

# FEDERICO SALDARINI

Computer Scientist | Software Engineer



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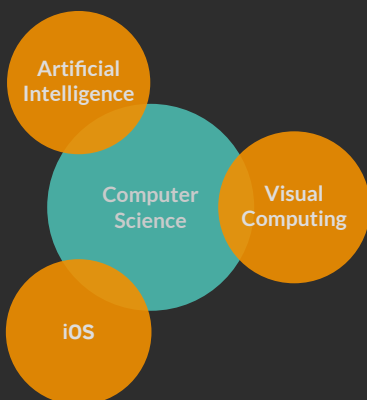


/in/federicosaldarini



saldavonschwartz

## Focus



## Languages

Python • C • C++ • Obj-C • C#

## Frameworks

• PyTorch • Numpy • SciPy  
• Eigen • glm • xtensor  
• OpenGL • OpenCV • matplotlib  
•  $\LaTeX$  • Jupyter • Unity  
• Unreal

## Publications

F. G. Saldarini,  
"Waveshaping: from csound to cocoa,"  
in *The Audio Programming Book*, 1st ed.,  
R. Boulanger and V. Lazzarini,  
Ed. Cambridge: The MIT Press,  
2010, DVD Ch. 34.

rev: 2020-04-21

## ABOUT

I am a computer scientist focused on **visual computing**, **artificial intelligence** and **interfacing with the physical world** and enjoy projects where these converge.

## EDUCATION

2011

B.S. Computer Science

Portland State University. Portland, OR.

### Relevant Coursework (for credit and audited)

- Artificial Intelligence
- Machine Learning
- Computer Graphics
- Computer Vision
- Parallel Computing
- ConvNets for Visual Recognition

## PROJECTS IN AI / VISUAL COMPUTING

### 🔗 Automatic Panoramas

Image registration based on automatic feature matching.

### 🔗 Deep Q-Network

An implementation of DeepMind's reinforcement learning paper, evaluated in OpenAI Gym.

### 🔗 Path Tracer

A GPU-accelerated path tracer.  
Work-in-progress.

### 🔗 GPUKit

A framework for implementing reconfigurable rendering pipelines in C++ / OpenGL.

### 🔗 NNKit

A Python framework for implementing dynamic neural networks.

### 🔗 Digits

A neural network classifier implemented in Python and deployed to iOS via Obj-C++ and OpenCV.

### 🔗 VRTeleport

A C++ plugin for VR locomotion in Unreal Engine.

## EXPERIENCE (Full-Time / Consultant)

### ■ 04/20 - Research Engineer

BID - Berkeley Institute of Design

Collaborating with a group of researchers from UC Berkeley's BID Lab on an authoring tool for XR environments, based on programming by demonstration.

### ■ 01/19 - Engine Engineer

Crystal Pier Software

Ported and extended C game from SDL 1.x to SDL 2.x. Prototyped a ECS engine in OpenGL/C++ to implement future versions of the game on.

### ■ 03/17 - Engine Engineer

Piper

Worked on general optimizations in a GL ES engine for Raspberry Pi.

### ■ 02/17 - VR Engineer / Co-Creator

RED Patterns • [Immersion Award, 45th FNC]

Implemented a room-scale VR experience in Unreal, including depth-captured environments and actors. Commissioned by SAT, Canada.

### ■ 11/16 - VR Engineer

Endless Riff

Rigged character models and optimized precomputed lighting in Unity virtual reality scenes.

### ■ 05/16 - VR Engineer

Boon VR

Prototyped medical training experiences integrating 360 video and interactive overlays in Unity / Unreal. Researched methods to reproject cg content onto 360 videos.

### ■ 02/16 - iOS + Bluetooth Engineer

Magic Instruments

Implemented a Bluetooth protocol and karaoke-style engine for iOS devices to interact with an experimental electronic guitar.

### ■ 08/15 - AR Engineer

Wiggle Planet

Worked on 3D transformation / projection code in a custom GL engine interfacing with Vuforia SDK in iOS.

### ■ 02/14 - iOS + Unity Engineer

Anki

Worked on native iOS game with robotic cars controlled by AI and humans via Bluetooth. Prototyped a system for communication between BLE stack, AI-planner and Unity.

### ■ 2012-2017 - iOS Engineer

Shyp • Shopular • Live Nation • Interview Cake  
Basic Space • Learnist • Nextive