

Hugo Flores García

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[Website](#) // [Google Scholar](#) // [GitHub](#)

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 Evanston, IL
Ph.D. in Computer Science 2020 - Present (expected 2025)

Georgia Southern University Statesboro, GA
B.S. in Electrical Engineering 2016 - 2020

EXPERIENCE

Descript Remote
Research Intern 2022.09 - 2023.05
• Advisor: Prem Seetharaman

Spotify New York, NY
Research Intern, Audio Intelligence 2022.06 - 2022.09
• Advisors: Rachel Bittner and Jan Van Balen

Northwestern University Evanston, IL
Research Assistant, Interactive Audio Lab 2020.08 - present
• Advisor: Bryan Pardo

Audacity (Google Summer of Code) Remote
Developer 2021.05-2021.09
• Source Separation and Extensible Deep Learning Tools

Georgia Southern University Statesboro, GA
Research Assistant 2018.08 - 2020.05
• Advisor: Fernando Ríos

SCIENTIFIC PUBLICATIONS

1. H. Flores Garcia, P. Seetharaman, R. Kumar, and B. Pardo. Vampnet: Music generation via masked acoustic token modeling. In *ISMIR*, 2023
2. 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
3. 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
4. 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
5. 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

ART INSTALLATIONS

Salad Bowl

NeurIPS 2023 Creative AI

2023

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

SELECTED COMPOSITIONS

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. accepted at Sound and Music (SMC) Conference 2024 in Porto, Portugal.

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.

OPEN SOURCE SOFTWARE

unloop

Developer

2023 - Present

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

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

HARP

Lead Developer

2023 - Present

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/huggof/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

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
- **Machine Learning** - *Expert:* PyTorch, Scipy, Numpy, Scikit-learn, TensorFlow
- **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 proficiently.

TEACHING

Instructor

Northwestern University

Spring 2024

Human-Computer Interfaces for Musicking (with Annie Chu)

Instructor

Northwestern University

Winter 2024

Computing Everywhere - Topic: 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

ICASSP 2023

2023

Reviewer

CHI 2023

2023

Reviewer

ICASSP 2022

2022

Board Member

Latin@CS - Northwestern University

Fall 2021