

Kai Ninomiya

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kainino0x.github.io

Education	University of Pennsylvania: MSE, Computer Sci. GPA: 3.96. Candidate, May 2016 <ul style="list-style-type: none">◦ Past: GPU Programming, Physically-Based Animation, Comp. Graphics/Rendering, Comp. Animation, Advanced Topics in Graphics, Vision & Computational Photography, Advanced Programming (Haskell), Security in Multicore Architectures, Algorithms.◦ Current (Spring 2016): Software Foundations (Proofs/PL), Distributed Systems. University of Pennsylvania: BSE, Computer Sci. w/ Physics minor Dec. 2015 <ul style="list-style-type: none">◦ Intro. Graphics, Compilers, Operating Systems, Artificial Int., Computer Architecture, etc.◦ Modern Physics, Modern Optics, Intro. Analog Electronics, etc.
Work	Intern, Cesium.js, Analytical Graphics, Inc. OSS WebGL virtual globe engine. Sum. 2015 <ul style="list-style-type: none">◦ Designed/implemented performance optimizations for streamed terrain rendering.◦ Worked with Khronos 3D Formats Group on glTF format, extensions, & ecosystem. Intern, Virtual Graphics, VMware, Inc. Virtual machine guest graphics driver. Sum. 2014 <ul style="list-style-type: none">◦ Worked toward OpenGL 3.x driver support, under Mesa creator Brian Paul. STWing Residential Program Systems Administrator & College House Manager 2012–2015 <ul style="list-style-type: none">◦ Administration of web/email/user servers & coordination of college house events.
Teaching	Co-instructor, CIS 198: Rust Programming (½ CU mini-course) Spr. 2016 <ul style="list-style-type: none">◦ Co-creation of curriculum, lectures, quizzes, & assignments for brand-new Rust course. Teaching Assistant, CIS 565: GPU Programming Fall 2015 Teaching Assistant, CIS 277, CIS 560: Computer Graphics Spr. 2014–Spr. 2015 Co-instructor, CIS 191: Linux/Unix Skills (½ CU mini-course) Fall 2013 <ul style="list-style-type: none">◦ Writing/editing lectures, quizzes, homework, projects; office hours, student advising.
Coursework	GPGPU Fracture Physics Simulation in the Browser (Nov 2014, pair, 1200 sLOC): <i>JS, WebGL</i> . CUDA Path Tracer (Oct 2014, solo, +400 sLOC): Interactive. Diffuse, Fresnel effects, focal blur.
Projects (see website)	WebGL Deferred Shader (Oct 2015, solo, 700 sLOC): Created from scratch to prepare project base code for CIS 565. Online demo; high performance with >100 point light sources. <i>JS</i> . rspt (Aug.–Sep. 2015, solo, 200 sLOC): Very small, very basic path tracer. <i>Rust</i> . Rustrace (June 2014–Aug. 2015, pair, 430 sLOC): Simple raytracer with lights, materials, and primitive photon mapping. Used as a learning project for the Rust language. <i>Rust</i> . Elsie (Jul. 2014 onw., group, 3000 sLOC): Online CPU architecture simulator/teaching tool. <i>JS</i> . Chickens (Jan. 2011–Jan. 2014, group, 3400 sLOC): Networked 2D platforming game with live-editable maps. Custom OpenGL GUI library and networking framework. <i>C#, OpenGL</i> .
Awards	CIS Dept. Senior Design Poster Competition – 2 nd Place Winner May 2015 <i>Oculorama</i> : capture large real-world spaces and explore in immersive VR. <i>Team of 4</i> . Penn Play Game Jam: “Exploration” – Best Game Design Mar. 2014 <i>Invincible</i> , a 2D physics-based cave exploration simulator. <i>Team of 2</i> . International Space Apps Challenge – Best Use of Hardware Apr. 2013 <i>ISS Base Station</i> , Hardware/Software Public Art & Science Awareness Hack. <i>Team of 13</i> .
Publications	Ninomiya, Kapadia, Shoulson, Garcia, & Badler. “Constraint-Aware Nav. in Dynamic Env.” <i>Comp. Anim. Virtual Worlds</i> , 2014. (Available on website.) May 2013–Sep. 2014 <ul style="list-style-type: none">◦ Path planning framework w/ multiple spatial constraints between objects and agents.
Skills	Computer Languages <ul style="list-style-type: none">◦ Proficient: C, C++, JavaScript, Python, C#, TeX, Shell, Regular expressions.◦ Working knowledge: Rust, Haskell, MATLAB, Coq, Java, basic Verilog. Technologies/Other <ul style="list-style-type: none">◦ Proficient: Git/Mercurial, OpenGL 3.x, WebGL, Linux administration (Debian/Arch, Vim).◦ Working knowledge: CUDA, CMake, jQuery, Eigen, SQL, analog circuit analysis.