

## LAURENT PUGIN – PUBLICATIONS

### PEER-REVIEWED BOOK CHAPTERS

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- I. Fujinaga, A. Hankinson, and L. Pugin, 'Automatic score extraction with Optical Music Recognition (OMR), in Braasch, J. (Ed.), *Current Research in Systematic Musicology*. Berlin: Springer International Publishing, 2018, pp. 299–311.
- L. Pugin, 'Encodage de documents musicaux avec la MEI', in Meeùs, N., and Leblond Martin, S., (Eds), *Musique orale, notation et encodage MEI*. Paris: Les Editions de l'Immatériel, 2016, pp. 162–175.
- L. Pugin, 'Interaction with music encoding', in Richts, K. and Stadler, P., (Eds), »*Ei, dem alten Herrn Zoll' ich Achtung gern*«. *Festschrift für Joachim Veit zum 60. Geburtstag*. Munich: Allitera Verlag, 2016, pp. 617–30.
- L. Pugin, 'Going Digital: Finding the right path for critical music editions'. In Boccadoro, B. and G. Starobinski (Eds), *Mélanges en l'honneur d'Etienne Darbellay*. Berne: Peter Lang, 2013, pp 247–66.
- L. Pugin, 'Music printers at work: Comparing editions of Marenzio's Primo libro di madrigali a quattro'. In Calcagno, M. and P. Cecchi, P (Eds), *Luca Marenzio and the Late Renaissance Madrigal: Music, Poetry, Patronage, and Reception* (Centre d'Études Supérieures de la Renaissance, Collection Epitome musicale). Turnhout: Brepols Publishers, [forthcoming], pp. 411–31.

### PEER-REVIEWED JOURNAL PAPERS

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- K. Keil and L. Pugin, 'RISM – Eine internationales Gemeinschaftsprojekt zum Nutzen und als Aufgabe für Forschung und Bibliothek', *Bibliothek. Forschung und Praxis: Special Issue on Digital Musicology*. Vol 42 No. 2 (2018), pp. 309–18, (<https://doi.org/10.1515/bfp-2018-0042>).
- E. Bell and L. Pugin, 'Heuristic and supervised approaches to handwritten annotation extraction for musical score images', *International Journal on Digital Libraries*. (2018), (<https://doi.org/10.1007/s00799-018-0249-7>).
- J. Kepper and L. Pugin, 'Was ist eine Digitale Edition? Versuch einer Positionsbestimmung zum Stand der Musikphilologie im Jahr 2017', *Musiktheorie, Digitalität in der Musikwissenschaft*. Vol. 32 No. 4 (2017), pp. 347–63.
- C. Guggi and L. Pugin, 'Zehn Jahre Entwicklungs- und Katalogisierungserfahrung mit Muscat', *Forum Musikbibliothek*. Vol. 38 No. 1 (2017), pp. 20–7.
- L. Pugin, 'The Challenge of Data in Digital Musicology', *Frontiers in Digital Humanities*. Vol. 2 No. 4 (2015), (doi: 10.3389/fdigh.2015.00004).
- P. Roland, A. Hankinson and L. Pugin, 'Early music and the Music Encoding Initiative', *Early Music*. Vol. 42 No. 4 (2014), (doi: 10.1093/em/cau098).
- L. Pugin, A. Hankinson and I. Fujinaga, 'Digital preservation and access strategies for musical heritage: The Swiss RISM experience'. *OCLC Systems & Services: International Digital Library Perspectives: Special Issue on Music Information Retrieval*. Vol. 28 No. 1 (2012), pp.43–55
- L. Pugin, and A. T. Geertinger, 'The Music Encoding Initiative (MEI) in cataloguing projects'. *Die Tonkunst*. Vol. 5 No. 3 (2011), pp. 289–94.
- A. Hankinson, W. Liu, L. Pugin, and I. Fujinaga, 'Diva.js: A Continuous Document Viewing Interface'. *Code4Lib* [Online], Issue 4, July 2011.
- L. Pugin, 'Editing Renaissance music: The Aruspix project'. *Beihefte zur Editio, Internationales Jahrbuch für Editionswissenschaften*. Tübingen: Max Niemeyer, 2009, pp. 94–103.
- L. Pugin, 'Aruspix, an automatic system for source comparison', in Hewlett, W. B. and Selfridge-Field, E. (Eds.), *Music Analysis East and West* (Computing in Musicology vol. 14). Cambridge, MA: MIT Press, 2006, pp. 49–60.
- L. Pugin and C. Jeanneret, 'Wolfgang music notation software: latest developments' in: Hewlett, W. B. and Selfridge-Field, E. (Eds.), *Music Analysis East and West* (Computing in Musicology vol. 14). Cambridge, MA: MIT Press, 2006, pp. 61–72.

