

# Fabian C. Moss | Curriculum Vitae

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## Employment

<b>École Polytechnique Fédérale de Lausanne (EPFL)</b> <i>Digital and Cognitive Musicology Lab (DCML), Lausanne, Switzerland</i>	<b>Postdoctoral Researcher</b> 2020–today
<b>École Polytechnique Fédérale de Lausanne (EPFL)</b> <i>Digital and Cognitive Musicology Lab (DCML), Lausanne, Switzerland</i>	<b>Doctoral Assistant</b> 2017–2019
<b>Technische Universität Dresden (TUD)</b> <i>Dresden Music Cognition Lab (DMCL), Dresden, Germany</i>	<b>Doctoral Assistant</b> 2015–2017
<b>Musikschule Leverkusen</b> <i>Project “Jedem Kind seine Stimme” (JEKISS), Leverkusen, Germany</i>	<b>Conductor and vocal coach</b> 2012–2014

## Education

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

## Publications (\* = Open Access)

### Theses

- PhD:** \*Moss, F. C. (2019). *Transitions of Tonality: A Model-Based Corpus Study*. Doctoral dissertation. École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland. Supervisors: Martin Rohrmeier & Markus Neuwirth. <https://doi.org/10.5075/epfl-thesis-9808>
- MA:** Moss, F. C. (2012). “Theorie der Tonfelder” nach Simon und “Neo-Riemannian Theory”: Systematik, historische Bezüge und analytische Praxis im Vergleich. Supervisor: Hans Neuhoff. <https://doi.org/10.5281/zenodo.4748512>

### Journal Articles and Conference Papers

- accepted:** \*Hentschel, J., Moss, F. C., McLeod, A., Neuwirth, M., & Rohrmeier, M. (accepted). Towards a Unified Model of Chords in Western Harmony. In: *Music Encoding Conference Proceedings 2021*. Alicante, Spain [Online].
- \*Moss, F. C. & Neuwirth, M. (accepted). FAIR, Open, Linked: Introducing the Special Issue on Open Science in Musicology. *Empirical Musicology Review*.
- \*Viaccoz, C., Harasim, D., Moss, F. C., & Rohrmeier, M. (accepted). Wavescapes: A Visual Hierarchical Analysis of Tonality Using the Discrete Fourier Transformation. *Musicae Scientiae*.
- 2021:** Anzuoni, E., Ayhan, S., Dutto, F., McLeod, A., Moss, F. C., & Rohrmeier, M. (2021). A Historical Analysis of Harmonic Progressions Using Chord Embeddings. *Proceedings of the 18th Sound and Music Computing Conference*, 284–291. [https://www.smc2020torino.it/SMC2021\\_papers/SMC\\_2021\\_paper\\_17.pdf](https://www.smc2020torino.it/SMC2021_papers/SMC_2021_paper_17.pdf)
- \*Harasim, D., Moss, F. C., Ramirez, M., & Rohrmeier, M. (2021). Exploring the foundations of tonality: Statistical

cognitive modeling of modes in the history of Western classical music. *Humanities and Social Sciences Communications*, 8(5), 1–11. <https://doi.org/10.1057/s41599-020-00678-6>

2020: \*Lieck, R., Moss, F. C., & Rohrmeier, M. (2020). The Tonal Diffusion Model. *Transactions of the International Society of Music Information Retrieval*, 3(1), 153–164. <https://doi.org/10.5334/tismir.46>

\*Moss, F. C., de Souza, W. F., & Rohrmeier, M. (2020). Harmony and Form in Brazilian Choro: A Corpus-Driven Approach to Musical Style Analysis. *Journal of New Music Research*, 49(5), 416–437. <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>

earlier: 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>

\*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.

\*Moss, F. C. *Albert Simons Theorie der Tonfelder und John Cloughs Flip-Flop Circles im Vergleich*. Zenodo. <http://doi.org/10.5281/zenodo.3944462>

## As editor

forthcoming: Special Issue on “Open Science in Musicology” in *Empirical Musicology Review*, with Markus Neuwirth.

