

# Fabian C. Moss

## Curriculum Vitae

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### Employment

- 2020–today **Postdoctoral Researcher**,  
*École Polytechnique Fédérale de Lausanne (EPFL)*, Digital and Cognitive Musicology Lab (DCML).  
Lausanne, Switzerland
- 2017–2019 **Doctoral Assistant**,  
*École Polytechnique Fédérale de Lausanne (EPFL)*, Digital and Cognitive Musicology Lab (DCML).  
Lausanne, Switzerland
- 2015–2017 **Doctoral Assistant**,  
*Technische Universität Dresden (TUD)*, Dresden Music Cognition Lab (DMCL).  
Dresden, Germany
- 2012–2014 **Conductor and vocal coach for children's choirs**,  
*Musikschule Leverkusen*, Project “Jedem Kind seine Stimme” (JEKISS).  
Leverkusen, Germany

### Education

- 2017–2019 **École Polytechnique Fédérale de Lausanne (EPFL)**,  
*Digital and Cognitive Musicology Lab (DCML)*, PhD student.  
Lausanne, Switzerland
- Jan–Mar 2016 **Massachusetts Institute of Technology (MIT)**,  
*Department of Linguistics and Philosophy*, Visiting Student.  
Cambridge, MA, USA
- 2015–2017 **Technische Universität Dresden (TUD)**,  
*Dresden Music Cognition Lab (DMCL)*, PhD student.  
Dresden, Germany
- Jan–Apr 2012 **Escola Superior de Musica de Catalunya (ESMUC)**,  
ERASMUS Exchange Student.  
Barcelona, Spain
- 2011–2013 **Hochschule für Musik und Tanz Köln (HfMT)**,  
*Musicology*, Master of Arts.  
Cologne, Germany
- 2008–2013 **Hochschule für Musik und Tanz Köln (HfMT)**,  
*Music Education (Piano Major)*, Staatexamen (State Examination).  
Cologne, Germany
- 2006–2016 **Universität zu Köln (UzK)**,  
*Mathematics and Educational Sciences*, Staatexamen (State Examination).  
Cologne, Germany
- 2002–2005 **Friedrich-Wilhelm-Gymnasium Köln (FWG)**,  
Abitur (German High School Diploma).  
Cologne, Germany

### Theses

- PhD *Transitions of Tonality: A Model-Based Corpus Study* (2019)  
Supervisors Martin Rohrmeier & Markus Neuwirth, DCML, EPFL
- MA *“Theorie der Tonfelder” nach Simon und “Neo-Riemannian Theory”:  
Systematik, historische Bezüge und analytische Praxis im Vergleich* (2012)

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## Publications

### Journal Articles and Conference Papers

- in review Lieck, R., **Moss, F. C.**, & Rohrmeier, M. The Tonal Diffusion Model.
- Harasim, D., **Moss, F. C.**, Ramirez, M., & Rohrmeier, M. Cognitive modeling reveals history of major and minor in Western classical music.
- Viaccoz, C., Harasim, D., **Moss, F. C.**, & Rohrmeier, M. Wavescapes: A Visual Hierarchical Analysis of Tonality Using the Discrete Fourier Transformation.
- in prep. **Moss, F. C.**, Noll, T., & Rohrmeier, M. Surfing the Chromatic Waves: Detecting Tone Fields Using Discrete Fourier Analysis.
- 2020 **Moss, F. C.**, de Souza, W. F., & Rohrmeier, M. Harmony and Form in Brazilian Choro: A Corpus-Driven Approach to Musical Style Analysis. *Journal of New Music Research*. <https://doi.org/10.1080/09298215.2020.1797109>
- 2019 **Moss, F. C.**, Neuwirth, M., Harasim, D., & Rohrmeier, M. (2019). Statistical characteristics of tonal harmony: A corpus study of Beethoven's string quartets. *PLOS ONE*, 14(6), e0217242. <https://doi.org/10.1371/journal.pone.0217242>
- Landnes, K., Mehrabyan, L., Wiklund, V., Lieck, R., **Moss, F. C.**, & Rohrmeier, M. (2019). A Model Comparison for Chord Prediction on the Annotated Beethoven Corpus. In I. Barbancho, L. J. Tardón, A. Peinado, & A. M. Barbancho (Eds.), *Proceedings of the 16th Sound and Music Computing Conference (SMC 2019)* (pp. 250–254). Málaga, Spain.
- Popescu, T., Neuser, M. P., Neuwirth, M., Bravo, F., Mende, W., Boneh, O., **Moss, F. C.**, & Rohrmeier, M. (2019). The pleasantness of sensory dissonance is mediated by musical style and expertise. *Scientific Reports*, 9(1), 1070. <https://doi.org/10.1038/s41598-018-35873-8>
- 2018 Neuwirth, M., Harasim, D., **Moss, F. C.**, & Rohrmeier, M. (2018). The Annotated Beethoven Corpus (ABC): A Dataset of Harmonic Analyses of All Beethoven String Quartets. *Frontiers in Digital Humanities*, 5(July), 1–5. <https://doi.org/10.3389/fdigh.2018.00016>
- 2017 **Moss, F. C.** (2017). [Review of David Huron. Voice Leading: The Science behind a Musical Art]. *Music Theory & Analysis*, 4(1), 119–130. <https://doi.org/10.11116/MTA.4.1.7>
- 2014 **Moss, F. C.** (2014). Tonality and functional equivalence: A multi-level model for the cognition of triadic progressions in 19th century music. In *International Conference of Students of Systematic Musicology – Proceedings* (pp. 1–8). London, UK.
- 2011 **Moss, F. C.** *Albert Simons Theorie der Tonfelder und John Cloughs Flip-Flop Circles im Vergleich*. Zenodo. <http://doi.org/10.5281/zenodo.3944462>

