

DAVID JOHN BAKER

EDUCATION

Ph.D., Music Theory; Minor in Cognitive and Brain Sciences August, 2019
Louisiana State University, Baton Rouge, Louisiana, USA

Modeling Melodic Dictation

Demonstrated how tools from computational musicology and cognitive psychology can inform research on melodic memory via melodic dictation

MSc., Music, Mind and Brain September, 2014
Goldsmiths, University of London, England

B.M., Instrumental Performance (Trumpet) May, 2012
Baldwin Wallace University, Conservatory of Music, Berea, Ohio, USA

CAREER

Postdoctoral Research Associate February 2022 – *Current*
Institute of Logic, Language and Computation
University of Amsterdam

Postdoctoral Research Associate May 2021 – January 2022
Department of Psychology
Goldsmiths, University of London

Senior Research Associate September 2020 – June 2021
Department of Computing
Goldsmiths, University of London

Lead Instructor, Data Science September 2019 – June 2020
Flatiron School,
WeWork

PUBLICATIONS

Articles

Baker, D. (2021). The *MeloSol* Corpus. *Empirical Musicology Review* [Preprint via PsyArXiv]

Brown, J., Tan, D., & **Baker, D.** (2021) The perceptual attraction of pre-dominant chords. *Music Perception*. [Preprint via PsyArXiv]

Vuvan, D. T., Simon, E., **Baker, D.**, Monzingo, E., & Elliott, E. M. (2020). Musical Training Me-

diates the Relation Between Working Memory Capacity and Preference for Musical Complexity. *Memory and Cognition*. <https://doi.org/10.31234/osf.io/9fe8n>

Baker, D., Ventura, J., Calamia, M., Shanahan, D., Elliott, E. (2018). Examining Musical Sophistication: A replication and theoretical commenatry on the Goldsmiths Musical Sophistication Index. *Musicae Scientiae*. Vol. 24(4) 411 – 429 <https://doi.org/10.1177/1029864918811879>

Akkermans, J., Schapiro, R., Müllensiefen, D., Jakubowski, K., Shanahan, D., **Baker, D.**, Busch, V., Lothwesen, K., Elvers, K., Fischinger, T., Schlemmer, K. & Frieler, K. (2018). Decoding emotions in expressive music performances: A multi-lab replication and extension study. *Cognition and Emotion*, 33(6). doi:10.1080/02699931.2018.1541312

Baker, D. and Müllensiefen D. (2017). Perception of Leitmoitves in Richard Wagner’s *Der Ring des Nibelungen*. *Frontiers in Psychology: Cognition*, Special Issue on Bridging Music Informatics with Music Cognition. [<https://doi.org/10.3389/fpsyg.2017.00662>]

Book Chapters

Shanahan, D. & **Baker, D.** (*forthcoming* 2022). The Corpus as Proxy for Perception and Cognition of Music. In Shanahan, Quinn, Burgoyne (Eds.), *The Oxford Handbook of Musical Corpus Studies*. Oxford University Press.

Baker, D. (2021). Understanding Melodic Dictation via Experimental Methods. In P. Fleet & K. Cleland (Eds.), *Routledge Companion to Aural Training in Music Education* (pp. 414-423). Milton Park, Abingdon, Oxon: Routledge.

Baker, D. and Shanahan, D. (2018). Examining Fixed and Relative Measurements of Similarity through Jazz Melodies. In *Scholarly Approaches to Mathematical Music Theory: Algebra and Combinatorics, Geometry, Topology, and Graph Theory, Discrete Fourier Transform and Distance Measures for Music*.

Müllensiefen, D., **Baker, D.**, Rhodes, C., Crawford, T., Dreyfus, L. (2016). Recognition of leitmotives in Richard Wagner’s music: chroma distance and listener expertise. In Springer (Ed.) *Analysis of Large and Complex Data*.

Müllensiefen, D., **Baker, D.** (2015) Music in Advertising: Testing What Works (2015) Audio Branding Academy Yearbook 2015.