- L. Pugin, 'Aruspix and the Marenzio Online Digital Edition: Some lessons and the evolution of the project plan'. In *Proceedings of the (Re-)Constructing Renaissance Music – Perspectives from the Digital Humanities and Music Theory Conference*, pp. 103–23. April 2018, Mainz.
- L. Pugin, 'Interaction perspectives for music notation applications'. In *Proceedings of Workshop on Semantic Applications for Audio and Music (SAAM 2018)*, pp. 54–8. Monterey, USA.
- E. Bell and L. Pugin, 'Approaches to handwritten conductor annotation extraction in musical scores'. In *Proceedings of the 3rd ACM International workshop on Digital Libraries for Musicology (DLfM 2016)*, pp. 33–6. New York, USA. (doi: 10.1145/2970044.2970053).
- R. Zitellini and L. Pugin, 'Representing atypical music notation practices: An example with late 17<sup>th</sup> century music'. In *Proceedings of the Second International Conference on Technologies for Music Notation and Representation (TENOR 2016)*. Cambridge, UK.
- L. Pugin, R. Zitellini and P. Roland, 'Verovio: A library for engraving MEI music notation into SVG'. In *Proceedings of the 15th International Society for Music Information Retrieval Conference (ISMIR 2014)*, pp. 107–12. Taipei, Taiwan.
- R. Zitellini and L. Pugin, 'Verorio: A library for typesetting MEI'. In *Proceedings of the Music Encoding Conference 2014*. Charlottesville, VA, USA.
- A. Hankinson, L. Pugin and I. Fujinaga, 'Accessing, navigating, and engaging with high-resolution document image collections using Diva.js'. In *Proceedings of the Digital Humanities Conference 2014*. Lausanne, Switzerland.
- L. Pugin, 'Early Music Online and the challenges of encoding part-books'. In *Proceedings of the The Music Encoding Conference 2013: Practicalities of Corpus Building: Creating and Exploring Digital Data*.
- L. Pugin and T. Crawford, 'Evaluating OMR on the Early Music Online collection'. In *Proceedings of the 14th International Society for Music Information Retrieval Conference (ISMIR 2013)*.
- L. Pugin, and R. Zitellini, 'Instrument distribution and music notation search for enhancing bibliographic music score retrieval'. In *Proceedings of the ACM-IEEE Joint Conference on Digital Libraries (JCDL 2013)*, pp 195–8, Indianapolis, IN, USA.
- L. Pugin, J. Kepper, P. Roland, M. Hartwig and A. Hankinson, 'Separating presentation and content in MEI'. In *Proceedings of the 13th International Society for Music Information Retrieval Conference (ISMIR 2012)*. pp. 505–10, Porto, Portugal.
- A. Hankinson, W. Liu, L. Pugin, and I. Fujinaga, 'Diva: A web-based high-resolution digital document viewer'. In *Proceedings of the International Conference on Theory and Practice of Digital Libraries (TPDL 2012)*. Paphos, Cyprus.
- A. Hankinson, L. Pugin, and I. Fujinaga, 'An interchange format for optical music recognition applications'. In *Proceedings of the 11th International Society for Music Information Retrieval Conference (ISMIR 2010)*, pp. 51–6. Utrecht, Netherlands.
- A. Hankinson, L. Pugin, and I. Fujinaga, 'Interfaces for document representation in digital music libraries'. In *Proceedings of the 10th International Society for Music Information Retrieval Conference (ISMIR 2009)*, pp. 39–44. Kobe, Japan.
- J. A. Burgoyne, Y. Ouyang, T. Himmelman, J. Devaney, L. Pugin, and I. Fujinaga, 'Lyric extraction and recognition on digital images of early music sources'. In *Proceedings of the 10th International Society for Music Information Retrieval Conference (ISMIR 2009)*, pp. 723–7. Kobe, Japan.
- Y. Ouyang, J. A. Burgoyne, L. Pugin, and I. Fujinaga, 'Complex layout analysis of medieval music manuscripts for information extraction and optical recognition'. In *Proceedings of the 2009 International Computer Music Conference (ICMC 2009)*, pp. 101–4. Montreal, QC, Canada.
- L. Pugin, J. Hockman, J. A. Burgoyne, and I. Fujinaga, 'Gamera versus Aruspix: Two optical music recognition approaches'. In *Proceedings of the 9th International Conference on Music Information Retrieval (ISMIR 2008)*, pp. 419–24. Philadelphia, PA, USA.
- J. A. Burgoyne, J. Devaney, L. Pugin, and I. Fujinaga, 'Enhanced bleedthrough correction for early music documents with recto-verso registration'. In *Proceedings of the 9th International Conference on Music Information Retrieval (ISMIR 2008)*, pp. 407–12. Philadelphia, PA, USA.

