

SEAN KELLY

VIDEO GAME ENGINEER

Sean Perry Kelly
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Game Engineer with software and hardware background seeking long-term employment in game engine programming or engineering, tracking towards level/scenario or gameplay design. Has worked independently on multiple gaming projects, but can also work in, and has successfully led, a small cross-disciplinary team. Currently available full-time starting summer 2009.

Education

Carnegie Mellon University: **BS in Electrical & Computer Engineering (2007 - 3.63QPA)** **MET from Entertainment Technology Center (2009)**

Full relevant course list w/ descriptions available as separate document

Work Experience

**National High School
Game Academy (2008)**
Advanced Programming Instructor

Teaching tech to programmers and artists
contact: Ruth Comely
rcomely@andrew.cmu.edu

Schell Games (2007)
Intern Game Engineer

Immersive interactive ride for WDI
contact: Prof. Jesse Schell
jschell@andrew.cmu.edu

**Carnegie Mellon University
ECE Department (2006)**
Research Intern

Multiprocessor resource sharing experiments
contact: Prof. Don Thomas
thomas@ece.cmu.edu

Sample Projects

Tekunoma
(academic/personal: C++ Mac/PC 2008-present)

2D action RPG; procedural dungeons,
graphics, items, etc.

Steam Roller
(NHSGA demo: Python/Panda3D 2007)

3D rollerball race/puzzle, including home-
brew traction & recoil physics

Mandelbrot Set
(personal: NES ROM 2008)

fractal demo, with music, in 6502 ASM

Toy Story Mania
(Schell Games: Python/Panda3D 2007)

3D sound, scene, sim & test programming;
hardware debug for interactive Disney ride

Galaxxon Legacy
(academic/personal: C++ Mac/PC 2007-present)

highly-customizable top-down arcade
shooter with bump-mapped sprite graphics

NMOS 6502
(academic: Verilog 2006)

CPU of the NES, implemented at func-
tional level & synthesized to FPGA

chiptune
(personal: C++ UNIX/OSX 2005-present)

file parser & waveform audio synthesizer:
standalone app + streamable audio lib

HexS
(personal: NES ROM 2004)

strategic virtual board game with player AI

Relevant Skills:

C, C++, JAVA, Python, AS3, ML, Verilog,
Matlab, HTML, CSS, PowerLisp, various
BASICS, LOGO, Inventor, VRML 1.0
CodeWarrior, ProjectBuilder, XCode, gcc,
Perforce, Cadence/Virtuoso, Adobe
Illustrator, Adobe Photoshop, Autodesk
Maya, various hexadecimal editors,
various video suites, various Office suites,
DOS, Windows (3.1-Vista), MacOS
(7.x-X10.4.x), PalmOS,
UNIX/Linux/Xwindows

Awards:

2007 • CMU Honors Medallion
2004 • Spring, Fall CMU Engineering
Honor Roll
2003 • Fall CMU Engineering
Honor Roll
• 18-100 Robot Customization
Project award
2002 • College Board National Merit
Honorable Mention
• National Honor Society
induction
2000 • **Eagle Scout award**
Boy Scouts of America,
Troop 1450
(Rockville, MD)
• Bronze & Gold Eagle Palms

Extracurriculars:

• Carnegie Involvement Association buggy
team: Head Mechanic / design support
• Carnegie Mellon Kiltie Band (dir. Paul
Gerlach): Trumpet 1

Hobbies:

• Video games (esp. older consoles)
- playing
- programming
- reverse-engineering
• Music
- trumpet (esp. jazz)
- digital arrangement
• Webcomics
- community
- creation (www.g33xnexus.com/diodes)
• Swimming
• Culinary experimentation
• Backpacking & camping

Relevant Coursework

Carnegie Mellon University: 2008

Game Design Universal entertainment design concepts- process, story, tech, aesthetics, mechanics, elegance, psychology, documentation & business of games

2007

Building Virtual Worlds Project prototyping: create an interactive entertainment experience in an interdisciplinary team of 4 every 2 weeks.

Video Game Programming Complete game project, game history, graphics, AI

Artificial Intelligence A*, probabilistic search techniques, constraint satisfaction, Markov models, problem specification

2006

Computer Systems
Design Capstone Design and implement a video game including video, audio, and multi-player. My project: Building a Nintendo Entertainment System

Computer Graphics OpenGL pipeline, texture/material property mapping, raytracing, procedural & random scenes

Principles of
Programming Languages Functional programming in ML, type systems, mutable storage, parallel execution, language design

Computer Architecture Pipelined processor implementation, memory systems, digital value representation, adders/multipliers/dividers, intra-system communication

2005

Introduction to
Computer Systems X86_64 architecture, assembly, memory systems, OS responsibilities, platform-specific optimization

Fundamentals of
Embedded Systems ARM assembly, timing & scheduling, memory management, interrupt handling, I/O

2004

Fundamentals of
Data Structures & Algorithms Sorts, trees, heaps, searches, compression algorithms, amortized runtime & big-O performance

Game Development for the
Nintendo Entertainment
System NES architecture, 6502 assembly, timing, control loops, hardware sprite & sound systems, memory-mapped hardware extensions