### Datasets

- 2020 **Moss, F. C.**, Neuwirth, M., & Rohrmeier, M. (2020). Tonal Pitch-Class Counts Corpus (TP3C) (Version 1.0.0) [Data set]. *Zenodo*. <http://doi.org/10.5281/zenodo.3600088>
- 2018 **Moss, F. C.**, de Souza, W. F., & Rohrmeier, M.. (2018). Choro Songbook Corpus (Version 1.0) [Data set]. *Zenodo*. <https://doi.org/10.5281/zenodo.1442765>.

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## Talks, Conference Presentations, Posters, and Workshops

- 2020 **Moss, F. C.** *Analyzing musical pieces on the Tonnetz using the pitchplots Python library*. 20. Jahreskongress der Gesellschaft für Musiktheorie (GMTH), Hochschule für Musik Detmold, October 1–4, 2020, Detmold, Germany.
- Moss, F. C.** *Workshop: Digital Humanities - A Case Study in Music History* International Conference of Students of Systematic Musicology, York University, September 15–17, 2020, York, UK.
- Moss, F. C.** *Computational Musicology and the Digital Humanities: Problems, Practices, and Prospects*. CRETA-Werkstatt #9, Center for Reflected Text Analytics, University of Stuttgart, February 18, 2020, Stuttgart, Germany.
- 2019 **Moss, F. C.** *Transitions of Tonality: Perspectives on the Historical Changes of Tonal Pitch Relations from Computational Musicology, Music Theory, and the Digital Humanities*. University of Cologne, November 29, 2019, Cologne, Germany.