- L. Pugin, J. A. Burgoyne, and I. Fujinaga, 'MAP adaptation to improve optical music recognition of early music documents using hidden Markov models'. In *Proceedings of the 8th International Conference on Music Information Retrieval (ISMIR 2007)*, pp. 513–16. Vienna, Austria.
- J. A. Burgoyne, L. Pugin, C. Kereliuk, and I. Fujinaga, 'A cross-validated study of modelling strategies for automatic chord recognition in audio', in *Proceedings of the 8th International Conference on Music Information Retrieval (ISMIR 2007)*, pp. 251–4. Vienna, Austria.
- J. A. Burgoyne, L. Pugin, G. Eustace, and I. Fujinaga, 'A comparative survey of image binarisation algorithms for optical recognition on degraded musical sources', in *Proceedings of the 8th International Conference on Music Information Retrieval (ISMIR 2007)*, pp. 509–12. Vienna, Austria.
- L. Pugin, J. A. Burgoyne, and I. Fujinaga, 'Reducing costs for digitising early music with dynamic adaptation'. In *Proceedings of the European Conference on Digital Libraries (ECDL 2007)*, pp. 471–4. Budapest, Hungary, September 2007.
- L. Pugin, J. A. Burgoyne, and I. Fujinaga, 'Goal-directed evaluation for the improvement of optical music recognition on early music prints'. In *Proceedings of the ACM-IEEE Joint Conference on Digital Libraries (JCDL 2007)*, pp. 303–4. Vancouver, BC, Canada.
- L. Pugin, 'Optical music recognition of early typographic prints using hidden Markov models', in *Proceedings of the 7th International Conference on Music Information Retrieval (ISMIR 2006)*, p. 53–6. Victoria, BC, Canada.

#### CONFERENCE PROCEEDING POSTERS

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- L. Pugin, 'Verovio in Geschichte, Gegenwart ... und Zukunft', *Music Encoding Conference*, Vienna, May 2019.
- R. Zitellini, G.-J. Giezeman, F. Wiering, and L. Pugin, 'Incipit Melodic Similarity Matching in Muscat', *Late-breaking demo, 19th International Conference on Music Information Retrieval (ISMIR 2018)*, Paris, September 2018.
- P. Boschetti, J. Tchamkerten, and L. Pugin, 'OnStage : Une base de données « programmatique »', *International IAML Annual Conference*, Roma, Italy, July 2016.
- L. Pugin and C. Bacciagaluppi, 'TEI for Indexing a 19th-Century Handwritten Music Inventory'. *The 2010 Conference and Members Meeting of the TEI Consortium*, Zadar, Croatia, November 2010.
- L. Pugin, C. Bacciagaluppi and L. Collarile, 'The Music Inventory Database'. *11th International Society for Music Information Retrieval Conference (ISMIR 2010)*, Utrecht, Netherlands, August 2010.
- A. Hankinson, L. Pugin, G. Hanke Knaus, and I. Fujinaga, 'Web-based musical document viewer for digital music libraries', *9th International Conference on Music Information Retrieval (ISMIR 2008)*, Philadelphia, PA, September 2008.
- L. Pugin, J. A. Burgoyne, and I. Fujinaga, 'Optical music recognition to digitise early music collections on a library scale', *International IAML Annual Conference*, Naples, Italy, July 2008.
- L. Pugin, J. A. Burgoyne, D. Eck, and I. Fujinaga, 'Book-adaptive and book-dependent models to accelerate digitization of early music'. *NIPS Workshop on Music, Brain & Cognition*. Whisler, Canada, December 2007.

