

Victor Shepardson

victor-shepardson.github.io

Researcher
Developer
Musician

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Education

University of Iceland / PhD student, Cultural Studies

September 2021 - present, Reykjavík, Iceland

In a joint arrangement with the Intelligent Instruments Lab at the Iceland University of Arts. Research in new instruments for musical expression and phenomenology of AI.

Dartmouth College / MA, Digital Musics

September 2014 - June 2016, Hanover, NH, USA

Coursework including computer music composition, animation, psychoacoustics, music information retrieval, data visualization, machine learning and deep neural networks. Live sound and performance in the contemporary music ensemble.

University of Virginia / BA, Computer Science

August 2010 - May 2014, Charlottesville, VA, USA

Highest distinction, Phi Beta Kappa. Undergraduate thesis on texture synthesis in computer graphics. Advanced coursework in computer music, computer graphics, and programming languages.

Work

Freelance Creative Software Developer

2014 - Present

- ⇒ Generative MIDI software for magnetic resonator piano in *The Light Comes in the Name of the Voice*, a 2024 installation and concert series by Arca at Bourse de Commerce in Paris, with Jack Armitage
- ⇒ Software development and model training for *Tungnaá*, a musical instrument with Jonathan Reus
- ⇒ Software, sound design and installation for *Pond Brain*, a work by Jenna Sutela in two versions for Copenhagen Contemporary and the 2023 Helsinki Biennial
- ⇒ Speech-synthesis software and installation for *Deviant Chain*, a concert installation with Stefan Maier and Alan Segal at Ultima Festival 2019 in Oslo
- ⇒ Contract data science work for software security and mobile app startups from 2017-2018
- ⇒ Max/MSP speech-to-control voltage converter for Max Eilbacher
- ⇒ Generative video software for the Synesthesia music visualizer licensed to platform and individuals
- ⇒ Concert telephony system for Nathan Davis's composition *a Sound uttered, a Silence Crossed* (2014)

Machine Learning Engineer

Ntrepid, 2019 - 2021, Herndon, VA

Research & development of deep neural text-to-speech and vocoding systems. Reproduced and extended state-of-the art generative models methods using PyTorch.

Teaching Assistant

Dartmouth College, 2015 - 2016

University of Virginia, 2012 - 2014

Grading and office hours for courses in Machine Learning, Sonic Arts, Computer Architecture, Discrete Math, Algorithms, and Computer Graphics. Live sound for numerous musical performances.

Research Intern

Arqball LLC, 2013, Charlottesville, VA

Researched algorithms and in-browser deployment for editing 360° product photography.

Publications

- Armitage, J., and **Shepardson, V.**, 2024. Augmenting the Expressivity of the Notochord Generative MIDI Model for Arca's "The Light Comes in the Name of the Voice" Magnetic Resonator Piano Installation. In *Artificial Intelligence and Music Creativity*.
- Shepardson, V.**, Reus, J. and Magnusson, T., 2024. Tungnaá: a Hyper-realistic Voice Synthesis Instrument for Real-Time Exploration of Extended Vocal Expressions. In *Proceedings of the International Conference on New Interfaces for Musical Expression*.
- Privato, N., **Shepardson, V.**, Lepri, G. and Magnusson, T., 2024. Stacco: Exploring the Embodied Perception of Latent Representations in Neural Synthesis. In *Proceedings of the International Conference on New Interfaces for Musical Expression*.
- Skach, S., **Shepardson, V.** and Magnusson, T., 2024. About TIME: Textile Interfaces for Musical Expression. In *Proceedings of the International Conference on New Interfaces for Musical Expression*.
- Armitage, J., **Shepardson, V.**, Crozzoli, M. and Magnusson, T., 2024, July. Commingling Artificial Life and Interactive Machine Learning in Diffractive Artistic Research Practice. In *ALIFE 2024: Proceedings of the 2024 Artificial Life Conference*.
- Armitage, J., Privato, N., **Shepardson, V.**, & Gutierrez, C. B. 2023. Explainable AI in Music Performance: Case Studies from Live Coding and Sound Spatialisation. *XAI in Action: Past, Present, and Future Applications*.
- Pierce, E., **Shepardson, V.**, Armitage, J., & Magnusson, T. 2023. Bela-IREE: An Approach to Embedded Machine Learning for Real-Time Music Interaction. *AIMC 2023*.
- Shepardson, V.** and Magnusson, T. 2023. The Living Looper: Rethinking the Musical Loop as a Machine Action-Perception Loop. *International Conference on New Interfaces for Musical Expression*.
- Shepardson, V.**, Armitage, J., & Magnusson, T. 2022. Notochord: a Flexible Probabilistic Model for Embodied MIDI Performance. *Artificial Intelligence and Music Creativity*.
- Franzson, D. B., **Shepardson, V.**, & Magnusson, T. 2022. Autocoder: a Variational Autoencoder for Spectral Synthesis. *Proceedings of the International Computer Music Conference*.
- Armitage, J., Magnusson, T., **Shepardson, V.** and Ulfarsson, H., 2022. The Proto-Langspil: Launching an Icelandic NIME Research Lab with the Help of a Marginalised Instrument. *International Conference on New Interfaces for Musical Expression*.
- Shepardson, V.**, 2016. Audiovisual Synthesis with ABSTRACT/CONCRETE. *Proceedings of the 4th International Workshop on Musical Metacreation (MuMe 2016)*