- Moss, F. C.** *Tracing the History of Tonality with Note Distributions*. “Corpus Research as a Means of Unlocking Musical Grammar” International Research Workshop, July 1–4, 2019, Tel-Aviv, Israel.
- Moss, F. C.** *Inferring Tonality from Note Distributions – Why Models Matter (Poster)*. SEMPRES Graduate Conference 2019, Cambridge, UK.
- Moss, F. C.** *Analyzing Tonality with Note Distributions*. First Swiss Digital Humanities Student Exchange DHX2019, Basel, Switzerland.
- 2018 **Moss, F. C.**, Souza, W. F. & Rohrmeier, M. *Harmony and Form in Brazilian Choro: A Corpus Study*. 15th International Conference on Music Perception and Cognition & 10th triennial conference of the European Society for the Cognitive Sciences of Music, Graz, Austria.
- Aitken, C., O'Donnell, T. & Rohrmeier, M. [Poster presented by **Moss, F. C.**]. *A Maximum Likelihood Model for the Harmonic Analysis of Symbolic Music*. 15th Sound and Music Computing Conference “Sonic Crossings”. Limassol, Cyprus.
- Moss, F. C.** *Corpus Research in Digital Musicology* (Talk and Tutorial). Seminar “Willkommen in der Matrix: Digitale Anwendungen für die Musikanalyse in Theorie und Praxis”, University of Basel, Basel, Switzerland.
- Harasim, D., **Moss, F. C.** & Ramirez, M. *A Brief History of Tonality* (Poster). Applied Machine Learning Days, EPFL, Switzerland.
- 2017 **Moss, F. C.** *Formal Grammars and Ambiguity in Extended Tonality*. Workshop and Symposium on Schenkerian Analysis “Wege der Kreativität – Zwischen Erfindung und Rekonstruktion”, Universität der Künste, Berlin, Germany.
- Moss, F. C.**, Souza, W. F. & Rohrmeier, M. *Brazilian Choro: A New Data Set of Chord Transcriptions and Analyses of Harmonic and Formal Features*. 17. Jahreskongress der Gesellschaft für Musiktheorie (GMTH) & 27. Arbeitstagung der Gesellschaft für Populärmusikforschung (GfPM) “Populäre Musik und ihre Theorien: Begegnungen – Perspektivwechsel – Transfers”, Graz, Austria.
- Moss, F. C.**, Harasim, D., Neuwirth, M. & Rohrmeier, M. *Beethovens Streichquartette – ein XML-basierter Korpus harmonischer Analysen in einem neuen Annotationssystem*. Jahrestagung der Gesellschaft für Musikforschung, Kassel, Germany.
- Moss, F. C.**, Rohrmeier, M. *Integrating Transformational and Hierarchical Models of Extended Tonality*. 9th European Music Analysis Conference (EuroMAC), Strasbourg, France.
- Rom, U., Jeßulat, A., **Moss, F. C.** & Guter, I. *Ambiguity, Illusion & Timelessness in Late and Post-Tonal Harmony*. Panel discussion at the 9th European Music Analysis Conference (EuroMAC), Strasbourg, France.
- Moss, F. C.** *Musik und Sprache*. Talk for Student Association “Denkzettel”, TUD, Dresden, Germany.
- Moss, F. C.**, Rohrmeier, M. & Bravo, F. *Emotional Associations Evoked by Structural Properties of Musical Scales and Abstract Visual Shapes*. KOSMOS Dialogue “Music, Emotion, and Visual Imagery”, Berlin, Germany.
- Harasim, D., **Moss, F. C.**, Neuwirth, M. & Rohrmeier, M. *Beethoven's String Quartets: Introducing an XML-Based Corpus of Harmonic Labels Using a New Annotation System*. Music Encoding Conference, Tours, France.
- 2016 **Moss, F. C.** *Extended Tonality: Theoretical Challenges and their Relation to the Neuroscientific Study of Musical Syntax*. Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany.
- Moss, F. C.**, Rohrmeier, M. *Structural Ambiguities in Language and Music* (Poster). Helsinki Summer School for Cognitive Neuroscience 2016 (HSSCN 2016).
- Moss, F. C.**, Rohrmeier, M. *A grammatical approach to tension-resolution patterns in extended tonal harmony*. Meeting of the Computational Cognitive Science Group, Massachusetts Institute of Technology, Department of Brain and Cognitive Sciences, Cambridge, USA.
- Moss, F. C.**, Rohrmeier, M. *Towards a syntactic account for harmonic sequences in extended tonality*. Syntax Square Meeting, Massachusetts Institute of Technology, Department of Linguistics and Philosophy, Cambridge, USA.
- Moss, F. C.** *Syntax of Extended Tonality: Towards a Grammar of Generalized Harmonic Functions*. Music Theory Colloquium, Boston University, College of Fine Arts, School of Music, Boston, USA.
- Moss, F. C.** *Generalizing Harmonic Functions: A Grammatical Approach to Extended Tonality*. Yale University, Department of Music, New Haven, USA.

**Moss, F. C.** & Harasim, D. *Extended Tonality and Music Cognition*. Symposium “Towards a World Music Theory”, University of Hamburg, Institute for Systematic Musicology, Hamburg, Germany.

**Moss, F. C.** *Music Cognition and Extended Tonality: Theoretical Challenges and Empirical Implications*. Research Colloquium, University of Cologne, Cologne, Germany.

2015 **Moss, F. C.** *On generative modelling of musical form*. Seminar “Mathematics and Music”, TUD, Dresden, Germany.

**Moss, F. C.** ‘*The terror of sanctity.*’ *Tonal cues for resolving dramatic ambiguities in Wagner’s Parsifal*. Seminar “Understanding Musical Structures”, TUD, Dresden Germany.

2014 **Moss, F. C.** *Tonality and functional equivalence: A multi-level model for the cognition of triadic progressions in 19th century music*. International conference of Students of Systematic Musicology, Goldsmiths University, London, UK.

**Moss, F. C.** *Language, music and the brain: a resource-sharing framework (Patel, 2012)*. Seminar “Cognitive Neuroscience of Music”, Institut for Musicology, University of Cologne, Cologne, Germany.

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## Teaching and Supervision

Fall 2020 Graduate Seminar “Introduction to Musical Corpus Studies”, University of Cologne.

Spring 2020 Teaching Assistant, “Musical improvisation, invention and creativity”, EPFL.

Lecture “Musical Diversity across Historical Time” in class “Digital Musicology”, EPFL.

2019 Supervision of an MSc student project for “Machine Learning” course, EPFL.

2018 Teaching Assistant, “Digital Musicology” (MSc; tutorials and exercises), EPFL.

Supervision of three MSc student projects for “Machine Learning” course, EPFL.

Supervision of four MSc student projects for “Digital Musicology” course, EPFL.

