

Hugo Flores García

email: hugggofloresgarcia@gmail.com

[check out my website!](#)

BIO

I perform research at the intersection of music, machine learning, and human computer interaction. I'm interested in building interfaces for musical expression, powered by deep learning.

EDUCATION

Northwestern University

Ph.D. in Computer Science

Evanston, IL

2020 - Present (expected 2025)

Georgia Southern University

B.S. in Electrical Engineering

Statesboro, GA

2016 - 2020

EXPERIENCE

Adobe Research

Research Intern

San Francisco, CA

2024.06 - 2025.02

- Advisors: Prem Seetharaman, Oriol Nieto, Justin Salamon. Sound generation via vocal imitations.

Descript

Research Intern

Remote

2022.09 - 2023.05

- Advisor: Prem Seetharaman. Music Generation with Masked Transformers.

Spotify

Research Intern, Audio Intelligence

Remote

2022.06 - 2022.09

- Advisors: Rachel Bittner and Jan Van Balen. Text-guided audio effects.

Northwestern University

Research Assistant, Interactive Audio Lab

Evanston, IL

2020.08 - present

- Advisor: Bryan Pardo. Deep Learning Systems for AI Music Co-Creation.

Audacity (Google Summer of Code)

Developer

Remote

2021.05-2021.09

- Source Separation and Extensible Deep Learning Tools

Georgia Southern University

Research Assistant

Statesboro, GA

2018.08 - 2020.05

- Advisor: Fernando Ríos. Accessible Digital Musical Instruments with EEG sensors.

SELECTED PUBLICATIONS

1. H. F. García, O. Nieto, J. Salamon, B. Pardo, and P. Seetharaman. Sketch2sound: Controllable audio generation via time-varying signals and sonic imitations. In *ICASSP*, 2025
2. H. Flores Garcia, P. Seetharaman, R. Kumar, and B. Pardo. Vampnet: Music generation via masked acoustic token modeling. In *ISMIR*, 2023
3. D. Flores García, H. Flores García, and M. Riondato. Clavenet: Generating afro-cuban drum patterns through data augmentation. In *Proceedings of the 19th International Audio Mostly Conference: Explorations in Sonic Cultures*, AM '24, page 355–361, New York, NY, USA, 2024. Association for Computing Machinery
4. H. Flores Garcia, P. O'Reilly, A. Aguilar, C. Benetatos, Z. Duan, and B. Pardo. Harp: Bringing deep learning to the daw with hosted, asynchronous, remote processing. In *7th Workshop on Machine Learning for Creativity and Design at NeurIPS 2023*, 2023
5. Y. Wang, H. F. García, and J. Choi. Few-Shot and Zero-Shot Learning for Music Information Retrieval. In *23rd International Society of Music Information Retrieval Conference*, 2022

6. H. Flores Garcia, A. Aguilar, E. Manilow, and B. Pardo. Leveraging hierarchical structures for few-shot musical instrument recognition. In *Proceedings of the 22nd International Society of Music Information Retrieval Conference (Best Paper Award)*, 2021
7. H. Flores Garcia, A. Aguilar, E. Manilow, D. Vedenko, and B. Pardo. Deep learning tools for audacity: Helping researchers expand the artist's toolkit. In *5th Workshop on Machine Learning for Creativity and Design at NeurIPS 2021*, 2021

ART INSTALLATIONS

Token Telephone

NIME 2024 Conference (Utrecht, NL), Experimental Sound Studio (Chicago, USA) 2024

Quadraphonic Interactive Neural Sound Installation. Collaboration with Stephan Moore. demo: <https://www.youtube.com/watch?v=vEaYoEgtSUo&t>

Salad Bowl

NeurIPS 2023 Creative AI 2023

Interactive Neural Sound Installation. Collaboration with Stephan Moore and Bryan Pardo.

SELECTED COMPOSITIONS

The Ritual - All in Good Time

exhibited at the Museum Folkwang in Essen, Germany Sept 2024

commissioned by Vietnamese media artist Ngoc Nau's for her 3-channel installation All in Good Time (2024).

world of mouth

premiered at Experimental Sound Studio, Chicago Feb 2024

8 channel fixed media composition. Sonic environments built by vocal gestures processed by a generative model. Featured in UNPOP exhibition at Burning Man 2024 and UNPOP REDUX at the University of Alberta's Sound Studies Institute Gallery.

confluyo yo

premiered at ISMIR 2023 in Milan, Italy November 2023

for tenor saxophone and a generative sound model.

flowerbeds

premiered at Channel Noise 2019 at Georgia Southern University 2019

audiovisual live coding.

SELECTED PERFORMANCES

StretchMetal's Drone Rodeo

the Hideout, Chicago March 2024

40 mins of improvised ambient with synths, electronics, neural networks (AudioStellar) and markov chains. full performance available at <https://www.youtube.com/watch?v=T6eGKgeG7o0>.

