

# THEODORE STRICH

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## WORK EXPERIENCE

### Ford Audio/Video Systems

Phoenix, AZ

#### Control Systems Programmer

September 2024-current

- Designed and implemented both Frontend and Backend for A/V systems
  - used C#, .NET Framework, Python, in addition to A/V industry-specific tools (Crestron SIMPL, Q-SYS)
- Worked directly with high-profile customers to ensure their needs are met
- Responded to Jira tickets to keep existing systems working as expected

### Musician/Composer (freelance)

Tempe, AZ / Los Angeles, CA

May 2020-Present

- Award-winning classical, jazz, and game **composer and producer**
  - 2023 Sinta Quartet National Composition Competition, Game Audio Network Guild Scholar, 2024 USC Thornton New Music for Orchestra, Finalist for 2020 BMI Young Composer Awards
- Extensive experience as an independent **musician** and **project manager**
  - Worked as live **audio engineer** for recording sessions and live concerts at various venues
  - Coordinated and managed ensembles of 15+ musicians to put on live concerts and recording sessions

### Radius A.I.

Tempe, AZ

#### Data Science Intern

May 2023-July 2023

- Maintained and created applications used internally to manage large quantities of data
- Worked in existing Python codebases with **pandas** to improve data collection and management for machine learning datasets
  - Worked to extensively debug and refactor Github repos made by a previous team
- Optimized data collection and management scripts using pandas and dynamic programming
- Maintained a Github wiki and Notion pages for scripts, to provide documentation to other teams
- Optimized workflow with zsh/bash macros and scripts
- Produced visualizations of datasets with 900k+ entries and of application performance using **Matplotlib**
  - Script generated simulated convenience store transactions - visualized distribution of products across scenes
  - Visualized improvements at each step to showcase results

## TECHNICAL SKILLS

*Programming Languages* - C++, C, C#, Python, GLSL, Java, Lua

*Optimization* - Multithreading, Profiling, Custom Memory Allocation, SIMD, Dynamic Programming, Genetic Algorithms

*Networking* - OSI model, SQL, HTTPS, writing RESTful APIs

*Data Management* - Python pandas, Matplotlib visualizations, compression algorithms, various CLs and scripting

*Game Programming* - 2D/3D graphics and rendering, physics simulations, experience in Unity Engine, Godot Engine, Unreal Engine, SDL, and OpenGL, accustomed to working with a tight performance budget and hardware limitations

*Programming Paradigms* - Functional, Imperative, Object-Oriented programming

*Embedded Systems* - VHDL, SIMPL, QSYS Designer, Arduino projects

## PERSONAL PROJECTS

### Pixelguy Fighters

- Solo-developed** an indie fighting game in **Unity** using **C#**
- Designed and implemented all functionality of the game - player input, movement, physics simulation, combat mechanics, UI
- Trained a **neural net** using **reinforcement learning** and **Unity MLAgents** (based on PyTorch) to play the game and integrated this net into the final product as computer-controlled enemy
- Managed a small team of art and music collaborators for the game
  - Ran five recording sessions for the soundtrack with six live musicians
  - Worked with visual artist to create sprites for the game

### Other Game Projects

- Participated as programmer and composer for several game jam team projects
  - a rage platformer involving throwing ropes, a short physics-based demo for piloting a spacecraft, an endless top-down horde shooter
- Developed a mod for Minecraft in Java with new enemies and equipment

### Academic Projects

- Created both **compiler and emulator** using **C++** and **Bison** for a hypothetical simple computer: fifteen 32-bit registers with 3-color graphics
- Recreated seven different modern and retro games in **C++** including Portal, the original Super Mario Bros, Pac-Man, Frogger, Pong
  - Used **SDL** and **OpenGL** libraries
- Created a **REST Server** with a database of movies from IMDB data
- Created and ran an **SQL database** and server for OpenTibia

## EDUCATION

University of Southern California

Los Angeles, CA

Minor in Computer Programming / Bachelors of Music in Composition

August 2020-May 2024

GPA - 3.89

Relevant Classes: Professional C++, Data Structures in C++, Object-Oriented Programming in Java, Video Game Programming