2017 Peer-mentoring visiting PhD student in music theory/composition, TUD.

2016–2017 “Reading Class Musicology”, (BA; with Christoph Wald), TUD.

2015–2016 “Introduction to Musicology”, (BA; with Christoph Wald), TUD.

2015 Joint supervision of interdisciplinary project of technical design undergraduate, TUD.

2013 “Academic Writing and Research Techniques” (MA), HfMT.

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## Grants, Awards and Scholarships

2016–2107 **Konrad Adenauer Foundation**, *PhD Scholarship*.

Aug 2016 **TUD Graduate Academy**, *Travel Award*.

Jan–Mar 2016 **Deutscher Akademischer Austauschdienst (DAAD)**, *great!ipid4all (group2group exchange for academic talents)*.

Sep 2014 **Society for Education and Music Psychology (SEMPRE)**, *Travel Award*.

Jan–Apr 2012 **European Union (EU)**, *ERASMUS Scholarship*.

2008–2013 **Konrad Adenauer Foundation**, *Student Scholarship*.

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## Administration

### Organization

2019 Workshop “Schenkerian and Tonfeld Theory for Music Analysis”, DCML, EPFL.

First Swiss Digital Humanities Exchange, in collaboration with University of Basel.

2015 Co-organization of lecture series “Systematic Musicology: Perception and Cognition of Music”, DMCL, TUD.

2013 Co-organization of the international conference “Musical Meter in Comparative Perspective”, HfMT.

### Reviewer Activity

*Music and Science, Empirical Musicology Review, Music Theory and Analysis, Transactions of the International Society of Music Information Retrieval, International Conference of Students of Systematic Musicology.*

### Memberships

since 2020 Co-Chair of the Music Analysis Interest Group of the *Music Encoding Initiative* (MEI).

- since 2019 UNIL-EPFL Centre for Digital Humanities (dhCenter); EPFL Data Champions Community; Gesellschaft für Musikforschung (GfM)
- 2018–2019 Co-founder and vice-president of the Digital Humanities Student Association *delta* at EPFL.
- since 2017 Gesellschaft für Musiktheorie (GMTH).

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## Media coverage

- Jun 2019 A Data Science Analysis Finds Beethoven's Style In His String Quartets (Forbes)  
Decoding Beethoven's music style using data science (EPFL)
- Mar 2019 Creating connections in a growing digital humanities community (EPFL)

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## Relevant Courses

### Workshops and Summer Schools

- 2020 *ediorom* summer school (text and music encoding). University of Paderborn. Paderborn, Germany.
- 2019 Workshop "Research Data Management: introduction", EPFL Library, October 10, 2019.
- 2018 Workshop "Voice-leading schemata in theory, corpus research, and practical composition (Compose your own Chopin!)", EPFL, September 18–20, 2018
- Symposium "Archiving Intangible Cultural Heritage & Performing Arts: A Symposium and Summer School for Living Traditions", EPFL, August 6–7, 2018
- 2017 Workshop "Meaning in Music: Bridging Musicological, Linguistic, and Neuroscientific Perspectives", EPFL, December 4–6, 2017.
- Summer School "Exploring Edges: An International Colloquium between the Digital Humanities, Architecture, Artistic Research, and Critical Technical Practice", EPFL, July 11–14, 2017.
- 2016 Summer School "Cognitive Neuroscience of Music", University of Helsinki, August 11–17, 2016

### University Courses

- 2017 "Applied Data Analysis" (Robert West), EPFL.
- 2016 "Introduction to Schenkerian Theory" (Oliver Schwab-Felisch), TUD; "Cognitive Science" (P. Sinha, J. Tenenbaum, E. Gibson), MIT; "Computational Modeling of Phonology and Morphology" (T. O'Donnell, A. Albright), MIT.
- 2015 "Generative Modeling" (T. O'Donnell), TUD; "Introduction to Quantitative Methods for the Social Sciences" (Bernhard Schipp), TUD.
- 2012–13 "Cognitive Neuroscience of Music", "Cognitive Musicology: Theoretical Foundations", "Cognitive Modeling" (Uwe Seifert), UzK.

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## Skills

- Languages Python, Latex, HTML/CSS; German (native), English (fluent), French (conversational), Spanish (basic).
- Utilities Git, Anaconda, Jupyter Notebook/Lab.

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## Extra-Curricular Activities

### Voice

- 2014–2017 Classical a-capella octet *Vokalexkursion*.
- 2013–2015 Cologne Cathedral Chamber Choir.
- 2012–2014 Conductor of several children's choirs at Musikschule Leverkusen.
- 2011–2013 Cologne Conservatory Chamber Choir.
- 2008–2013 Pop a-capella group *gezwungenermaßen*.

### Instruments

- since 1993 Piano
- since 1994 Guitar