

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

Teaching Experience

Student Supervision

since 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

Courses

Spring 2019, 20, 23	“Musical Improvisation, Invention and Creativity” – lectures and project supervision Bachelor Course, EPFL
Spring 2019, 20, 23	“Digital Musicology” – tutorials, project supervision, lectures Master Course, EPFL
2019	“Music, Musical Structure, Artificial Neural Networks, and the Mind” – tutorials

Publications

Articles, Conference Papers, and Book Chapters

- forthcoming **C. Finkensiep**, M. Haerberle, F. Eisenbrand, M. Neuwirth, and M. Rohrmeier (in press). “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 (in press). “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
- 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
- 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. doi 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. doi 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. doi 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. doi 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. doi 10.5281/zenodo.1492473. http://ismir2018.ircam.fr/doc/pdfs/202_Paper.pdf

Talks and Presentations

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

2023 ☞ 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](https://github.com/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, <i>ISMIR 2021</i>
2010–2017	Student Scholarship, <i>German Academic Scholarship Foundation</i>
2012	ERASMUS Scholarship (exchange semester), <i>European Union</i>
2011	3rd Place for Task 2, <i>Data Mining Cup</i>

Memberships and Responsibilities

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

Skills

Languages

German	native speaker
English	fluent
French	basic skills

Computing

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

Music

since 1998	Trombone 10 years of lessons, including university level Experience in various jazz and classical ensembles, solo literature <ul style="list-style-type: none"> • 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