

Christoph Finkensiep

Institute for Logic, Language and Computation (ILLC)
Faculty of Humanities
University of Amsterdam
The Netherlands

✉ c.finkensiep@uva.nl
🔗 orcid.org/0000-0002-7002-6586
🐙 github.com/chfin
📄 Christoph Finkensiep

Education

- 2017–2023 **PhD**
Digital and Cognitive Musicology Lab (DCML)
ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, Switzerland
- 2014–2017 **M. Sc.** in Cognitive Science
UNIVERSITY OF OSNABRÜCK, Germany
- 2010–2014 **B. Sc.** in Computer Science
UNIVERSITY OF PADERBORN, Germany
- Fall 2012 Exchange Semester
UNIVERSITY OF HELSINKI, Finland
- 2010 **Abitur**
GYMNASIUM HORN-BAD MEINBERG, Germany

Theses

- 2022 “The Structure of Free Polyphony”
PhD Thesis
Supervisor: Martin Rohrmeier (EPFL)
- 2017 “A Formal Model of Voice Leading”
Master Thesis
Supervisors: Kai-Uwe Kühnberger (UNIVERSITY OF OSNABRÜCK),
Martin Rohrmeier (TU DRESDEN)
- 2014 “Fast and Flexible Automatic Composition of Semantic Web Services”
Bachelor Thesis
Supervisor: Hans Kleine Büning (UNIVERSITY OF PADERBORN)

Employment

- since 2023 UNIVERSITY OF AMSTERDAM
Assistant Professor in Generative AI in the Arts
Institute for Logic, Language and Computation; Faculty of Humanities
- ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE
- 2022–2023 Postdoctoral Researcher
- 2017–2022 Doctoral Assistant
Digital and Cognitive Musicology Lab
- 2017 TECHNICAL UNIVERSITY DRESDEN
Student Assistant
Dresden Music Cognition Lab
- 2015–2017 PROTESTANT CHURCH OF LADBERGEN
Director of Brass Ensemble
- 2013–2014 UNIVERSITY OF PADERBORN
Teaching Assistant *Introduction to Programming for Engineers*
- 2011–12 UNIVERSITY OF PADERBORN
Student Assistant
Decision Support & Operations Research Lab

Teaching Experience

Courses

- Fall 2023 “How Music Works – Computational Perspectives”
Master Music Studies, UNIVERSITY OF AMSTERDAM
- Fall 2023 “Quantitative Methods in Music Studies”
Bachelor Musicology, UNIVERSITY OF AMSTERDAM
- Spring “Musical Improvisation, Invention and Creativity” – lectures and project supervision
2019, 20, 23 Elective Bachelor Course, EPFL
- Spring “Digital Musicology” – tutorials, project supervision, lectures
2019, 20, 23 Master Digital Humanities, EPFL
- 2019 “Music, Musical Structure, Artificial Neural Networks, and the Mind” – tutorials
Summer School of the SWISS STUDY FOUNDATION, Magliaso, Switzerland
- Winter 2013/14 “Introduction to Programming for Engineers” – tutorials
Bachelor Engineering, UNIVERSITY OF PADERBORN










Student Supervision

- 2023 Latent Spaces of Music – Master thesis, ETH ZÜRICH
2022–2023 Voice-Leading Reduction to Harmonic Entities through Heuristic Search
Bachelor thesis, UNIVERSITY OF CAMBRIDGE
2022–2023 Harmonic Reduction based on Reinforcement Learning – Master project, EPFL
2022 Composer Classification from Scores – course project, EPFL
2020 Exploring Mutual Information Decay in Musical Sequences – Master project, EPFL
2018 Porting the MIDI Toolbox to Julia – student project, EPFL
2018 A MusicXML Parser for Julia – student project, EPFL