#### THESIS

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- "Music sources in the digital domain: From inventories to interactive editions". Faculty of Arts, Bern University, Habilitation dissertation, 2019.
- "Lecture et traitement informatique de typographies musicales anciennes: Un logiciel de reconnaissance de partitions par modèles de Markov cachés". Faculty of Arts, Geneva University, Musicology PhD dissertation, 2006. Supervisor: Prof. E. Darbellay. Chair: Prof. B. Boccadoro. Examiners: Prof. I. Fujinaga (McGill University), Prof. E. Selfridge-Field (Stanford University), Prof. Ch. Pellegrini, Prof. E. Wehrli.
- "Réalisation d'un système de superposition de partitions de musique anciennes". Faculty of Sciences, Geneva University, Computing BSc dissertation, 2001. Supervisor: Prof. T. Pun.

“Canzoni per sonare, Venitia, 1608, appresso Alessandro Raveri. Une édition critique”. Faculty of Arts, Geneva University, Musicology MA dissertation, 2000. Supervisor: Prof. E. Darbellay.

#### INVITED TALKS AND PAPERS

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- ‘A Guided Tour of Verovio’s Toolkit’, *Music Engraving in the 21st Century – Developments and Perspectives*, Mozarteum Music University, Salzburg, January 2020.
- ‘Interactive Music Notation with MEI and Verovio’, *19. Jahreskongress der Gesellschaft für Musiktheorie*, Zurich, September 2019.
- ‘The Music Text in the Digital Domain’, *Ringvorlesung – Transdisziplinäre Aspekte Digitaler Methodik in den Geistes- und Kulturwissenschaften*, Johannes Gutenberg-Universität, Mainz, Juni 2019.
- ‘La numérisation du texte musical’, *Café culturel de l’Office fédéral de la culture*. Swiss national library, Bern, May 2019, with Cédric Guggi.
- ‘Datenmodellierung und Standards für die Dokumentauszeichnung’, Tagung *Open Data – Geisteswissenschaftliche Forschungsplattformen in der Schweiz im Kontext von Open und FAIR Data*. Swiss Academy of Humanities and Social Sciences, Bern, November 2018.
- ‘Lessons from the Marenzio Project’, *Troja Kolloquium – Digitalität in der Renaissancemusikforschung*. Johannes Gutenberg University Mainz, April 2018.
- ‘Möglichkeiten der digitalen Musikedition und Analyse mit dem Codierungsstandard der Music Encoding Initiative. Ein Praxisbericht’, *Institut für Musikwissenschaft*. University of Vienna, April 2018, with Johannes Kepper.
- ‘RISM Looking Forward’, *Transforming musicology final event*. Oxford University, December 2017.
- ‘Des partitions musicales aux ressources digitales plein texte’, *Collège des Humanités*. Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, December 2017.
- ‘Les éditions critiques digitales’, *Journée de l’Association suisse des collections musicales*. Swiss national library, Bern, November 2017.
- ‘Music Sources in the Digital Domain’, *Abteilung Musik- und Tanzwissenschaft*. University of Salzburg, November 2017.
- ‘L’édition critique digitale’, *De la typographie à la gravure : la partition de musique en France aux XVIIe et au XVIIIe siècle et ses problèmes éditoriaux*. IReMus – Paris Sorbonne, May 2017.
- ‘Musique et mathématiques’, *Collège des Humanités*. Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, April 2017.
- ‘Verovio: Interacting with Music Notation’, *Digital Editing and Music*. St John’s College, Cambridge University, UK, January 2017.
- ‘The Music Encoding Initiative as a Meeting Point for Music Scholarly Projects’, *Bringing the Past into the Future: Creating and Curating Digital Music Archives*. Ewha Womans Univ., Seoul, October 2016.
- ‘Muscat 3.0’, *IAML Annual Conference, RISM session*. Rome, July 2016.
- ‘Aggregating Digital Resources for Musicology’, *Scholarship and the Future of Academic Publishing workshop*. Goldsmiths, University of London, April 2016.
- ‘The Marenzio Online Digital Edition (MODE)’, *Digital Technologies and Renaissance Music: Critical Editions, History of Style, and Analysis session at the Annual Meeting of the Renaissance Society of America*. Boston, April 2016.
- ‘Music Encoding as an Interpretation Process: Are there any Traditions?’, *Oxford e-Research Centre seminar*. Oxford University, December 2015. (<http://bit.ly/pugin2015oerc>)
- ‘Standards et best practices pour les projets d’éditions digitales’, *Digital Humanities: Neue Herausforderungen für den Forschungsplatz Schweiz*. SAGW, Bern University, November 2015.
- ‘Challenges of Music Research in the Digital Age’, *Col·loqui recerca musical en l’era digital: catalogació i bases de dades*. Institut d’Estudis Catalans, Barcelona, October 2015.
- ‘La Music Encoding Initiative: une vue d’ensemble de ses possibilités et des projets en cours’, *Musiques orales, leur notation et encodage numérique*. Chaire ITEN Unesco, Paris, October 2015.

