

Ilaria Manco

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Statement

I am a 4th-year PhD student in AI and Music, working on multimodal learning for music understanding. My research focuses on developing audio-and-language models for self-supervised representation learning with applications to the music domain. I am also interested in exploring multimodal learning in generative models for creative audio applications.

Education

Queen Mary University of London Sep 2019 – present

PhD, Artificial Intelligence & Music

Research Topic: Bridging audio and language for music understanding via multimodal deep learning

Imperial College London Oct 2014 – Jun 2018

MSci, Physics

Selected modules: Computational Physics, Statistical Mechanics, Complexity & Networks, Quantum Information, Computational Neuroscience, Information Theory, Advanced Machine Learning

Experience

Google DeepMind Nov 2023 - present

Student Researcher

Student researcher in the Magenta team. Hosts: Antoine Caillon and Ethan Manilow.

Adobe Jul 2023 - Oct 2023

Research Scientist / Engineer Intern

PhD research internship in the Audio Research Group. Advisors: Oriol Nieto and Justin Salamon.

Sony Jul – Oct 2022

Research Scientist Intern

Developed and evaluated a model for generating musical accompaniment via discrete diffusion conditioned on audio and lyrics. Advisors: Marco Martínez and Wei-Hsiang Liao.

Quantexa Oct 2018 – Sep 2019

Data Scientist

Designed and built data models for network analytics with applications to fraud detection, risk scoring and transaction monitoring. Implemented data pipelines for distributed data processing.

Iris.ai Jul – Aug 2018

Research Intern

Developed a novel word sense disambiguation model to improve the natural language understanding pipeline used in production.

Selected Publications

Manco, I., Weck, B. et al. *The Song Describer Dataset: a Corpus of Audio Captions for Music-and-Language Evaluation*. Machine Learning for Audio Workshop at NeurIPS, 2023

Manco, I., Benetos, E., Quinton, E., & Fazekas, G. *Contrastive Audio-Language Learning for Music*. 23rd International Society for Music Information Retrieval Conference (ISMIR), 2022

Manco, I., Weck B., Tovstogan P., Won M. & Bogdanov D. *Song Describer: a Platform for Collecting Textual Descriptions of Music Recordings*. ISMIR Late-breaking/Demo, 2022

Manco, I., Benetos, E., Quinton, E., & Fazekas, G. *Learning Music Audio Representations via Weak Language Supervision*. International Conference on Acoustics, Speech, & Signal Processing (ICASSP), 2022

Manco, I., Benetos, E., Quinton, E., & Fazekas, G. *MusCaps: Generating Captions for Music Audio*. International Joint Conference on Neural Networks (IJCNN), 2021

Projects	<i>Word2Wave: a Framework for Text-to-Audio Generation</i>	
	A simple method for text-controlled audio generation with WaveGAN and audio-text embeddings	
	<i>Spatial Scaling in Human Mobility Models (Master's Thesis)</i>	
	Study of spatial interactions via modelling and analysis of human flows using simulation and data-based approaches. Includes a framework for hierarchical clustering of spatial data	
Languages & Skills	Italian (native), English (fluent), Spanish (conversational)	
	Python (PyTorch, NumPy, SciPy, pandas, Matplotlib, librosa), Git, AWS, Scala (prior experience)	
Awards & Scholarships	Enrichment Scheme, The Alan Turing Institute	2021
	Offered a place on the programme and awarded a stipend top-up	
	DLRL Summer School, CIFAR and Mila	2020
	Selected to attend the Deep Learning Reinforcement Learning Summer School	
	Travel Grant, Women in Machine Learning (WiML)	2020
	Received funding from WiML to attend ICML 2020	
	PhD Studentship, UK Research and Innovation (UKRI)	2019
	Awarded a full studentship for a 4-year PhD at the CDT in Artificial Intelligence and Music	
	Best Research Proposal, Imperial College London	2018
	Awarded the 1 st prize for a team project on Quantum Key Distribution	
Invited Talks	Universal Music Group “Music & Language Models”	
	Sony R&D “Contrastive Audio-Language Learning for Music”	
	Singapore University of Technology & Design “Bridging Audio and Language to Improve Automatic Music Understanding”	
	Neural Audio Synthesis Workshop “Text-guided Audio Generation with Word2Wave”	
	Intelligent Sensing Winter School “Learning Music Audio Representations via Weak Language Supervision”	
Activities & Service	Sponsorship Co-chair ISMIR 2023	2023
	Program Co-chair 2nd Workshop on Human-Centric Music Information Research	2023
	Reviewer ICASSP, ISMIR, WASPAA, EURASIP, ICLR (workshop)	
	Co-organiser Italian Music Tech Meetup	2022-present
	Master's Project Co-supervisor Multimodal Zero-Shot Learning for Music	2022
	Student Demonstrator Postgraduate Machine Learning module (ECS708P)	2020
	Co-organiser Digital Music Research Network (DMRN)	2020
	Seminar Organiser Centre for Digital Music (C4DM) at QMUL	2019-2023