Publications





Articles, Conference Papers, and Book Chapters

- forthcoming **C. Finkensiep**, M. Neuwirth, and M. Rohrmeier (accepted). “Music Theory and Model-Driven Corpus Research”. In: *The Oxford Handbook of Music and Corpus Studies*. Ed. by D. Shanahan, J. A. Burgoyne, and I. Quinn. Oxford: Oxford University Press
- C. Finkensiep**, P. Ericson, S. Klassmann, and M. Rohrmeier (submitted). “Chord Types and Ornamentation – A Bayesian Model of Extended Chord Profiles”. In: *Music and Science*
- C. Finkensiep**, R. Widdess, and M. Rohrmeier (submitted). “Modeling Melody in Indian Music: Tonal Hierarchy, Generalized Neighbors and Graph Grammars”. In: *Mathematical Approaches to World Music Analysis*. Ed. by S. Mukherji and R. Peck. Vol. 2. New Directions in World Music Analysis. New York: Routledge Press
- 2023 **C. Finkensiep**, M. Haeberle, F. Eisenbrand, M. Neuwirth, and M. Rohrmeier (2023). “Repetition-Structure Inference with Formal Prototypes”. In: *Proceedings of the 24th International Society for Music Information Retrieval Conference*. ISMIR. Milan, Italy
- M. Neuwirth, **C. Finkensiep**, and M. Rohrmeier (2023). “Musical Schemata: Modelling Challenges and Pattern Finding”. In: *Mixing Methods: An Agenda for the Humanities in the Digital Age*. Ed. by B. Löffler, B. Schneider, T. Mager, and C. Hein. Bielefeld: transcript
- G. Cecchetti, **C. Finkensiep**, X. Guan, S. A. Herff, A. Fiveash, C. Pelofi, J. E. Drury, and M. A. Rohrmeier (2023). “Music Cognition between Theory and Experiment”. In: *Proceedings of the Annual Meeting of the Cognitive Science Society*. Vol. 45. <https://escholarship.org/uc/item/6j61p5b7> (visited on 01/08/2024)
- 2022 G. Cecchetti, S. A. Herff, **C. Finkensiep**, D. Harasim, and M. A. Rohrmeier (Nov. 5, 2022). “Hearing Functional Harmony in Jazz: A Perceptual Study on Music-Theoretical Accounts of Extended Tonality”. In: *Musicae Scientiae*, p. 10298649221122245. doi 10.1177/10298649221122245. <https://doi.org/10.1177/10298649221122245>
- 2021 **C. Finkensiep** and M. Rohrmeier (2021). “Modeling and Inferring Proto-Voice Structure in Free Polyphony”. In: *Proceedings of the 22nd International Society for Music Information Retrieval Conference*. ISMIR. Online, pp. 189–196. doi 10.5281/zenodo.5624431

- S. A. Herff, D. Harasim, G. Cecchetti, **C. Finkensiep**, and M. Rohrmeier (2021). “Hierarchical Syntactic Structure Predicts Listeners’ Sequence Completion in Music”. In: *Proceedings of the Annual Meeting of the Cognitive Science Society*. CogSci. Vol. 43. Online.  <https://escholarship.org/uc/item/9w44g4x1>
- D. Harasim, **C. Finkensiep**, L. Bigo, M. Giraud, F. Levé, D. R. W. Sears, D. Shanahan, and M. Rohrmeier (2021). “Music Cognition: The Complexity of Musical Structure”. In: *Proceedings of the Annual Meeting of the Cognitive Science Society*. CogSci. Vol. 43. Online.  <https://escholarship.org/uc/item/9qh5m4dc>
- 2020 **C. Finkensiep**, K. Déguernel, M. Neuwirth, and M. Rohrmeier (2020). “Voice-Leading Schema Recognition Using Rhythm and Pitch Features”. In: *Proceedings of the 21st International Society for Music Information Retrieval Conference*. ISMIR. Montreal, Canada (online), pp. 520–526.  [10.5281/zenodo.4245482](https://doi.org/10.5281/zenodo.4245482)
- D. Harasim, **C. Finkensiep**, P. Ericson, T. J. O’Donnell, and M. Rohrmeier (2020). “The Jazz Harmony Treebank”. In: *Proceedings of the 21st International Society for Music Information Retrieval Conference*. ISMIR. Montreal, Canada (online), pp. 207–215.  [10.5281/zenodo.4245406](https://doi.org/10.5281/zenodo.4245406)
- G. Cecchetti, S. A. Herff, **C. Finkensiep**, and M. Rohrmeier (2020). “The Experience of Musical Structure as Computation : What Can We Learn?”. In: *Rivista di analisi e teoria musicale* XXVI, 2, 2020, pp. 91–127.  [10.53152/1032](https://doi.org/10.53152/1032).  <https://www.torrossa.com/en/resources/an/4943892>
- 2019 **C. Finkensiep**, R. Widdess, and M. Rohrmeier (2019). “Modelling the Syntax of North Indian Melodies with a Generalized Graph Grammar”. In: *Proceedings of the 20th International Society for Music Information Retrieval Conference*. ISMIR. Delft, The Netherlands, pp. 462–469.  [10.5281/zenodo.3527844](https://doi.org/10.5281/zenodo.3527844)
- 2018 **C. Finkensiep**, M. Neuwirth, and M. Rohrmeier (2018). “Generalized Skipgrams for Pattern Discovery in Polyphonic Streams”. In: *Proceedings of the 19th International Society for Music Information Retrieval Conference*. ISMIR. Paris, France, pp. 547–553.  [10.5281/zenodo.1492473](https://doi.org/10.5281/zenodo.1492473).  http://ismir2018.ircam.fr/doc/pdfs/202_Paper.pdf