- 'Visualising and Working with RISM Data', *Digital Approaches to Early Music seminar, Goldsmiths College*. London, September 2015.
- 'Digital Tools for Musicological Research: Issues and Perspectives', *Department of Music, School of Arts & Sciences, University of Pennsylvania*. Philadelphia, July 2015.
- 'Geo-visualisation of Early Music Print Data', *Early Music Scholarship and Technology session at the Annual International Medieval and Renaissance Music Conference*. Brussels, July 2015.
- 'Music Research in the Digital Age', *Plenary panel session at the IAML and IMS Congress*. New York City, July 2015.
- 'Encoding and Visualization of Digital Music Editions', *The Music Encoding Initiative (MEI) session at the IAML and IMS Congress*. New York City, July 2015.
- 'Cross-Platform Music Notation with SMuFL and MEI', *Music Encoding Conference*, Florence, May 2015, with Andrew Hankinson and Andrew Horwitz.
- 'From RISM to MEI: Facilitating the Reuse of Music Incipits', *The Music Encoding Conference*, Florence, May 2015, with Rodolfo Zitellini.
- 'Visualising and Working with RISM Data', *A Big Data History of Music: Digital Strategies for Historical Musicologists Study Day at the British Library*, London, March 2015.
- 'Italian Madrigals on Tablet: The Marenzio Online Digital Edition (MODE)', *Kislak Center for Special Collections, Rare Books and Manuscripts, University of Pennsylvania*. Philadelphia, February 2015.
- 'Taking Music Notation from Paper to Digital in Musicological Research', *Collège des Humanités. Ecole Polytechnique Fédérale de Lausanne (EPFL)*, Lausanne, December 2014.
- 'Music Notation in Web-Browsers for Computational Musicological Applications', *Empirical Approaches to Music Theory and Musicology session at the American Musicological Society Annual Meeting*. Milwaukee, November 2014.
- 'Historical Music Sources as Testimony of Compositional Processes', *22th Meeting of Japanese Society of Sonic Arts (JSSA)*. Tokyo, November 2014.
- 'The Marenzio Project', *Early Music in the Digital Domain at Columbia University and Beyond*. Columbia University, New York City, October 2014, with Mauro Calcagno and Giuseppe Gerbino.
- 'Visualising Large Data Sets of Music Bibliographical Records', *IAML Annual Conference, Big Data and Music Research session*. Antwerp, July 2014, with Marnix Van Berchum.
- 'The Music Encoding Initiative', *Digitale Musikedition Symposium*. Bern University, June 2014.
- 'Aruspix – A Software Suite and its Applications', *Music Printing and Publishing in Modern Italy: New Approaches, International Workshop*. Venice, February 2014.
- 'Looking at Printed Music Anthologies in the Context of Digitization', *SIMSSA 3rd Workshop*. Montreal, Canada, September 2013.
- 'The RISM A/I Series: Latest Developments', *IAML Annual Conference*. Vienna, Austria, August 2013.
- 'Challenges and Perspectives for Bringing Together East and West in Music Iconography Digital Resources', *14th International RIdIM Conference on Music Iconography: Visual Intersections: Negotiating East and West*. Istanbul, Turkey, June 2013.
- 'Early Music Online and the Challenges of Encoding Part-Books', *The Music Encoding Conference 2013: Concepts, Methods, Editions*. Mainz, Germany, May 2013.
- 'New Digital Projects for the Study and Dissemination of Medieval and Renaissance Music' (Panel), *American Musicological Society Annual Meeting*. New Orleans, November 2012.
- 'Recognition of EMO vocal music with Aruspix', *"Unlocking historical musical resources", International Workshop at the British Library*. London, September 2012.
- 'TEI and the Music Encoding Initiative', *"Texte digital & document génétique. Text Encoding Initiative et édition génétique", International Exploratory Workshop*. Bern, September 2012.
- 'From Music Metadata Catalogues to Digital Editing in MEI', *IAML Annual Conference*. Montreal, July 2012.