Talks

- Haizebegi Festival Abaola, Pasaia, October 2024
Presentation and demo *Learning AI With Txalaparta / Aprendiendo IA con Txalaparta*
- Ohio State University March 2024
Talk with Sophie Skach on the Intelligent Instruments Lab and the e-textiles no-input mixer
- Knit Futures Kent State University, March 2024
With Sophie Skach, demonstration on the e-textiles no-input mixer
- Sonic Arts Research Center Queen's University Belfast, November 2023
Talk with Franziska Schroeder and Federico Reuben, on improvisation with neural audio synthesis
- New Interfaces for Musical Expression Centro de Cultura Digital, Ciudad de México, June 2023
Presentation on *The Living Looper: Rethinking the Musical Loop as a Machine Action-Perception Loop*
- Hugarflug Research Festival Iceland University of Arts, Reykjavík, February 2023
Panelist in a discussion of AI and the art world
- Embodied AI Workshop, University of Oslo and online, November 2022
Short talk about the lived experience with AI, MIDI models, and micro-phenomenology
- AI Music Creativity online, September 2022
Presentation on *Notochord: A Flexible Probabilistic Model for Embodied MIDI Performance*

Ómar Festival Verksmiðjan Hjalteyri, Iceland, July 2022
Workshop demonstrating the Proto-Langspil, performance with festival attendees

Moving Strings Symposium Iceland University of Arts and online, December 2021
Talk with live demonstration of no-input mixing board and SuperCollider

Hybrid Live Coding Interfaces online, November 2021
Presentation on *Sound Seed Automata*, a SuperCollider interface for programming sound with sound

Musical Metacreation Workshop at ICCC Pierre and Marie Curie University, Paris, June 2016
Presentation on *Audiovisual Synthesis with ABSTRACT/CONCRETE*

Academics

Reviewer, Routledge Book Proposal, 2024
Reviewer, Tangible and Embodied Interfaces 2024
Reviewer, New Interfaces for Musical Expression 2024
Reviewer, Transactions on Computer-Human Interaction, 2023
Area Chair, Artificial Intelligence and Music Creativity 2023
MS Thesis External, Karl Jóhannsson, University of Reykjavík Computer Science, 2023
Workshop Organizer, New Interfaces for Musical Expression 2022
MS Thesis External, Kim Cosmo Ström, University of Iceland Computer Science, 2022
Reviewer, Nordic Sound and Music Computing 2021

Concerts / Installations

Snjallfiðlutónleikar @ Mengi, Reykjavík 2024. Computer and archives with Halla Steinunn Stefánsdóttir
IIL Diffractive Sonic Dialogues @ Mengi, Reykjavík 2024. Tabletop guitar and Living Looper with IIL
Auto Eater Aether Theater @ R6013, Reykjavík 2024. No-input mixers and software with Gianluca Elia
ErkiTið Festival, Reykjavík 2023. Living Looper with Intelligent Instruments Ensemble
Textile Intersections, Loughborough University, London 2023. No-input textiles with Sophie Skach
Notochord Arcs & Scrambled Signals @ AIMC, University of Sussex 2023. With Nicola Privato
Ómar Festival @ Verksmiðjan Hjalteyri 2023. Living Looper and guitar with Thor Magnusson
Organic Intelligence @ Hallgrímskirkja, 2023. *Associative Memories* for MIDI church organ and archives
Living Art Museum, Reykjavík 2023. Sonic batons with Majella Clarke and Nicola Privato
Living Loops @ Mengi, Reykjavík 2022. Improvisation with guitarists and Living Looper
Vic & Bob @ Mengi, Reykjavík 2022. Laptop, no-input mixer and modular duo with Bob Hermit
INNI showcase @ Iceland Airwaves, Reykjavík 2022. Jam with Intelligent Instruments Lab members
Ómar Festival @ Verksmiðjan Hjalteyri 2022. Proto-langspil group improvisation
Sonic Fluidities, UCSD (remotely) 2018. Video projection for Clara Latham/New Pope keynote
DAX 2016, Dartmouth College, *Halting Problem* for Turing machines, TVs and speakers
ICMC 2015, Denton TX, *Studies In Being Alive I-III* for fixed media