DAVID JOHN BAKER

Postdoctoral Research Associate
Music Cognition Group
Institute for Logic, Language, and Computation
University of Amsterdam
The Netherlands

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CAREER

Postdoctoral Research Associate   February 2022 – *present*
Institute of Logic, Language and Computation
Universiteit van Amsterdam

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

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

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

EDUCATION

Doctor of Philosophy   August, 2019
Music Theory, Minor in Cognitive and Brain Sciences
Louisiana State University, Baton Rouge, Louisiana, USA

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

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

PUBLICATIONS

Peer Reviewed Publications

Wesseldijk, L.W., Henechowicz, T.L, **Baker, D. J.**, Bignardi, G, Karlsson, R, Gordon, R, Mosing, M., Ullén, F., Fisher, S. (*forthcoming*) Notes from a genome: what Beethoven's DNA tells us about genetics. *Current Biology.* [Pre-registration]

Silas, S., **Baker, D.** and Müllensiefen, D. (*forthcoming*) Biasing the emotional-semantic perception of visual scenes with music: A large-scale investigation into the implicit effects of sonic branding. *Journal of Advertising Research*

Burgoyne, J.A., **Baker, D.**, & Spikre, J. (2023) Measuring the Eurovision Song Contest: A Living Dataset

for Real-World MIR. International Society for Music Information Retrieval 2023 Proceedings. 817-823.

Eagle, M., Mendoza, J.K., Wolf, J.E., **Baker, D.**, & Vuvan, D.T. (2023) Anti-Racism and Equity Panel: How Can Music Science Be More Socially Just? *Auditory Perception & Cognition* [10.1080/25742442.2023.2236540] [Pre-Print]

Ma, Y., **Baker, D.**, Vukovics. K., Davis, C.J, & Elliott, E. (2023). Lyrics and melodies: Do both affect emotions equally? A replication and extension of Ali and Peynirciolu (2006). *Musicae Scientiae*. [10.1177/10298649221149109].

Baker, D. (2021). The *MeloSol* Corpus. *Empirical Musicology Review* [10.18061/emr.v16i1.7645]

Brown, J., Tan, D., & **Baker, D.** (2021) The perceptual attraction of pre-dominant chords. *Music Perception*. [10.1525/mp.2021.39.1.21]

Vuvan, D. T., Simon, E., **Baker, D.**, Monzingo, E., & Elliott, E. M. (2020). Musical Training Mediates the Relation Between Working Memory Capacity and Preference for Musical Complexity. *Memory and Cognition*. [10.3758/s13421-020-01031-7]

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) $411 - 429$. [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). [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. [10.3389/fpsyg.2017.00662]

Book Chapters

Shanahan, D. & **Baker, D.** (*forthcoming*). 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*. [Chapter]

Müllensiefen, D., **Baker, D**. (2015) Music in Advertising: Testing What Works (2015) Audio Branding Academy Yearbook 2015. [10.5771/9783845260815-31]

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.
[10.1525/mp.2020.38.2.103]

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

Jiaxin, L., **Baker, D.**, Burgoyne, J.A., & Honing, H. (*forthcoming*) Is Pitch Information Indispensable for Music Recognition? A Pilot Study Based on a Musical Matching-Pairs Game. Paper to be presented at the 17th International Conference on Music Perception and Cognition (ICMPC). [Proceedings]

Krause, A. E., **Baker, D. J.**, Groarke, J., Pereira, A. I., Liew, K., Anglada-Tort, M., & Steffens, J. (2021). A crosscultural 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., Goebl, 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). [10.1145/3469013.3469017]

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. Norrkping, Sweden. [Conference Proceedings Paper]

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

arousal. *Proceedings of 2015 European Soceity 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

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. *Under review at:* The Journal for Experimental Psychology: Learning, Memory and Cognition.

Baker, D., Li, J., Burgoyne, J.A., & Honing, H. (*submitted*) Characterize Musicality and Reveal its Phenotypical Variation between individuals and across societies using engaging games: A Case Study Using the Matching Pairs Paradigm. [Working Paper]

In Preparation

Baker, D., Li, J., Burgoyne, J.A., & Honing, H. (*in preparation*) Evidence for the matching pairs game as psychometric tool to study pitch perception. [Working Paper]

Burgoyne, J.A., **Baker, D.**, & Honing, H. (*in preparation*) What a Game Can Reveal About Music Perception: A Psychometric Analysis of the Matching Pairs Game.

Baker, D. (*in preparation*) Frequently Occurring Musical Patterns are Easier to Recall. [Pre-Print]

Silas, S., **Baker, D.**, Sachet, A., & Müllensiefen, D. (*in preparation*). Discovering emotional-semantic representations for sonic branding: a data-driven approach.

Jaffe, N., **Baker, D.**, & Burgoyne, J.A. (*in preparation*) Listener-Informed Source Separation: Lending Weight to the Source-to-Distortion Ratio.

Baker, D. (*in preparation*) A Computational Model of Melodic Dictation.
[Pre-Print]

TEACHING

Advising

Daily Supervisor   February 2022 – *present*
University of Amsterdam
Daily supervisor for PhD candidate Jiaxin Li
What is the importance of spectral information in music recognition?

