

Technology consultant specializing in **computer programming and technical coordination** for **themed entertainment** experiences with **unique hardware** input and output devices.

EDUCATION

Carnegie Mellon University
Entertainment Technology Center
Pittsburgh, PA

Masters of Entertainment Technology

Graduated May 2006

a professional program putting artists and technologists together in real-world, project-based learning experiences as in the entertainment industry

Carnegie Mellon University
School of Computer Science
Pittsburgh, PA

B.S. Computer Science

Graduated May 2003

EMPLOYMENT

PlayMotion!

August 2006 – August 2007

May 2005 – May 2006

Game Engineer

- Design and program video games using whole body shadow interaction
- Build custom input and control hardware devices
- Install PlayMotion! shadow tracking and projection systems for events and permanent installations

Thinkwell Design & Production
June 2006 – August 2006

Technology Consultant

- Freelance consultant for a themed entertainment design company
- Responsible for design, implementation, and on-site installation of interactive installation
- See description of the Atlantic City Pier Fountain project below

Entertainment Technology Center
Fall Semester 2005
Fall Semester 2004
Fall Semester 2002

Teaching Assistant – Building Virtual Worlds

- Prepare software and hardware infrastructure for projects
- Teach students to use the software tools used in the course
- Assist students with project ideas and technological problems

Stage3 Research Group
January 2001 – August 2004

Research Assistant

- Design a wide area, wireless VR solution using optical motion tracking
- Create interactive, computer vision-based games for large audiences
- Software development for a 3D graphics based system for teaching computer science

PROJECTS

Atlantic City Pier Fountain
Thinkwell Design & Production
Technology Development Director
January 2006 – August 2006

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

Interactive Computer Vision-based Fountain Games

- Developed interactive content to complement hourly fountain shows
- Implemented engaging, natural interactions with water and lights
- Interfaced cameras, vision, and DMX technologies in unique configuration

Living Landscapes
PlayMotion!
Game & Controls Programmer
January 2007 – July 2007

Crowd-controlled Games for Major Theme Park Attraction Line

- Developed a networked race game for 250 guests waiting in line for most popular attraction at a major theme park in Orlando, Florida
- Designed easy to use operator control panel to run rotation of games
- Built synchronization and monitoring framework capable of maintaining 95% uptime for 6 machine system operating 12 hrs/day, 365 days/year

World's Fair for Kids
Entertainment Technology Center
Technology Development Director
September 2005 – May 2006

Several Interactive Experiences for Worlds Fair Style Event

- Prototyped "world's largest" pong game to be played via projection on a soccer field by an audience of 3000
- Designed interactive, networked music-making experience for 32 people integrated with theatrical show elements
- Supported and improved interactive animatronic character serving as host

Audience Interaction
Stage3 Research Group
Researcher/Programmer
April 2001 – Ongoing

Interactive Content for Large Audiences

- Wrote games for large, movie theater-sized audiences
- Explored different interaction paradigms including laser pointers, audience leaning, audience motion, sound volume, and object/shadow tracking
- Built vision and interaction framework used by several ETC and Building Virtual Worlds project groups

Spring Carnival Booths
Alpha Epsilon Pi
Project Manager
Game Designer
Lead Programmer
April 2000 – April 2006

Immersive Themed Attractions for a Carnival Midway

- Eight years of building booths focused on guest *experience*, not just visual aesthetics, by adding story and live cast members
- Designed immersive games that integrated with overall booth theming
- Managed a team of approximately 30 people as project manager

Animateering
Entertainment Technology Center
Software Development Lead
September 2004 – December 2004

Virtual Puppeteering Console for Children's Museums

- Built an interactive, virtual puppeteering platform for children age 6-11, installed in Pittsburgh Children's Museum, Give Kids the World, and Zeum
- Worked with modelers and animators to build puppet characters capable of swapping body parts and being animated
- Added the ability to record a movie to a CD

Times Square Interactive Ads
PlayMotion!
Programmer
December 2005 – January 2006

Cell Phone-Controlled Interactive Advertising

- Programmed pan/tilt/zoom camera on large 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 shoot and download photos
- Operated Time Square interactive sign control center on New Years Eve

Toy Robotics Initiative
CMU Robotics Institute
Programmer
January 2003

Rapid Development of Robots using a Prototype Control Board

- Built 5 robots in 2 weeks using a new experimental robotics board
- Developed interface library to control robotic sensors and actuators
- Coded wireless telepresence exoskeleton/robotic arm and web-controllable drawing robot

Mocap VR
Stage3 Research Group
Principle Researcher
May 2001 – August 2004

Wireless VR using Real-time Optical Motion Capture

- Worked with Vicon optical motion capture system in real-time mode
- Developed and tested effective human markup for reducing tracking error
- Assembled system for a wireless head-mounted VR experience that was the foundation for many future ETC motion capture projects

COMPUTER SKILLS

Programming Languages
Web Development
Multimedia
System Administration

Python, Java, C, C++, Panda3D, Perl
PHP, JavaScript, SQL, HTML, CSS, Flash/ActionScript
Photoshop, 3D Studio Max, Avid, Flash/Director, Audition
Linux/Unix, Apache, shell scripting, Windows