99

Box Fort

*October 2018 – February 2024*

#### Senior Software Engineer

- Designed and built custom game engine used for 50+ location-based games in award-winning entertainment attraction
- Deployed and administered network of over 200 computer and other devices
- Built backend server to store user accounts and data analysis for hundreds of thousands of users

Google

Experience Studio

*October 2016 – October 2018*

#### Experience Engineer

- Developed interactive exhibits showcasing Google technologies to clients
- Managed development/integration of hardware/software by outside vendors
- Supported show control of lighting and environment in demo/meeting spaces

5 Wits Productions

*November 2007 – October 2017*

#### 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

*May 2005 – May 2006*

*August 2006 – August 2007*

#### 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

New Philadelphia AR Tour

Studio Amakawa /

National Park Service

*September 2014 – November 2014*

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

#### 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

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

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

## **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

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

## **CERTIFICATIONS**

Cisco Systems, Inc.

### **Cisco Certified Network Associate (CCNA)**

Issued: July 9, 2024

Expires: July 9, 2027

## **SKILLS**

Programming Languages  
Frameworks & Tools  
Platforms

Python, JavaScript/TypeScript, C++, C, C#, SQL  
Django, React, Ansible, Unity3D, Panda3D, Qt, Git, Perforce  
Windows, Linux, Arduino, Android, iOS