Chicago Creative Machines

Experimental Sound Studio, Chicago Feb 2024

improvisation with AudioStellar and bass guitar. full performance available at <https://www.youtube.com/live/Nfh1RH5k-bg?si=YeXQcjNr1NrtuqZ2&t=5001>.

OPEN SOURCE SOFTWARE

unloop

Developer 2023 - 2024

Unloop is a looper pedal in Max/MSP that uses generative modeling to not repeat itself.

See <https://github.com/hugofloresgarcia/unloop.html>.

HARP

Technical Lead

2023 - 2024

HARP is a sample editor that allows for hosted, asynchronous, remote processing of audio with machine learning. See <https://github.com/audacitorch/HARP.html>.

nesquik

Nesquik is a vampnet-based audio effect that will transform any instrumental music audio into an “8-bit”, NES-style chiptune. See <https://huggingface.co/spaces/hugggof/nesquik>.

Audacity (Audio Editor)

Developer

2021 - 2022

Contributed a software framework that lets deep learning practitioners easily integrate their own PyTorch models into the open-source Audacity DAW. This lets ML audio researchers put tools in the hands of sound artists without doing DAW-specific development work.

See <https://interactiveaudiolab.github.io/project/audacity.html>.

torchopenl3

A PyTorch port of the OpenL3 audio embedding model.

Used as class materials for [CS 352 - Machine Perception of Music and Audio](#)

See <https://github.com/hugofloresgarcia/torchopenl3>.

Philharmonia Dataset

PyTorch dataset bindings for the Philharmonia Orchestra sound samples.

Used as class materials for [CS 352 - Machine Perception of Music and Audio](#)

See <https://github.com/hugofloresgarcia/philharmonia-dataset>.

TALKS

The Voice is the Interface and Other Techniques for VampNet

Bay Area Signal Hackers (BISH) BASH

August 1 2024

Compositional Techniques for VampNet

AI Music Reading Group, MIT Media Lab

April 15 2024

generative sound for the sonic arts!

Chicago Creative Machines, Experimental Sound Studio

Feb 25 2024

writing about music is like dancing about architecture!

GLASS Human-Centered AI Music Symposium, Northwestern University

Jan 26 2024

VampNet: Music Generation via Masked Transformers

Spotify MIQ Reading Group

September 6 2023

Deep Learning for Music Interfaces

Universidad Nacional Autónoma de México (UNAM)

April 6 2022

Leveraging Hierarchical Structures for Few-Shot Musical Instrument Recognition

ISMIR 2021

November 9 2021

Deep Learning Tools For Audacity: Helping Researchers Expand the Artist's Toolkit

Bay Innovative Signal Hackers (BISH) Bash

October 27 2021

Deep Learning Tools For Audacity: Helping Researchers Expand the Artist's Toolkit

Neural Audio Synthesis Hackathon (NASH) Workshop

December 12 2021

HONORS AND AWARDS

ICASSP Outstanding Reviewer Award

ICASSP 2023

2023

Best Paper Award - Leveraging Hierarchical Structures for Few Shot Musical Instrument Recognition

ISMIR 2021

2021

Cognitive Science Fellowship

Northwestern University

2020 - 2021

Lewis and Charlene Stewart Jazz Scholarship

Georgia Southern University

2016 - 2020

Coastal Jazz Scholarship

Coastal Jazz Association

2019

Undergraduate Research Grant

Georgia Southern University

2018

Honors Program 1906 Scholarship

Georgia Southern University

2016-2020

SKILLS

- **Programming Languages** - *Expert:* Python, C/C++, *Intermediate:* Javascript, Lua (norns)
- **Machine Learning** - *Expert:* PyTorch, libtorch, Scipy, Numpy, Scikit-learn
- **Creative Coding** - *Expert:* SuperCollider, Max/MSP/Jitter, *Intermediate:* OpenFrameworks, P5js, Pure-Data, JUCE
- **Music Production** - Logic Pro, Avid ProTools
- **Languages** - I can read/write/speak English and Spanish natively.

TEACHING

Instructor

Northwestern University

Spring 2024

Computing Everywhere. Human-Computer Interfaces for Musicking (with Annie Chu)

Instructor

Northwestern University

Winter 2024

Computing Everywhere Workshop. Generative AI (with Julia Barnett)

Teaching Assistant

Northwestern University

Spring 2022

COMP_SCI 497 – Digital Musical Instrument Design

Teaching Assistant

Northwestern University

Fall 2021

EECS 349 – Intro to Machine Learning

Teaching Assistant

Georgia Southern University

2018 - 2019

Electric Circuit Analysis

SERVICE	
Reviewer <i>ISMIR 2024</i>	2024
Reviewer <i>ICASSP 2023</i>	2023
Reviewer <i>CHI 2023</i>	2023
Reviewer <i>ICASSP 2022</i>	2022
Board Member <i>Latin@CS - Northwestern University</i>	Fall 2021