FEDERICO SALDARINI

Computer Scientist | Software Engineer

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

Education

B.S. Computer Science
2011 Portland State University, OR.

Focus

- Artificial Intelligence
- Physical World
- Computer Vision
- Computer Graphics
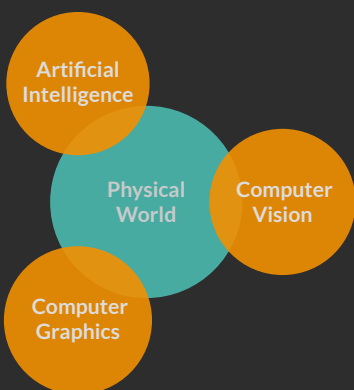
Languages

Python • C • C++ • Obj-C • C#

Frameworks

- Unity
- Unreal
- ARKit
- Eigen
- glm
- CUDA
- OpenGL
- OpenCV
- SciPy stack
- PyTorch

PROJECTS

☑ 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.

☑ RED Patterns
Immersion Award, 45th Festival du Nouveau Cinema.
VR experience in UE4 including depth-captured environments and actors.

RESEARCH

☑ Stephanie Claudino Daffara, Federico Saldarini, Balasaravanan Thoravi Kumar-avel, and Björn Hartmann. *AuthorIVE: Authoring Interactions for Virtual Environments through Disambiguating Demonstrations.* 2020. Master's thesis. EECS Department, University of California, Berkeley.

☑ 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.

EXPERIENCE

04/20 Present	**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 in NY City. **Berkeley Institute 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).
11/14 Present	**Consultant: VR / AR | Graphics / Vision | iOS** I've designed and implemented VR/AR experiences with Unity, Unreal, ARKit and Vuforia. I've also worked on custom engines in C++/GL/SDL and worked on projects interfacing with physical devices. Some of the companies I've worked with are: Crystal Pier Software • Piper • RED Patterns • Endless Riff • Boon VR • Magic Instruments • Wiggle Planet • Shyp • Shopular • Live Nation • Interview Cake Basic Space
02/14 10/14	**Software Engineer** Anki Worked across the full stack (native iOS, Bluetooth connectivity and C++ AI planner) of Anki Drive, an iOS game with physical robotic cars controlled by AI and humans. Also prototyped (and subsequently implemented in production, as part of a team) a system and Unity plug-in for communication between Bluetooth LE stack, AI-planner and Unity, in order to release subsequent versions of the game for both iOS and Android through a unified codebase.
01/13 02/14	**Lead Software Engineer, iOS** Learnist Lead a team of 4 engineers thru all aspects of the architecture and implementation of the Learnist iOS app.
05/12 12/12	**Software Engineer, iOS** Nextive /Globant Developed user-facing and business-logic features for mobile apps, including JP Morgan Chase's Mobile Banking and BlackHawk's GoWallet.