Reviews and Editorials

Baker, D., Belfi, A., Creel, S., Grahn, J., Hannon, E., Loui, P., Margulis, E., Schachner, A., Schutz, M., Shanahan, D., Vuvan, D. (2020). Embracing Anti-Racist Practices in the Music Perception and Cognition Community. *Music Perception*. 38(2). pp. 103—105. <https://doi.org/10.1525/mp.2020.38.2.103> [Editorial]

Baker, D. (2018) "Coughing and Clapping", in *Empirical Musicology Review* , Vol 13, No. (3-4), pp. 164-165. [Book Review]

Baker, D. (2015) "Unlocking the Mysteries of Your Brain, Dr. Daniel Levitin Public Lecture", in *Psychomusicology: Music, Mind, and Brain*, Vol 25, No.4, pp. 455-456. [Public Lecture Review]

Select Conference Proceedings

Krause, A. E., **Baker, D. J.**, Groarke, J., Pereira, A. I., Liew, K., Anglada-Tort, M., & Steffens, J. (2021). A cross-cultural investigation of music listening practices: The influence of country latitude and seasons on music preference. Paper presented at the 16th International Conference on Music Perception and Cognition (ICMPC)/ 11th triennial conference of the European Society for the Cognitive Sciences of Music (ESCOM).

Weigl, D., Goebel, W., **Baker, D.**, Crawford, T., Zubani, F., Gkiokas, A., Paez, N., Porter, A. and Santos P. (July, 2021) Notes on the Music: A social data infrastructure for music annotation. Digital Libraries for Musicology. ACM (Association for Computing Machinery). doi: 10.1145/3469017

Baker, D., Elliott, E., Shanahan, D., Ventura, J. Monzingo, E., Ritter, B., & Young, C. (2018) Explaining Objective and Subjective Aspects of Musical Sophistication: Insights from General Fluid Intelligence and Working Memory. *Proceedings of 2018 International Conference on Music Perception and Cognition*.

Shanahan, D., Elliott, E., **Baker, D.**, Ventura, J., Monzingo, E., Holt, H., & Keller, H. (2018) Dissecting the Effects of Working Memory, General Fluid Intelligence, and Socio-Economic Status on Musical Sophistication. *Proceedings of 2018 International Conference on Music Perception and Cognition*.

Baker, D., Monzingo, E., & Shanahan, D. (2018) Modeling Aural Skills Dictation. *Proceedings of 2018 International Conference on Music Perception and Cognition*.

Baker, D., Trahan, T., Müllensiefen, D. (2016) Measuring Music To Brand Personality: A Semantic Differential Tool for Measuring Emotional Space. *Proceedings of 2016 International Conference on Music Perception and Cognition*.

Baker, D., Rosado, A, Shanahan, E., Shanahan, D. (2016) The Interaction of Schema-Driven Gestures and Instrumental Affordances in Bebop Improvisations. *Proceedings of 2016 International Conference on Music Perception and Cognition*.

Berhdal, E., Blandino, M., **Baker, D.**, Shanahan, D. (2016). An Approach for Using Information Theory to Investigate Continuous Control of Analog Sensors by Humans. Audio Mostly. Norrköping, Sweden. [Conference Proceedings Paper]

Baker, D., Rindfleisch, C., Müllensiefen, D. (2015) Parsifal and the effect of narrative on uncon-

scious arousal. *Proceedings of 2015 European Society of Cognitive Sciences of Music*

Müllensiefen, D., **Baker, D.**, Lewis, R., Rhodes, C., Fields, B., and Crawford, T. (2014) Multi-modal Musical Performance Capture. In: *Digital Music Research Network (DRM+9)*. London, United Kingdom. [Conference/Workshop Item]

Other Publications

Lin, X., **Baker D.**, Assefa, S., Tarkhnishvili, N. (2019) Beyond Age and Income: Encouraging saving behaviours. Toynbee Hall. [Research Report]

Manuscripts

Under Review

Ma, Y., **Baker, D.**, Vukovics, K., Davis, C.J, Elliott, E., (July, 2021). Generalizing the Effect of Lyrics on Emotion Ratings. <https://psyarxiv.com/5ku43>

Baker, D., Elliott, E., Ventura, J., Shanahan, D. (July, 2019). The Prediction of Working Memory Capacity by Music Training and Aptitudes: The Importance of Non-Verbal Intelligence and Tonal Stimuli.

Revising after Rejection

Baker, D. (*in preparation*) Frequently Occurring Musical Patterns are Easier to Recall. <https://osf.io/3rjzu/>

In Preparation

Baker, D. (*in preparation*) A Computational Model of Melodic Dictation.

Invited to Submit to Special Issue of Music & Science Explaining music with AI: Advancing the scientific understanding of music through computation

Baker, D. and Müllensiefen, D. Additive or Emergent? (*in preparation*) Pairing Music and Visual Scenes at Scale.

