

ZACHARY PETERSEN

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EDUCATION

University of California: Santa Cruz

Sep 2013 - Jun 2017

Bachelor of Science, Computer Science: Game Design

University College Cork, Ireland

Aug 2015 - Dec 2015

Semester abroad studying Computer Science

INTERESTS

Experimental Game Mechanics. AI in Games. AI as a Design Aide. Non-Photorealistic Rendering.

PROJECTS

Flora Surfing

Nov 2019 - Current

zachpetersendev.com/floraSurfing

- Game aiming to inspire player creativity by allowing the user to import external 3D geometry and traverse it with an engaging set of surfing mechanics.

Space Radio

Dec 2018 - Jan 2019

zacharypetersen.itch.io/space-radio

- Experimental prototype of *Planet Wars* exploring an alternative form of control. The player interacts with the game using a virtual telegraph which the computer interprets using Morse code.

Dravenwatch

Jan 2018 - Nov 2018

zacharypetersen.itch.io/dravenwatch

- Cross-genre prototype created to study player mechanics of the popular and commercially successful games *League of Legends* and *Overwatch*. Work involved the recreation of a character's top down MOBA mechanics into first person shooter mechanics.

Picar.io

Mar 2017

lexaloffle.com/bbs/?tid=30059

- A proof-of-concept multiplayer game for the Pico-8 virtual console based on Agar.io. It is the first large multiplayer game to be made for the Pico-8, capable of supporting 64+ simultaneous players. I wrote the server for this project.

Flora

Jan 2017 - Dec 2017

store.steampowered.com/app/733480/Flora

- Free-to-play real time strategy game featuring AI driven agents both commanded by and opposing the player. Game received over 45 thousand downloads from Steam. I served as project lead with a team of 9.

AI Assisted Puzzle Designer

Mar 2016

zachpetersendev.com/AI#puzzleDesigner

- Tool used to create levels for *Nathair* (see below). User defines a partial level, then AI generates a set of finished levels that fit the defined constraints.

Nathair

Aug 2015 - Dec 2015

zachpetersendev.com/nathair

- Introduced time rewind mechanic to *Snake* shifting its design paradigm from a twitch reaction game to a methodical puzzle game.

Seed

Dec 2014

zacharypetersen.itch.io/seed

- A proof-of-concept prototype created to demonstrate that gameplay mechanics can convey a message just like aesthetics. The player gathers resources from the ground to grow a tree, however their ability succeed is limited by oil contamination from drilling.

RESEARCH

Undergraduate Researcher

Mar 2015 - Jan 2017

*Learning and Experimental Economics Projects Lab**UC Santa Cruz*

- Assisted Professors Daniel Friedman, Eric Aldrich, and Kristian Lopez Vargas with the creation of an experiment on High Frequency Trading (https://cafin.ucsc.edu/research/work_papers/cafin_wp51.pdf). Built a networked stock market simulation for testing with human subjects to research behaviors and effects of High Frequency Traders. Wrote data visualization module, simulated latency system, and encoder/decoder for NASDAQ ITCH and OUCH protocol.
- Ran data analytics on a database of Steam community market transactions to search for trends that also appear in other modern markets.

Undergraduate Researcher

Sep 2016 - Dec 2016

*Generative Art Studio**UC Santa Cruz*

- Under the guidance of Professor Jim Whitehead, investigated generative art techniques and their applications in environmental conservation advocacy.
- Applied learnings to create generative artworks. (zachpetersendev.com/generativeArt)

TEACHING EXPERIENCE

Programming and Game Development Instructor

Summer 2016, 2017, 2018, and 2019

*iD Tech**Stanford, UC Berkeley, and CSU Sacramento*

- Planned and taught technology based courses to college-bound teenagers from around the world.
- Facilitated 7 student developer groups in the creation of Unreal Engine 4 games.

Computer Science TA

Feb 2019 - Oct 2019

*The Pegasus School**Huntington Beach, CA*

- Assisted teachers from a non-technical background with getting kids and teens involved in programming and robotics in the classroom.

Grader/Tutor, Foundations of Video Game Design

June 2016

*Department of Computational Media**UC Santa Cruz*

- Led group discussions on game design principles.
- Supervised group activities, engaged in playtest sessions and provided constructive feedback.
- Graded written assignments covering game design concepts.

PROFESSIONAL EXPERIENCE

Unreal Engine Curriculum Developer

iD Tech

Dec 2019 - Current

Sacramento, CA

- Write engaging content teaching the fundamentals of Unreal Engine 4.

Software Engineer Intern

Roblox Corporation

Jan 2018 - Apr 2018

San Mateo, CA

- Investigated and fixed visual bugs on Roblox's Xbox platform, a popular app with over 50 Million monthly active users.
- Built front end of new features such as voice chat toggle.

Creator / Graphics Programmer

Flexible Cel Shader

Jan 2018 - Mar 2018

Unity Asset Store

- Cel shader with color ramp generation and a preset save/load system to allow non-programmers and non-artists on small indie teams quickly create a stronger sense of atmosphere in their games.
- assetstore.unity.com/packages/vfx/shaders/flexible-cel-shader-112979

SKILLS

Languages

C++, C#, Java, Python, Lua, JavaScript

Software

Unity, UE4, Visual Studio, Google Compute Engine, Steamworks, Blender, Maya