- 'Collaborative Projects in Digital Musicology: Demos and Discussion' (Study Group), *International Musicological Society Conference*. Roma, July 2012.
- 'The Use of METS for Delivering Digital Objects together with RISM Catalog Records', *60th Anniversary RISM Conference: Music Documentation in Libraries, Scholarship, and Practice*. Mainz, June 2012.
- 'Un ordinateur peut-il comprendre les règles de la notation mensuraliste?', *La nature de la partition: penser la notation en musique et en danse (journée d'étude)*. Geneva University, May 2012.
- 'Digital Editions for Renaissance Music: Challenges and Perspectives'. Stony Brook University (NY), March 2011.
- 'What Can We do with a Diplomatic Transcription Linked to the Original Image?', *Renaissance Society of America*. Montreal, March 2011.
- 'Encoding and Representing Music within a TEI Document'. *The 2010 Conference and Members' Meeting of the Text Encoding Initiative Consortium*. Zadar, Croatia, November 2010.
- 'The Marenzio Project', *The Chansonniers of Nicholas Du Chemin (1549-1551): A Digital Forum for Renaissance Music Books, Workshop at the Newberry Library*. Chicago, October 2009.
- 'The New RISM Data Management Framework from RISM-UK and RISM-CH', *IAML Annual Conference*. Amsterdam, July 2009.
- 'Building a Comprehensive Digital Library for Nineteenth-Century Swiss Composers', *IAML Annual Conference*. Amsterdam, July 2009, with A. Hankinson.
- 'The Marenzio Project and Electronical Editions', *Knowledge Representation for Intelligent Music Processing Seminar*. Dagstuhl Schloss, Germany, January 2009.
- 'RISM Workshop on Cataloguing', *XVIII Congresso da Associação Nacional de Pesquisa e Pós-Graduação em Música*. Salvador de Bahia, September 2008, with G. Hanke Knaus.
- 'Variants in Renaissance Music Sources: the Aruspix Project', *Digital Editing between Experiment and Standardization, International Conference*. Paderborn University, Germany, December 2007.
- 'From Optical Recognition to Scholarly Editions: The Marenzio Project', *IMS Study Group on Musical Data Computer Applications*. Zurich, July 2007.
- 'The Swiss-RISM Database', *RISM-meeting at the International Musicological Society Congress*. Einsiedeln, Switzerland, July 2007.
- 'Two Approaches to Optical Music Recognition', *College of Engineering and Architecture*. Fribourg, Switzerland, June 2006, with I. Fujinaga.
- 'Computer Software for Early Music Editions: A New Approach', *Music, Poetry and Patronage in Late Renaissance Italy : Luca Marenzio and the Madrigal, International Conference*. Harvard University, April 2006.
- 'Aruspix Application Software', *Luca Marenzio e il madrigale romano*, Accademia di Santa Cecilia. Roma, September 2005.
- 'RISM-Switzerland and its Database', *IAML Annual Conference*. Warsaw, July 2005.