## Datasets and Code

2020: \*Moss, F. C., Neuwirth, M., & Rohrmeier, M. (2020). Tonal Pitch-Class Counts Corpus (TP3C) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.3600080>

2019: \*Moss, F. C., Loayza, T., & Rohrmeier, M. (2019). pitchplots. Zenodo. <https://doi.org/10.5281/zenodo.3265392>

2018: \*Moss, F. C., de Souza, W. F., & Rohrmeier, M. (2018). Choro Songbook Corpus [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.1442764>

## Blogposts

2020: “A computational model for note distributions in musical pieces”  
<https://www.epfl.ch/labs/dcml/computational-model-note-dists/>

“Tracing historical changes in the exploration of tonal space”  
<https://www.epfl.ch/labs/dcml/tracing-historical-changes/>

## Talks, Conference Presentations, Posters, and Workshops (<sup>i</sup> = invited)

### Workshops

2020: Moss, F. C. *Data-Driven Music History*. International Conference of Students of Systematic Musicology, York University, September 14, 2020, York, UK [online].

2018: <sup>i</sup>Moss, F. C. *Corpus Research in Digital Musicology*. Seminar “Willkommen in der Matrix: Digitale Anwendungen für die Musikanalyse in Theorie und Praxis”, University of Basel, Basel, Switzerland.

### Talks

2021: Anzuoni, E., Ayhan, S., Dutto, F., McLeod, A., Moss, F. C., & Rohrmeier, M. *A Historical Analysis of Harmonic Progressions Using Chord Embeddings*. Sound and Music Computing Conference [online].

Hentschel, J., Moss, F. C., McLeod, A., & Rohrmeier, M. *Towards a Unified Model of Chords in Western Harmony*. Music Encoding Conference [online].

Moss, F. C., Herff, S. A., & Rohrmeier, M. *Modeling perceived tonal stability of individual and aggregated listener responses*.

- 16th International Conference on Music Perception and Cognition & 11th triennial conference of the European Society for the Cognitive Sciences of Music. July 28–31, Sheffield, UK [online].
- Moss, F. C., Herff, S. A., & Rohrmeier, M.** *Individual perception of diatonic scales predicts perceived tonal fit in octatonic and hexatonic contexts*. 16th International Conference on Music Perception and Cognition & 11th triennial conference of the European Society for the Cognitive Sciences of Music. July 28–31, Sheffield, UK [online].
- Moss, F. C.** *Boosting Open Research in Empirical Musicology*. EPFL Data Champions Meeting (DCBreak#3). March 18, 2021, Lausanne, Switzerland [online].
- Moss, F. C.** *Discovering the line of fifths in a large historical corpus*. Future Directions of Music Cognition, The Ohio State University, March 6–7, 2021, Columbus, OH [online]. <https://doi.org/10.17605/OSF.IO/J5W6T>
- 2020:** <sup>i</sup>**Moss, F. C.** *The Importance of Modeling in Computational Musicology*. Round-table on “Probability and Music”, 5th International Congress of Music and Mathematics (MusMat 2020) – Perspectives and Applications of Mathematics in Post-Tonal Theories («Homage to Jarmy Oliveira»), December 8–12, Rio de Janeiro, Brazil [online].
- 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 [online].
- <sup>i</sup>**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.
- <sup>i</sup>**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.
- <sup>i</sup>**Moss, F. C.** *Corpus Research in Digital Musicology*. 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:** <sup>i</sup>**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.
- <sup>i</sup>**Moss, F. C.** *From Beethoven to Brazil: Digital Musicology at EPFL*. Digital Synergies: Ca' Foscari meets École Polytechnique Fédérale de Lausanne. Global Challenges Seminar - Team “Creative arts, cultural heritage and digital humanities”, Venice, Italy.
- 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.
- <sup>i</sup>**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:** <sup>i</sup>**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.
- <sup>i</sup>**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.
- <sup>i</sup>**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.

## Teaching

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**Spring 2021:** "Musical Diversity across Historical Time", lecture in class "Digital Musicology", EPFL.

**Fall 2020:** "Introduction to Musical Corpus Studies", UzK.

"Tonality: Perspectives of historical musicology and corpus studies", lecture in "Ringvorlesung Musikwissenschaft", UzK.

**Spring 2020:** "Musical improvisation, invention and creativity", teaching assistant, EPFL.

"Musical Diversity across Historical Time", lecture in class "Digital Musicology", EPFL.

