FEDERICO SALDARINI

Computer Scientist | Software Engineer

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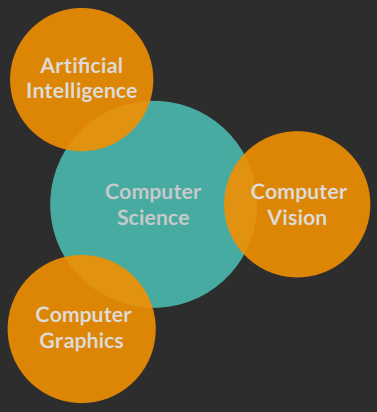
saldavonschwartz

Focus



Languages

Python • C • C++ • Obj-C • C#

Frameworks

- PyTorch • Numpy • SciPy
- Eigen • glm • xtensor
- OpenGL • OpenCV • matplotlib
- LaTeX • Jupyter • Unity
- Unreal • CUDA

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: 2020-05-13

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.

CUDA Path Tracer
A GPU-accelerated path tracer.

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**
Future Automation Research Lab, Cornell Tech
Collaborating with researchers from Cornell's FAR Lab on applying machine learning / vision to videos / images to extract statistics about COVID19-related social distancing practices.

■ **04/20 - Research Engineer**
Berkeley Instituate of Design, UC Berkeley
Collaborating with researchers from UCB's BID Lab on an authoring tool for XR environments based on programming by demonstration (PbD).

■ **01/19 - Engine Engineer**
Crystal Pier Software
Ported a 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 optimizations to 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 with depth-captured environments and actors.

■ **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 cg content in Unreal and Unity.

■ **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 in iOS.

■ **02/14 - iOS + Unity Engineer**
Anki
Implemented features on an iOS game with AI / Bluetooth-controlled cars. 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