Christopher **ICK**

New York University 2017 | BS Physics
New York University 2025 | PhD Data Science

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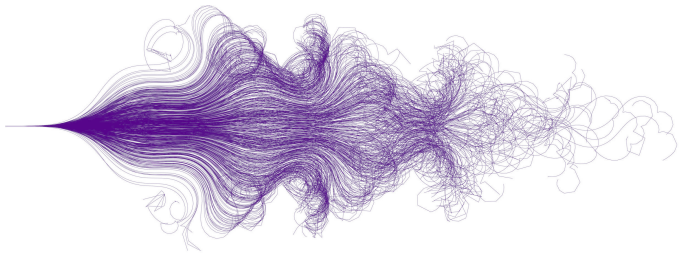

I am a researcher currently finishing my PhD at NYU's Music and Audio Research Lab (MARL) via NYU's Center for Data Science. I've done some work in astrophysics and neurobiology, but most of my PhD has been spent contributing methods in spatial audio, acoustic simulation, and signal processing for machine learning. I'm currently pursuing full-time research roles.

Education

May 2025 (Anticipated) **Doctor of Philosophy**, Data Science, New York University
- Advised by Prof. Brian McFee, Music and Audio Research Lab (MARL)
- Coursework in Deep Learning, Recommender Systems, Time Series Analysis, MIR
- Transfer from Masters in Data Science Program

May 2017 **Bachelor of Science**, Physics, New York University
- Minors : Computer Science / Math
- Dean's List, Graduated with Honors

Publications

- Y. Masuyama, G. Wichern, F.G. Germain, **C. Ick**, J. Le Roux, "Retrieval-Augmented Neural Field for HRTF Upsampling and Personalization," *IEEE ICASSP*, 2025
- R.E. Peterson, A. Tanelus, **C. Ick**, et al. "Vocal Call Locator Benchmark (VCL) for localizing rodent vocalizations from multi-channel audio," *NeurIPS*, 2024
- I.R. Roman*, **C. Ick***, et al. "Spatial Scaper : A Library to Simulate and Augment Soundscapes for Sound Event Localization and Detection in Realistic Rooms," *IEEE ICASSP*, 2024
- **C. Ick**, B. McFee, "Leveraging Geometrical Acoustic Simulations of Spatial Room Impulse Responses for Improved Sound Event Detection and Localization, " *DCASE Workshop*, 2023
- **C. Ick**, A. Mehrabi, and W. Jin, "Blind Acoustic Room Parameter Estimation Using Phase Features, " *IEEE ICASSP*, 2023
- M. Hübner, D. Huppenkothen, P. Lasky, A. Inglis, **C. Ick**, and D. Hogg, "Searching for quasi-periodic oscillations in astrophysical transients using Gaussian processes," *The Astrophysical Journal*, 2022
- L. Bondi*, G. Chuang*, **C. Ick***, A. Dave*, et al.; "Acoustic Imaging aboard The International Space Station (ISS) : Challenges and preliminary results," *IEEE ICASSP*, 2022
- **C. Ick** and B. McFee, "Sound Event Detection in Urban Audio with Single and Multi-Rate PCEN," *IEEE ICASSP*, 2021

Workshops and Presentations

- **C. Ick**, G. Wichern, Y. Masuyama, F.G. Germain, J. Le Roux, "Spatially-Aware Losses for Enhanced Neural Acoustic Fields," *Audio Imagination Workshop, NeurIPS*, 2024
- M. Buisson*, **C. Ick***, Q. Xi, B. McFee, "Zero-Shot Structure Labeling with Audio and Language Model Embeddings," *Late Breaking Demo, ISMIR*, 2024
- **C. Ick** and V. Lostanlen, "Learning a Lie Algebra from Unlabeled Data Pairs," *Deepmath Conference*, 2020