Baker, D. and Müllensiefen, D. (*in preparation*) What does it mean for an audio logo to be memorable?

TEACHING

Advising

Daily Supervisor

February 2022 – *Current*

University of Amsterdam

Daily supervisor for PhD candidate Jiaxin Li:

What is the importance of spectral information in music recognition

Undergraduate Dissertation Supervisor

Spring 2022

University of Cambridge

Co-advised on dissertation for Kirsty Ryall

Music and Dyslexia: An investigation into strategies for musical memory

Flatiron School

Autumn 2019 – June 2020

Flatiron School Data Science Bootcamp

Supervised final data science portfolio projects

Lead Instructor, In Person, Online

Classroom Teaching

Guest Lecturer

Winter 2022

Goldsmiths, University of London

Guest lectured on graduate classes on timbre analysis the peer review process

Guest Lecturer

Spring 2022

University of Cambridge

Delivered three lectures at Masters level on music, psychology, and emotion

Computational Musicology

Spring 2022

University of Amsterdam

Assisted in labs, grading, tutorials for 70+ course

Hybrid delivery of topic for music and AI undergraduates

Teaching Assistant

Issues in Music and Science

Winter 2020

Humboldt-Universität zu Berlin, Germany

Delivered 16 lecture course for undergraduates

Introduction to study of Music and Science

Instructor of Record, Online

Lead Instructor, Data Science

September 2019 – June 2020

Flatiron School x WeWork, London

Delivered daily lectures, advised projects, developed curricula

Vocational Coding Bootcamp

Lead Instructor, In Person and Online**Multivariate Statistics**

Spring, 2018

Louisiana State University

Assisted with weekly lectures

Advanced Statistics for Graduate Students in Psychology

Graduate Teaching Assistant, In Person**Intermediate Statistics**

Fall, 2017

Louisiana State University

Assisted with weekly lectures

Intermediate Statistics for Students in Psychology

Graduate Teaching Assistant, In Person**Foundations of Music Study**

Fall, 2016

Louisiana State University

Prepared and delivered 15 Week Course

Remedial Music Theory Course for Undergraduates

Instructor of Record, In Person**Aural Skills IV**

Spring 2016, 2017

Louisiana State University

Prepared and delivered 15 Week Lab

Chromatic and Post Tonal Aural Skills for Undergraduates

Instructor of Record, In Person**Aural Skills III**

Autumn 2015, 2016

Louisiana State University

Prepared and delivered 15 Week Lab

Chromatic Aural Skills for Undergraduates

Instructor of Record, In Person**SERVICE****Academic****Chair, Anti-Racism and Equity Committee**

2022 – present

Society for Music Perception and Cognition

Consortium on Musicality and Genetics

June 2020 – Current

Assisted Henkjan Honing, Reyna Gordon, and Simon Fisher in organising two events to initiated consortium on musicality

and genetics

Digital Libraries for Musicology, 2022

January 2020 – July 2022

Proceedings Chair

Anti-Racism and Equity Committee

2020 – present

Society for Music Perception and Cognition

Mentor, WiMIR Mentoring Program

2020 – 2021

International Society for Music Information Retrieval

Trainee Member, Executive Board

2019 – 2020

Society for Music Perception and Cognition

- Organized trainee events at conference including Faculty-Student lunch, Applying to Graduate School Panel, Early Career Session Panel, and Student Meet-and-Greet
- Duties to assist and advise the President, Secretary, Treasurer, and President Elect in their deliberations and their duties, and in general shall see to the welfare of SMPC
- Represented the views of student members of SMPC
- Served on Election Committees and Anti-Racism Committee

Ad Hoc Peer Reviewer

2018 – *present*

- *Music Perception*
- *Annals of the New York Academy of Sciences*
- *Music and Science*
- *Musicae Scientiae*
- *Psychology of Music*
- *SysMus* Conference Series

Non Academic

Research and Evaluation Resident

June 2018 – March 2019

Toynbee Hall, London, England

- Used a Participatory Action Research research with East London communities
- Topics researched included financial savings, mental health support for advice users, private renting, poverty premium, and support for young people
- Organized Datathon partnering community organizations and data scientists for #DataFor-Good event