Talks and Presentations

( = invited talk,  = conference talk,  = poster)

- 2023   “Repetition Structure Inference with Formal Prototypes” Nov. 7, 2023
ISMIR 2023
Milan, Italy
-  “Beyond Voices – A New Take on Polyphonic Structure in Western Tonal Music” Oct. 25, 2023
Symposium in Honor of Simha Arom
UNIVERSITY OF AMSTERDAM, The Netherlands
-  Symposium “Music Cognition between Theory and Experiment” July 26–29, 2023
(co-organized with Gabriele Cecchetti and Xinyi Guan)

CogSci 2023
Sydney, Australia

📄 “Note Structure in Free Polyphony” June 22–24, 2023
International Colloquium of Computational and Cognitive Musicology 2023
NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS, Greece

🗨 “Seeing the Wood for the Trees – Note-Level Structure in Tonal Music” May 2, 2023
QUEEN MARY UNIVERSITY OF LONDON, United Kingdom

2022 🗨 “Can Machines be Creative?” Nov. 23, 2022
CREATE Salon on Computational Creativity
UNIVERSITY OF AMSTERDAM, The Netherlands

🗨 “Protovoices – A Model of Tonal Structure at the Surface” Sep. 30, 2022
in symposium: “Abstraction, Theory Building, Models” (**co-organizer**)
🗨 “Models in Practice” (workshop, with Johannes Hentschel)
GMTH Kongress 2022
Salzburg, Austria

2021 🗨 📄 “Modeling and Inferring Proto-Voice Structure in Free Polyphony” Nov. 8–12, 2021
ISMIR 2021, online

🗨 “Modeling Hierarchical Structure at the Note Level” July 29, 2021
in symposium: “Music Cognition: The Complexity of Musical Structure”
(**co-organized** with Daniel Harasim)
CogSci 2021, online

2020 🗨 📄 “Voice-Leading Schema Recognition” Oct. 12–16, 2020
ISMIR 2020, online

2019 🗨 📄 “A Graph Grammar for North Indian Melodies” Nov. 6, 2019
ISMIR 2019
Delft, The Netherlands

🗨 “A Graph Representation of Hierarchical Voice-Leading” July 2, 2019
Workshop: “Corpus Research as a Means of Unlocking Musical Grammar”
UNIVERSITY OF TEL-AVIV & BAR-ILAN UNIVERSITY, Israel

📄 “Representing Hierarchical Voice-Leading Structure with Graph Transformations”
SEMPRE Graduate Conference 2019 Mar. 25, 2019
Cambridge, UK

