Jacob E. **Snipes**

mix(graphicsProgrammer, mechanicalEngineer, 0.5)

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Education

University of Pennsylvania School of Engineering and Applied Science *Philadelphia, PA*

Master of Science in Engineering, Computer Graphics & Game Technology *Exp. May 2019*

- **Notable Coursework:** Interactive Computer Graphics, Physically-Based Animation, Computer Animation, Game Design Practicum, Advanced Rendering, Advanced Topics in Computer Graphics, Independent Study: Applications of the Material Point Method

University of Pennsylvania School of Engineering and Applied Science *Philadelphia, PA*

Bachelor of Science in Engineering, Mechanical Engineering & Applied Mechanics, *Magna Cum Laude*, 3.70 / 4.00 overall *May 2018*

- **Minor:** Computer Science
- **Honors & Awards:** Dean's List 2015 - 2016, 2016 - 2017, 2017 - 2018; 2018 John Coulouvoundis Prize
- **Notable Coursework:** Advanced Dynamics, Fluid Mechanics, Solid Mechanics, Mechanics of Materials, Heat & Mass Transfer, Thermodynamics, Linear Algebra, Ordinary & Partial Differential Equations, Vibrations of Mechanical Systems, Data Structures & Algorithms

Skills & Interests

Software	Houdini, OpenGL, WebGL, Maya, Unity, Unreal, SolidWorks, AutoCAD, Qt, Git, MATLAB, Excel
Programming Languages	C++, GLSL, JavaScript, C#, Java, OCaml
Foreign Languages	French (Fluent), Japanese (Beginner)
Interests	Singing, Theatre, Trivia, Photography, Baking, Creative Writing, Video Games

Experience

University of Pennsylvania SIG Center for Computer Graphics *Philadelphia, PA*

Research Intern: Physically-Based Animation *May 2018 - Aug. 2018*

- Wrote physically-based wind simulator under Dr. Chenfanfu Jiang to interface with Unity VR data visualization project
- Built in C++ and rendered with Houdini
- Features: Species concentration advection, mass diffusion, reverse-time solver, travel time calculation, velocity field visualization, data I/O

Slothparadise *Remote*

AR Developer - Duel Monsters GO for HoloLens *Aug. 2017 - Dec. 2017*

- Created JSON card database, allowing game to automatically check card stats (type, attribute, level, etc.) via C# scripting
- Added support for ydk files using C#, allowing players to easily create custom decks

University of Pennsylvania *Philadelphia, PA*

3D Animator *May 2017 - Aug. 2017*

- Animated various real-world problems for use as teaching tools in Statics and Strength of Materials (MEAM 210) using Maya and SolidWorks
- Created videos in iMovie detailing 3D analysis of class's most difficult concepts using animation as a means of visualization
- Narrated videos, explaining the concepts to hundreds of students seeing them for the first time

Projects

Yuki

Elastoplastic simulator using the Material Point Method *Sep. 2018 - Dec. 2018*

- Built in C++ and rendered with Houdini in team of three
- Contributions: Fast Poisson disk sampling, tileable samples, Neo-Hookean & fixed corotated elasticity models, deformation gradient evolution, plastic deformation computation, rigid body collision

Hex

An original turn-based spellcrafting game *Oct. 2018*

- Created with C++ and Blueprints in Unreal Engine in team of three
- Contributions: Turn system, player-player interaction, crafting system, inventory system, spell reagents, original spells

LifeWatch

The first wearable auto-injector (Patent Pending) *Sept. 2017 - May 2018*

- Collaborated in team of six to design, test, and manufacture wearable auto-injector in watch-shaped profile
- Served as project manager, overseeing all areas of development: design, timeline, budget, external funding, and written communication
- Winner of First Prize at University of Pennsylvania's 2018 SEAS Senior Design Competition and 2018 M&T Summit; winner of Third Prize at 2018 BMEidea competition