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

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

EXPERIENCE

Adobe Research — San Francisco, CA
Research Intern — *2024.06 - 2025.02*
- Advisors: Prem Seetharaman, Oriol Nieto, Justin Salamon. Sound generation via vocal imitations.

Descript — Remote
Research Intern — *2022.09 - 2023.05*
- Advisor: Prem Seetharaman. Music Generation with Masked Transformers.

Spotify — Remote
Research Intern, Audio Intelligence — *2022.06 - 2022.09*
- Advisors: Rachel Bittner and Jan Van Balen. Text-guided audio effects.

Northwestern University — Evanston, IL
Research Assistant, Interactive Audio Lab — *2020.08 - present*
- Advisor: Bryan Pardo. Deep Learning Systems for AI Music Co-Creation.

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. 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

unsound objects
premiered at CLEAT series in Chicago, IL, USA *March 2025*
for text-prompted generative neural network and 8-channel digital mixer. published at ICMC 2025.

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 their 3-channel video installation All in Good Time (2024). OP-1, electronics, and RAVE models. Released with 1473 Records.

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

ICMC 2025
Boston, MA *June 10th 2025*
Improvisation with my generative text-to-sound instrument, unsound objects.
See https://www.hugofloresgarcia.art/interfaces#unsound-objects

Boston AI Music Meetup 2025
Boston, MA *April 2025*
Improvisation with my generative text-to-sound instrument, unsound objects.

CLEAT
Elastic Arts Chicago, Chicago *March 2025*
Improvisation with my generative text-to-sound instrument, unsound objects.

Improvised Music Series

Elastic Arts Chicago, Chicago *November 2024*
Improvisation with augmented/prepared guitar, electronics, and AudioStellar and RAVE models.

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/NfhlRH5k-bg?si=YeXQcjNr1NrtuqZ2&t=5001.

ISMIR 2024
Politecnico Di Milano, Italy *Nov 2023*
performed "confluyo yo" with Bryan Pardo, as part of ISMIR 2024's music program.

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

Controllable and Expressive Generative Modelling for the Sound Arts
UCSD *April 8 2025*

Controllable and Expressive Generative Modelling for the Sound Arts
MIT CSAIL Invited HCI Seminar *April 8 2025*

Controllable and Expressive Generative Modelling for the Sound Arts
Boston AI Music Meetup *April 10 2025*

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, PureData, 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
ISMIR 2024 *2024*

Reviewer
ICASSP 2023 *2023*

Reviewer
CHI 2023 *2023*

Reviewer
ICASSP 2022 *2022*

Board Member
Latin@CS - Northwestern University *Fall 2021*