🗨 “From Bach to the Beatles” Feb. 21, 2019
with Markus Neuwirth & Martin Rohrmeier
“Mixed Methods” in the Humanities mid-term meeting, Volkswagen Foundation
Hildesheim, Germany

🗨 “Schema Matching mit Skipgrams” Feb. 20, 2019
HOCHSCHULE FÜR MUSIK FREIBURG, Germany

2018 🗨 📄 “Generalized Skipgrams” Sep. 26, 2018

ISMIR 2018

Paris, France

🗨 “Schema Matching with Skipgrams”

Sep. 19, 2018

DCML Workshop 2018

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, Switzerland

🗨 “Digitale Musikforschung: Projekte und Fallstudien”

June 14–15, 2018

with Markus Neuwirth

UNIVERSITY OF MUSIC AND PERFORMING ARTS MANNHEIM, Germany

2017 🗨 “Formalizing Four-Part Voice Leading Rules”

Jan. 17, 2017

TECHNICAL UNIVERSITY DRESDEN, Germany

Open-Source Code

Implementation of the Protovoice Model (Haskell)

🔗 [DCMLab/protovoices-haskell](#)

Annotation Tool for Protovoice Analyses (PureScript)

🔗 [DCMLab/protovoice-annotation-tool](#)

Annotation Tool for Voice-Leading Schemata (ClojureScript)

🔗 [DCMLab/schema_annotation_app](#)

Annotation Tool for Tree Analyses (ClojureScript)

🔗 [DCMLab/tree-annotation-code](#)

Matcher for Voice-Leading Schemata (Julia)

🔗 [DCMLab/schemata_code/tree/ismir2020](#)

Libraries for Musical Pitches and Intervals

- musicology-pitch (Haskell)

🔗 [DCMLab/haskell-musicology/tree/master/musicology-pitch](#)

- pitchtypes (Python)

🔗 [DCMLab/pitchtypes](#)

- Pitches.jl (Julia)

🔗 [DCMLab/Pitches.jl](#)

- purescript-pitches (PureScript)

🔗 [DCMLab/purescript-pitches](#)

- pitches (Rust)

🔗 [DCMLab/rust-pitches](#)

Reviewer Activity

Conferences ISMIR

Journals Music Theory and Analysis (MTA), TISMIR, Advances in Data Analysis and Classification (ADAC)

Scholarships and Awards

2021 Best Reviewer Award, *ISMIR 2021*
2010–2017 Student Scholarship, *German Academic Scholarship Foundation*
2012 ERASMUS Scholarship (exchange semester), *European Union*
2011 3rd Place for Task 2, *Data Mining Cup*

Memberships and Responsibilities

2019–2021 Student Representative
 Doctoral School of Digital Humanities, EPFL
2013–2014 Student Represtenative
 German Academic Scholarship Foundation, UNIVERSITY OF PADERBORN
since 2021 Member of the *Cognitive Science Society*
since 2019 Member of the *UNIL-EPFL dhCenter*
since 2018 Member of the *International Society for Music Information Retrieval (ISMIR)*

Skills

Languages

German native speaker
English fluent
French intermediate
Dutch basic

Computing

Programming Haskell, Python, Julia, PureScript, Clojure/ClojureScript, Common Lisp, JavaScript, Rust, Java,
Languages C/C++, PHP
Frameworks / numpy, pandas, PyTorch, halogen, monad transformers, probabilistic programming (pyro,
Libraries Haskell)
Markup Languages \LaTeX , HTML/CSS, LilyPond

Music

since 1998 Trombone

10 years of lessons, including university level

Experience in various jazz and classical ensembles, solo literature

- Minor during Bachelor (2011–2014)
- Musikakademie, German Academic Scholarship Foundation (bass trombone, 2012–14, 2016–17)
- Landesjugendposaunenchor Westfalen Lippe (lead trombone, 2013–2019)
- Big Band Hochschule Osnabrück, Jazz Department (bass trombone, 2014–2015)

since 2001 Piano

since 2007 Conducting (brass ensemble)

since 2013 Choir Singing