Masters Cognitive and Brain Sciences   Spring – Summer 2023
University of Amsterdam
Advised on dissertation for Marielle Baelemans
Literature Thesis on Memory and Timbre

Masters Erasmus Placement Student   February – August 2023
University of Amsterdam
Advised on Masters dissertation for Pablo Dumenil
Degrading audio for game stimuli

Masters of Logic   Winter 2023
University of Amsterdam
Advised Caroline Kellner on
Formalization of the Matching Pairs Game

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 74 final data science portfolio projects
Lead Instructor, In Person, Online

Examinations

External Examiner

The Relationship between Musical Sophistication, Executive Functions and Autistic Traits
Zhong Jian Chee   October, 2022
University of Nottingham, Malaysia

The National Contests Behind International Success: A Musical Comparison of the Eurovision Song Contest,
the Festival di Sanremo and the Melodifestivalen
Jasmijn van Harskamp   June, 2022
University of Amsterdam

Classroom Teaching

Computational Musicology   Spring 2023, 2022
University of Amsterdam
Teaching Assistant

Perception of Timbre   Winter, 2022
Goldsmiths, University of London
Guest Lecturer, Music Mind and Brain MSc Course

Computational Models of Music Perception and Cognition   Winter, 2022
Hochschule für Musik and Theatre
Guest Lecturer

Music and Emotion   Spring, 2022
University of Cambridge
Guest Lecturer

Issues in Music and Science   Winter, 2020
Humboldt-Universität zu Berlin, Germany
Instructor of Record, Online

Lead Instructor, Data Science   2019 − 2020
Flatiron School x WeWork, London
Lead Instructor, In Person and Online

Multivariate Statistics   Spring, 2018
Louisiana State University
Graduate Teaching Assistant, In Person

Intermediate Statistics   Fall, 2017
Louisiana State University
Graduate Teaching Assistant, In Person

Foundations of Music Study   Fall, 2016
Louisiana State University
Instructor of Record, In Person

Aural Skills IV   Spring 2016, 2017
Louisiana State University
Instructor of Record, In Person

Aural Skills III   Autumn 2015, 2016
Louisiana State University
Instructor of Record, In Person

SERVICE

Academic

Chair, Anti-Racism and Equity Committee   2022
Society for Music Perception and Cognition

Consortium on Musicality and Genomics, Steering Committee   June 2020 – Current

Digital Libraries for Musicology, 2022   January 2020 – July 2022
Proceedings Chair

Member, 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

Peer Reviewer   *2018 – present*
  – *Music Perception*
  – *Cognition*
  – *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

AWARDS AND FUNDING

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Notable Honors

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Honorable Mention   April, 2020
Josephine A. Roberts LSU Alumni Association
2019 Distinguished Dissertation Award in Arts, Humanities, and Social Sciences
Louisiana State University

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

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Invited Talks

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Baker, D. (December, 2023). Games in Music Cognition *Research Methods Guest Lecture Series.* Goldsmiths, University of London.

Baker, D. (December, 2023). Computational Models of Music Perception and Cognition *Guest Lecture.* Hochschule für Musik und Theater München.

Baker, D. (October, 2023). Musical Memory Experiments for Everyone (including Experts!) *Centre for Music and Science Guest Speaker Series.* University of Cambridge.

Baker, D. (November, 2022). If you listen to music what are you listening for? What do you remember? And what does that say about our mental representation of music? *Musicology Colloquium.* University of Amsterdam.

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

Attendee of *Decoding Musical Structure: Theory, Computation, and Neuroscience* workshop held at Mote Verita, Switzerland, Winter, 2023. [Workshop]

Attendee of *Representing Harmony* workshop held at EPFL, Summer 2022. [Workshop]

Co-organizer of Musicality and Genomics Consortium held in Trento, Italy, Summer, 2022. [Meeting]

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]

Public Outreach

Guest on Of Bones, Brains, and Pink Elephants. (June 2022). Podcast on Music and Cognition. https://open.spotify.com/episode/5JsMFncPFKqE0IWogvWAHz?si=fba098a1d9544296

Guest on So Strangely Podcast (2020). Podcast on New Research in Music Cognition. https://sostrangely.com/332/

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

Scientific Spokesperson   Autumn 2023
London, England
Gave overview summary of science of audio for EU Panasonic re-branding
Panasonic via Popcorn PR

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

– RStudio Certified `tidyverse` Instructor   Spring, 2020
– Attended Frank Harrell's Regression Modeling Strategies Short Course   Spring 2020

References

Current and former advisors, principal investigators, and colleagues
Direct contact information provided upon request

Prof. Dr. Henkjan Honing
University of Amsterdam
Principal Investigator: NWO-OC
H.J.Honing@uva.nl

Dr. John Ashley Burgoyne
University of Amsterdam
Colleague at University of Amsterdam
j.a.burgoyne@uva.nl

Dr. Daniel Shanahan
Northwestern University
PhD Dissertation Advisor: Music Theory
daniel.shanahan@northwestern.edu

Prof. Dr. Daniel Müllensiefen
Goldsmiths, University of London (Psychology)
Principal Investigator: Innovate UK
d.mullensiefen@gold.ac.uk

Prof. Dr. Emily Elliott
Louisiana State University
PhD Dissertation Advisor: Cognitive and Brain Sciences
eelliott@lsu.edu

Dr. Peter Harrison
University of Cambridge
Director of Centre for Music and Science
pmch2@cam.ac.uk