**Spring 2018:** "Digital Musicology", teaching assistant, EPFL.

**2016–2017:** "Reading Class Musicology", with Christoph Wald, TUD.

**2015–2016:** "Introduction to Musicology", with Christoph Wald, TUD.

**Spring 2013:** "Academic Writing and Research Techniques", HfMT.

## Supervision

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**Fall 2020:** Supervision of 3 Machine Learning graduate student projects on vector embeddings of harmony.

**Spring 2020:** Co-supervision of Digital Humanities MSc thesis.

**Fall 2019:** Supervision of Machine Learning graduate student project on vector embeddings of harmony.

**Fall 2018:** Supervision of 3 Machine Learning graduate student projects on chord prediction with neural networks.

**Spring 2018:** Supervision of 4 Digital Musicology graduate student projects.

**Spring 2017:** Peer-mentoring visiting PhD student in music theory/composition.

**Fall 2015:** Joint supervision of interdisciplinary project of technical design undergraduate.

## Funding

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### Project grants

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#### dhCenter UNIL-EPFL project fund

*Enabling interactive music visualization for a wider community*

PIs: Fabian C. Moss & Daniel Harasim, CHF 2'880

2021

## Collaborative Research on Science and Society (CROSS)

*Digitizing the Dualism Debate: A Case Study in the Computational Analysis of Historical Music Theory Sources*

2021

PIs: Fabian C. Moss & François Bavaud, CHF 59'565

## Awards and scholarships

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**2016–2017:** 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.

## Administration

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### Organization

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**2019:** Workshop “Schenkerian and Tonfeld Theory for Music Analysis”, 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”, TUD.

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

### Reviewer activity

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**Journals:** *Empirical Musicology Review*, *Music and Science*, *Music Theory and Analysis*, *Transactions of the International Society of Music Information Retrieval*, *Zeitschrift der Gesellschaft für Musiktheorie*

**Conferences:** *Computational Humanities Research (CHR)*, *Conference of the European Society for the Cognitive Sciences of Music (ESCOM)*, *International Conference on Music Perception and Cognition (ICMPC)*, *International Conference of Students of Systematic Musicology (SysMus)*

### Responsibilities and memberships

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**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 *dhelta* at EPFL.

**since 2017:** Gesellschaft für Musiktheorie (GMTH).

**2012–2013:** Financial officer for General Students' Committee [Finanzreferent AStA], HfMT.

## Media coverage

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**Jan 2021:** “Machine learning helps retrace evolution of classical music”

<https://actu.epfl.ch/news/machine-learning-helps-retrace-evolution-of-clas-2/>

**Aug 2020:** “Bringing computational music analysis beyond the traditional canon”

<https://actu.epfl.ch/news/bringing-computational-music-analysis-beyond-the-t/>

**Jun 2019:** “A Data Science Analysis Finds Beethoven's Style In His String Quartets”

<https://www.forbes.com/sites/evaamsen/2019/06/06/a-data-science-analysis-finds-beethovens-style-in-his-string-quartets/>

“Decoding Beethoven's music style using data science”

<https://actu.epfl.ch/news/decoding-beethoven-s-music-style-using-data-scienc/>

**Mar 2019:** “Creating connections in a growing digital humanities community”

<https://actu.epfl.ch/news/creating-connections-in-a-growing-digital-humani-2/>

## Workshops and summer/winter schools attended

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**2020:** Workshop “Transcribing – Encoding – Annotating: New Approaches of Technology and Methodology for Historical Sources in Crowd Sourcing and Citizen Science”. Forschungsbibliothek Gotha der Universität Erfurt, November 26–27 [online].

Workshop “Musikalische Schrift und Digitalität”, Basel, Switzerland, September 22–23.

*edirom* summer school (text and music encoding). University of Paderborn. Paderborn, Germany, August 31–September 4 [online].

**2019:** Workshop “Research Data Management: introduction”, EPFL Library, October 10.

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

## Skills

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**Languages:** Python, Latex, HTML/CSS  
German (native), English (fluent), French (conversational), Spanish (basic)

**Utilities:** Git, GitHub, Jupyter Notebook/Lab

## Musical activities

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<b>2014–2017:</b> Classical vocal octet <i>Vokalexkursion</i>	<b>2008–2013:</b> Pop a-capella group <i>gezwungenermaßen</i>
<b>2013–2015:</b> Cologne Cathedral Chamber Choir	<b>since 1994:</b> Guitar
<b>2011–2013:</b> Cologne Conservatory Chamber Choir	<b>since 1993:</b> Piano