# Katerina Kosta, Ph.D.

I am a machine learning researcher at Jukedeck, London, U.K., working as part of the composition team whose aim is to develop machine learning systems for music generation. I pursued my Ph.D. from the Centre for Digital Music, Queen Mary University of London, conducting research on modelling dynamic variations in expressive music performance. Other research interests during my studies included machine learning for music synthesis and analysis of perceived emotion in music audio. I received degrees from National and Kapodistrian University of Athens (Mathematics) and Filippos Nakas Conservatory, Athens (Piano), and a Sound and Music Computing Masters from the Music Technology Group, UPF, Barcelona.

## Personal Information


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| Tel. | 0044(0)7818958018 |
| E-mail address | katkost@gmail.com |
| Occupation | Machine Learning Research, Music Information Retrieval |
| Current Location | London, U.K. |
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| Website | www.katerinakosta.com |


## Industry Experience

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| 2016-present | Machine Learning Researcher, Jukedeck, London U.K. |
| 2015 (Oct-Dec) | Research Intern, Intelligent Music System Group, R&D Division, YAMAHA, Japan |

## Studies

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| 2012-2016 | Ph.D. research, Centre for Digital Music, Electronic Engineering and Computer Science Department, Queen Mary University of London, UK<br>Title: “Computational Modelling and Quantitative Analysis of Dynamics in Performed Music”<br>Supervisors: Prof. Elaine Chew, Dr. Oscar F. Bandtlow |
| 2010-2011 | MSc in Sound and Music Computing, Music Technology Group, Department of Information and Communication Technologies, Universitat Pompeu Fabra, Barcelona, Spain |
| 2004-2010 | BSc in Mathematics, Specialisation: Applied Mathematics, National and Kapodistrian University of Athens, Greece |
| 2005-2010 | Final Degree in Classical Piano, Full Music Theory Studies, Filippos Nakas Conservatory, Athens, Greece |
| 1998-2003 | Classical Piano Studies, Apolonio Conservatory, Athens, Greece |

## Knowledge & Skills

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| Great Command of | Computational packages: MATLAB, OCTAVE<br>Programming languages: Python, R<br>Markup languages: LaTeX, html, css<br>Development platforms: GitHub, EasyMercurial<br>Software: Sonic Visualizer, MuseScore |
| Good Knowledge of | Programming languages: C, JAVA |

## Awards

- Internship position in YAMAHA, Japan (2015)
- Principal's Interdisciplinary Studentship (fully funded Ph.D. studies) (2012)
- Best Presentation award, Audio Engineering Society (AES) 53rd International Conference (2014)
- Queen Mary University of London Platform Grant Funding for Research Visit at the Music Technology Group, Universitat Pompeu Fabra, Barcelona, Spain (2015)
- Awards from 7Digital and SonicAPI for the team hack "Brutalize Me", Music Hack Day, Paris (2013)

## University Activities

- Centre for Digital Music Ph.D. representative, Queen Mary University of London (2012-2013)
- Co-planner and co-presenter of the workshop "Learn to Hack Web Audio API with G-Hack", Sónar Festival, Barcelona, Spain (2014)
- "Research Open Day 2013" Sponsorship Coordinator, Queen Mary University of London (2013)
- Mathemusical Conversations International Workshop Posters Chair, Singapore (2015)
- Teaching Assistant of the undergraduate courses:
  Department of Computer Science, Queen Mary University of London:
  "Procedural Programming-JAVA" (Fall 2013),
  "Probability and Matrices" (Fall 2013, Fall 2014),
  "Business Modelling" (Fall 2012)
  Department of Mathematics, University of Athens:
  "Informatics I-MATLAB" (Fall 2011)
- Volunteer at the Computer Lab, Department of Mathematics, University of Athens:
  Computer Lab assistant (2007-2009)
  Moderator of the official Internet Forum (2009-2010)
  Participation in the development of the Internet based radio station "Lab Radio" (2009-2010)

## Music Activities

- Filippos Nakas conservatory:
  Member of chamber music groups (2005-2007)
  Member of the conservatory classical choir-soprano (2007-2009)
  Member of modern music groups-keyboards, vocals (2005-2007)
- Local Athenian theatrical team:
  Composition, songs arrangements for piano and music execution in plays (2006 & 2009)
  Member as an actor (2000-2002)
- Member of the advanced choir "Song birds" of City Academy Choir-soprano, London (2012-2014, 2016-2017)

