# 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 - 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

**Thalia Hall**
*Chicago, IL* *July 9th 2025*
With Cabeza de Chivo, supporting Son Rompe Pera. See https://www.cabezadechivo.com

**Empty Bottle**
*Chicago, IL* *June 13th 2025*
With Cabeza de Chivo (EP Release). See https://www.cabezadechivo.com

**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*