*Equal contribution

Ongoing Work

Spatial RIR Interpolation	Learning continuous multichannel RIR representations from limited measurements
Musical Segmentation	Utilizing joint text-audio semantic representations and LLMs to segment music
Spatial RIR Disentanglement	Disentangling elements of SRIRs for localization and spatial understanding
Dissertation Writing	Writing my dissertation

Honors and Awards

- **2024** Winner : Listener Acoustic Personalisation (LAP) Challenge
- **2019** Urban Scholars Research Fellowship (NYU)
- **2018** DeepMind Fellowship
- **2016** Dean's Undergraduate Research Fund (3x)
- **2015** Sigma Pi Sigma Inductee, Dean's Undergraduate Research Fund (2x)

Professional Experience

December 2024 – June 2024
Mitsubishi Electric Research Laboratories, Cambridge, MA
Research Intern
Advisors : Gordon Wichern, Yoshiki Masuyama, François Germain, Jonathan Le Roux
Developing neural acoustic fields based methods incorporating novel approaches for improved spatial characteristics (*Early results presented at NeurIPS 2024 Audio Imagination Workshop, accepted to IEEE ICASSP 2025, additional publication pending).*

August 2022 – June 2022
Sonos, Boston, MA
Advanced Technology Intern
Advisors : Wenyu Jin, Adib Mehrabi
Developed algorithms and datasets for blind room parameter estimation w/ CNNs for use in smart speaker technologies (*Results published in ICASSP 2023*)

August 2021 – May 2021
Robert Bosch LLC, Pittsburgh, PA
Audio AI Intern
Advisors : Luca Bondi, Samarjit Das
Designed dynamical acoustic simulations for replicating audio imaging experiments onboard the international space station (*Results published in ICASSP 2022*)

August 2019 – May 2019
Amazon Music, San Francisco, CA
Applied Scientist Intern
Advisors : Emile Richard, Katherine Ellis, Gert Lanckriet
Developed algorithms for cover song detection in the Amazon Music catalog, improving recall by over 60%

September 2018 – May 2017
NYU Physics Department, New York, NY
Junior Research Associate
Advisors : David Hogg, Kyle Cranmer
Developed Gaussian process models for estimating solar flare oscillations and low-count dark matter detection experiments (*Results published in Astrophysics Journal 2022*)

May 2017 – December 2014
Undergraduate Researcher, Kent Lab of Mesoscopic Magnetism, New York, NY
Undergraduate Researcher
Developed and optimizing a simulation of macrospin-orbit dynamics via numerical ODE solutions, imaged magnetic skyrmions using magnetic force microscopy

Teaching Experience

May 2024 – September 2016
New York University, New York, NY
Teaching Assistant
- **How Things Work** (Fall 2023, Spring 2024)
- **Data Science for Everyone** (Fall 2019)
- **Intro to Experimental Physics II** (Spring 2019)
- **Quarks to Cosmos** (Fall 2018)
- **Advanced Experimental Physics** (Fall 2016, Spring 2017, Fall 2017, Spring 2018)

August 2023 – May 2023 | NYU Music and Research Lab, Brooklyn, NY

REU Mentor

Mentored a visiting undergraduate in developing, researching, and presenting a research project on spatial audio annotation and visualization

ARISE Mentor

Mentored a visiting high-school student in introductory python, 3D data processing, and visualization

May 2017 – September 2014 | NYU Physics Department, New York, NY

Adjunct Undergraduate Instructor

Taught groups of students entry-level kinematics, electricity and magnetism, optics, thermodynamics, fluid dynamics, and other physics subjects

Personal Interests

Exercise :	Road Cycling/Cyclocross, Rock Climbing, Snowboarding, Scuba Diving
Technology :	Self-hosted media/networking server, DIY electronics, Super Smash Bros. Melee
Artistic :	Film photography, Synthesizers, Classical and Jazz piano
Community :	Greene Hill Food Co-op Owner/Member, Jane Bailey Community Garden Events Committee