Awards and Funding

Notable Honors

Honorable Mention

April, 2020

Josephine A. Roberts LSU Alumni Association

2019 Distinguished Dissertation Award in Arts, Humanities, and Social Sciences
The Graduate Faculty
Louisiana State University
Campus Wide Competition

LSU Dissertation Year Fellowship 2018 – 2019
The Graduate School \$18,000
Louisiana State University
Annually Awarded to Single Dissertation in Arts, Humanities, and Social Sciences

National Science Foundation Fall, 2017
National Science Foundation \$2,000
Valencia, Spain
Travel Grant from NSF to attend *This Is Your Brain On Art* Conference

PRESENTATIONS

Invited Talks

Baker, D. (May, 2022). Considering Plan D: Data Science after Academia. *AMPLify Your Research Career Series*. Australian Music and Psychology Society.

Baker, D. (October, 2021). Frequently Occurring Melodic Patterns are Easier to Recall. *Computational Audition and Perception Group*. Max Planck Institute for Empirical Aesthetics.

Baker, D. (February, 2021) Career Talk for Introduction to Music and Science. *Faculty of Music*. University of Cambridge.

Baker, D. (January, 2021) Turning Your Values in to Value: Getting a Job in Industry. *Psychology Department*. Goldsmiths, University of London, Online Workshop for Graduate Students and Post-Docs.

Baker, D. (February, 2020) Memory for Melodies. Music Cognition, Quinnipiac University. New Haven, Connecticut. *Skype Lecture*

Baker, D. (March, 2019) Music Cognition and Music Theory. Analytic Techniques in Music Theory, Louisiana State University. Baton Rouge, Louisiana. *Skype Lecture*

Baker, D. (November, 2018) Modeling Melodic Dictation. Research Seminar: Computing & Communications Department, The Open University. Milton Keynes, England.

Workshops and Symposia

Vuvan, D., Belfi, A., Shanahan D., **Baker, D.**, Loui, P. (March, 2021) Town hall on anti-racism in music cognition. Future Directions of Music Cognition. Online Town Hall. *Presented on History of Science, Racism, and Music.*

Baker, D. (September, 2020) Turning Your Values in to Value: Getting a Job in Industry. SysMus 2020. University of York, Online Workshop.

Baker, D., Kragness, H., Loui, P., Slevc, R., Upham, F., Vuvan, D. (May, 2019). Symposium on Open Science. Society for Music Perception and Cognition. New York, New York. [Symposium]

DATA SCIENCE AND SOFTWARE DEVELOPMENT

Consultancy Projects

End Point Assessor Autumn 2021
London, England
Acted as End Point Assessor for Masters in Data Science Project
– Ongoing
Doran Scott Williams

Scientist Autumn 2021
London, England
Assisted in testing of audio assets for international investment services company
– Ongoing
Massive Music

Scientist Winter 2020
London, England
Assisted in creation of audio identity for international pharmaceutical client
– Ongoing
Massive Music

Scientist March 2018–April 2019
London, England
Developed music for modern traveler
Press Coverage in Forbes, easyJet Traveller, børsen (DK)
Soundscape Agency, Citizen M Hotels, Erased Tapes, Bose

Data Scientist March 2018–April 2019
New York City, USA
Developed tool for detecting audio logo uniqueness
Advised on statistical implementations platform
Veritonic, Inc.

Project Consultant

March 2018–April 2019

London, England

Created tool to match brand personality to perceived emotion

Prototype published in 2016 ICMPC Proceedings

Research served as prototype for Soundout's Brand Match Tool

*Soundout***Presenter**

March 2018–April 2019

Berlin, Germany

Co-lead half-day workshop on academic research in audio branding

Focused on brand-personality matching, q methodology, analyzing physiological data

*Audio Branding Academy***Teaching and Education**

Baker, D. (May, 2020) Crash Course in Clustering Algorithms. Flatiron School. London, England.
Zoom Lecture [Link to Talk Here](#)

Baker, D. (March, 2020) The Science of Netflix: How Recommendation Systems Work. Online Meet-Up. Flatiron School. London, England. *Zoom Lecture* [Link to Talk Here](#)

Baker, D. (2019) haRnessing The Open Source Community to Help Local Communities. EARL London Conference. September 10–12th [10 Minute #data4good Flash Talk]

Continuing Professional Development

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| – RStudio Certified <code>tidyverse</code> Instructor | Spring, 2020 |
| – Attended Frank Harrell's Regression Modeling Strategies Short Course | Spring 2020 |