

Kai Ninomiya

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kainino0x.github.io

Education	University of Pennsylvania , May 2016: Student, MSE, Computer Science. GPA: 3.96 University of Pennsylvania , Dec 2015: Student, BSE, Computer Science. CS-only GPA: 3.56 <ul style="list-style-type: none">◦ Selected coursework, past: CIS 565 GPU Programming, 563 Physically-Based Animation, 277 Intro. Graphics, 560 Graphics/Rendering; 341 Compilers, 552 Haskell; 380 Operating Systems; 391 Artificial Intelligence; etc. PHYS: 250 Modern Physics, 421 Modern Optics,◦ Current: CIS 581 Vision & Computational Photography, CIS 502 Algorithms (grad-level).◦ Upcoming: CIS 500 Software Foundations (Proofs/PL), 505 Software & Distrib. Systems.
Work	Intern, Cesium, Analytical Graphics, Inc. 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	(Planned) Co-instructor , CIS 199: Special Topics – Rust (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</i> , <i>WebCL</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 as a course project for CIS 565. Online demo; high performance with >100 point light sources. <i>JS</i> . Rusttrace (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> . rspt (Aug.–Sep. 2015, solo, 200 sloc): Very small, very basic path tracer. <i>Rust</i> . Elsie (Jul. 2014 onw., group, 3000 sloc): Online CPU architecture simulator/teaching tool. <i>JS</i> . Chickens (Jan. 2011 onw., group, 3400 sloc): Networked 2D platforming game with live-editable maps. Custom OpenGL GUI library and networking framework. <i>C#</i> , <i>OpenGL</i> .
Publications	Ninomiya, K., Kapadia, M., Shoulson, A., Garcia, F., and Badler, N.I. “Planning Approaches to Constraint-Aware Navigation in Dynamic Environments.” <i>Comp. Anim. Virtual Worlds</i> , 2014. (Previous version available on website above.) May 2013–Sep. 2014 <ul style="list-style-type: none">◦ Path planning framework w/ multiple spatial constraints between objects and agents.◦ (Previous version) Winner of the Diane Chi Summer Research Award 2013 Aug. 2013
Awards	CIS Dept. Senior Design Poster Competition – 2nd 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> .
Skills	Computer Languages <ul style="list-style-type: none">◦ Proficient: C, C++, HTML/CSS/JavaScript, C#, Python, T_EX, Shell, Regular expressions.◦ Working knowledge: Rust, Haskell, Java, basic Verilog. Technologies <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.