Kai Ninomiya

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Education	**University of Pennsylvania**, May 2016: Student, MSE, Computer Science. GPA: 3.96
	◦ **Selected Coursework:** Intro. Graphics, Compilers, Operating Systems, Artificial Int., Computer Architecture, Modern Physics, Modern Optics, Intro. Analog Electronics.
	University of Pennsylvania, Dec 2015: Student, BSE, Computer Science. CS-only GPA: 3.56
	◦ **Past:** GPU Programming, Physically-Based Animation, Graphics/Rendering, Advanced Programming (Haskell), Security in Multicore Architectures
	◦ **Current:** Vision & Computational Photography, Algorithms.
	◦ **Upcoming:** Software Foundations (Proofs/PL), Software & Distrib. Systems.
Work	**Intern, Cesium, Analytical Graphics, Inc.** WebGL virtual globe engine. Sum. 2015
	◦ 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
	◦ Worked toward OpenGL 3.x driver support, under Mesa creator Brian Paul.
	STWing Residential Program Systems Administrator & College House Manager 2012–2015
	◦ 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
	◦ 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
	◦ Writing/editing lectures, quizzes, homework, projects; office hours, student advising.
Coursework	**GPGPU Fracture Physics Simulation in the Browser** (Nov 2014, pair, 1200 sloc): *JS, WebCL*.
	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. *JS*.
	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. *Rust*.
	rspt (Aug.-Sep. 2015, solo, 200 sloc): Very small, very basic path tracer. *Rust*.
	Elsie (Jul. 2014 onw., group, 3000 sloc): Online CPU architecture simulator/teaching tool. *JS*.
	Chickens (Jan. 2011 onw., group, 3400 sloc): Networked 2D platforming game with live-editable maps. Custom OpenGL GUI library and networking framework. *C#, OpenGL*.
Publications	Ninomiya, K., Kapadia, M., Shoulson, A., Garcia, F., and Badler, N.I. "Planning Approaches to Constraint-Aware Navigation in Dynamic Environments." *Comp. Anim. Virtual Worlds*, 2014. (Previous version available on website above.) May 2013–Sep. 2014
	◦ 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
	Oculorama: capture large real-world spaces and explore in immersive VR. *Team of 4*.
	Penn Play Game Jam: "Exploration" – Best Game Design Mar. 2014
	Invincible, a 2D physics-based cave exploration simulator. *Team of 2*.
	International Space Apps Challenge – Best Use of Hardware Apr. 2013
	ISS Base Station, Hardware/Software Public Art & Science Awareness Hack. *Team of 13*.
Skills	**Computer Languages**
	◦ Proficient: C, C++, HTML/CSS/JavaScript, C#, Python, TEX, Shell, Regular expressions.
	◦ Working knowledge: Rust, Haskell, Java, basic Verilog.
	Technologies
	◦ Proficient: Git/Mercurial, OpenGL 3.x, WebGL, Linux administration (Debian/Arch, Vim).
	◦ Working knowledge: CUDA, CMake, jQuery, Eigen, SQL, analog circuit analysis.