## Publications

- Medeot, G., Cherla, S., Kosta, K., McVicar, M., Abdallah, S., Selvi, M., Newton-Rex, E., & Webster, K. (2018). StructureNet: Inducing Structure in Generated Melodies. In *Proceedings of the 19th International Society for Music Information Retrieval Conference (ISMIR)*, pp. 725-731, Paris, France. (link)
- Kosta, K., R. Ramirez, O. F. Bandtlow, E. Chew (2016). Mapping between dynamic markings and performed loudness: A machine learning approach. *Journal of Mathematics and Music,* 10(2): 149-172. (link)
- Kosta, K., O. F. Bandtlow, E. Chew (2018). Dynamics and relativity: Practical implications of dynamic markings in the score. *Journal of New Music Research*, 47(5): 438-461. (link)
- Kosta, K. (2017). Computational Modelling and Quantitative Analysis of Dynamics in Performed Music. Ph.D. Thesis. Centre for Digital Music, Queen Mary University of London, London, UK. (link)
- Kosta, K., O. F. Bandtlow, E. Chew (2018). MazurkaBL: Score-aligned loudness, beat, and expressive markings data for 2000 Chopin Mazurka recordings. In *Proceedings of the 4th International Conference on Technologies for Music Notation and Representation (TENOR)*, pp. 85-94, Montreal, Canada. (link)
- Kosta, K., O. F. Bandtlow, E. Chew (2017). Dynamic change points in music audio capture dynamic markings in score.*18th International Society for Music Information Retrieval Conference (ISMIR)*, Late-Breaking and Demo Session, Suzhou, China. (link)
- Kosta, K., O. F. Bandtlow, E. Chew (2016). Outliers in Performed Loudness Transitions: An Analysis of Chopin Mazurka Recordings. In *Proceedings of the 14th International Conference for Music Perception and Cognition (ICMPC)*, pp. 601-604, July 5-9, 2016, San Francisco, California, USA. (link)
- Kosta K., R. Ramirez, O. F. Bandtlow, E. Chew (2015). Predicting loudness levels and classifying dynamic markings in recorded music. In *Proceedings of 8th International Workshop on Machine Learning and Music (MML2015)*, Machine Learning for Music Generation, Vancouver, Canada. (link)
- Kosta, K., O. F. Bandtlow, E. Chew (2015). A Change-point Approach Towards Representing Musical Dynamics. In T. Collins, D. Meredith, A. Volk (eds.): *Mathematics and Computation in Music: 5th International Conference, MCM 2015, London, UK, June 22-25, 2015, Proceedings*, pp. 179-184, Lecture Notes in Computer Science 9110, Berlin: Springer. (link)
- Kosta, K., Li, S. (2014). 2013 Performance Studies Network International Conference. *Computer Music Journal*, 38(2): 78-80. (link)
- Kosta, K., O. F. Bandtlow and E. Chew (2014). A Study of Score Context-dependent Dynamics in Piano Performance (abstract). In *Proceedings of the Performance Studies Network International Conference (PSN3)*, Jul 17-20, Cambridge, UK. (link)
- Kosta, K., O. F. Bandtlow, E. Chew (2014). Practical Implications of Dynamic Markings in the Score: Is piano always piano? In *Proceedings of the 53rd Audio Engineering Society (AES) Meeting on Semantic Audio*, Jan 26-29, London, UK. (link)
- Kosta, K., Y. Song, G. Fazekas, M. Sandler (2013). A Study of Cultural Dependence of Perceived Mood in Greek Music. In *Proceedings of the 14th International Society for Music Information Retrieval (ISMIR)*, pp. 317-322, Nov 4-8, Curitiba, Brazil. (link)
- Kosta, K., M. Marchini, H. Purwins (2012). Unsupervised Chord-Sequence Generation from an Audio Example. In *Proceedings of the 13th International Society for Music Information Retrieval (ISMIR)*, pp. 481-486, Porto, Portugal. (link)