

# DAVID JOHN BAKER

## Current Employment

Senior Research Associate  
Department of Computing  
Goldsmiths, University of London  
Last Updated: April 15, 2021

## Contact Information

david.baker@gold.ac.uk  
+44 7525 097 861  
davidjohnbaker.rbind.io  
Dual Citizen: USA and UK

## 1. EDUCATION

Ph.D, Music Theory, Minor in Cognitive and Brain Sciences August, 2019  
Louisiana State University, Baton Rouge, Louisiana, USA  
Dissertation: *Modeling Melodic Dictation*

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

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

## 2. CAREER

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

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

**Graduate Student** August 2015 – May 2019  
The Graduate School 2018  
Department of Psychology 2017  
School of Music and Dramatic Arts 2015  
*Louisiana State University*

**Research Assistant** 2014  
Transforming Musicology  
*Goldsmiths, University of London*

### 3. PUBLICATIONS

#### Articles

Brown, J., Tan, D., **Baker, D.** (*accepted*) The perceptual attraction of pre-dominant chords. *Music Perception*

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

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*. <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 commentary 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 Leitmotives in Richard Wagner's *Der Ring des Nibelungen*. *Frontiers in Psychology: Cognition*, Special Issue on Bridging Music Informatics with Music Cognition. [Article]

#### Book Chapters

Shanahan, D. & **Baker, D.** (*forthcoming* 2021). Cognition and Corpus Studies. In Shanahan, Quinn, Burgoyne (Eds.), *The Oxford Handbook of Musical Corpus Studies*. Oxford University Press.

**Baker, D.** (*forthcoming* 2021). Understanding Melodic Dictation via Experimental Methods. In P. Fleet K. Cleland (Eds.), *Routledge Companion to Aural Training in Music Education* (pp. xxx-xxx). 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

### 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

Weigl, D., Goebel, W., **Baker, D.**, Crawford, T., Zubani, F., Gkiokas, A., Paez, N., Porter, A. and Santos P. (2021) Notes on the Music: A social data infrastructure for music annotation. Digital Libraries for Musicology. pp. XXX

**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 unconscious 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 in Submission

#### Revise and Resubmit

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

#### Submitted/In Preparation

**Baker, D.** (October, 2020) Frequently Occurring Musical Patterns are Easier to Recall. *Submitted*. <https://osf.io/3rjzu/>

Ma, Y., **Baker, D.**, Vukovics, K., Davis, C.J, Elliott, E., (December, 2020). I Feel Differently this Time: Generalizing the Effect of Lyrics on Emotion Ratings

Krause, A., **Baker, D.**, Groarke, J.(December, 2020). Replicating Macro Effects of Season on Playlist Curation.

## 4. TEACHING

### Professional Teaching

#### 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 of 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**Areas of Teaching Competence****Science**

- Music Psychology
- Computational Musicology
- Statistics and Experimental Design (Undergraduate to PhD)
- R Programming for Psychologists

## Music

- Music Theory and Aural Skills Undergraduate Rotation
- Jazz and Popular Music Analysis
- History of Music Theory
- Advanced Analytical Technique
- Counterpoint and Schenkerian Analysis
- Music Theory Pedagogy

## Academic Textbook Contributions

### MUTOR: MUsic Technology Online Repository

Fall, 2020

E-Learning Consortium Hamburg

Edited and Contributed to Online Textbook

Music Perception and Cognition

*Contributor*

## 5. SERVICE

## Academic

### 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*
- *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

## 6. 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

### Research

Visiting PhD Student, Queen Mary, University of London, July 2016

£500

Visiting PhD Student, Transforming Musicology, June 2016

£2,000

Research and Administrative Assistant at Transforming Musicology, Fall 2015

£5,000

### Travel

SEMPRE Travel Award, April 2018

€130

LSU Graduate Student Association Travel Award, South Carolina, March 2018

\$200

LSU School of Music Award Travel Award, South Carolina, February 2018

\$250

LSU School of Music Travel Award, San Diego, July 2017	\$750
SMPC Student Travel Award, San Diego, July 2017	\$500
LSU School of Music Travel Award, Missouri, November 2016	\$500
Travel Bursary from Deutsche Gesellschaft für Musikpsychologie, August 2015	€100

### Education and Scholarships

LSU Summer Institute on Future of Graduate Studies, May 2018	\$3,500
LSU Department of Psychology Graduate Assistantship (1 Year), Autumn 2017 – Spring 2018	\$13,000
LSU School of Music Graduate Assistantship (3 Years), Autumn 2015 – Spring 2017	\$33,000
Goldsmiths International Postgraduate Scholarship, September 2014–September 2015	£5,000
Baldwin Wallace University Presidents Scholarship	\$48,000
Baldwin Wallace University Directors Scholarship	\$4,000
Baldwin Wallace Griffiths Scholarship	\$1,000
Baldwin Wallace University Gloria B. Ewing Scholarship	\$1,500

## 7. PRESENTATIONS

### Invited Talks

**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]

### Conference Presentations

**Baker, D.** (August, 2019). Modeling the Limits of Musical Memory. CogMir19. New York, New York. [Video]

**Baker, D.** (August, 2019). What is happening in a students mind when they perform melodic dictation?. Society for Music Perception and Cognition. New York, New York. [Talk]

**Baker, D.** (May, 2019). The Frequency Facilitation Hypothesis. Society for Music Perception and Cognition. New York, New York. [Poster]

Ma, Y., Elliott, E., **Baker, D.**, Davis, C., Vukovics, K. (May, 2019). Lyrics and Emotion in Songs: A Conceptual Replication Study of Ali and Peynircioglu, 2006. Society for Music Perception and Cognition. New York, New York. [Poster]

Vukovics, K., Elliott E., Ma, Y., **Baker, D.** (May, 2019). Does Musical Training Protect Against Auditory Distractions?. Society for Music Perception and Cognition. New York, New York. [Poster]

Simon, E., **Baker D.**, Monzingo, M., Elliott, E., Vuvan, D. (May, 2019). Musical Training Mediates the Relation Between Auditory Working Memory and Preference for Musical Complexity. Society for Music Perception and Cognition. New York, New York. [Poster]

**Baker, D.** (May, 2019). What is going on in someones head when they do melodic dictation?. Pedagogy into Practice. Santa Barbara, California. [Read Paper]

**Baker, D.**(May, 2019). What is going on in someones head when they do melodic dictation?. Music Theory Midwest, Cincinnati, Ohio. [Read Paper]

**Baker, D.**(April, 2019). The Frequency Facilitation Hypothesis. Again & Again Musical Repetition in Aesthetics, Analysis and Experience. London, England [Read Paper]

**Baker, D.**(March, 2019). What is going on in someones head when they do melodic dictation? SEMPRE Graduate Conference. Cambridge, England. [Lightening Talk]

**Baker, D.**, Elliott, E., Shanahan, D., Ventura, J. Monzingo, E., Ritter, B., & Young, C. (July, 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. [Short Talk]

**Baker, D.**, Monzingo, E., & Shanahan, D. (July, 2018). Modeling Aural Skills Dictation. Pro-

ceedings of 2016 International Conference on Music Perception and Cognition. [Conference Poster]

Gran, J., **Baker, D.** (March, 2018). Root Interval Schemas in Rock Music. Music Theory South Central, University of Southern Mississippi. [Read Paper, Slides]

**Baker, D.** (March, 2018). Who counts as a Musician?, Music and Public Discourse, Columbia, South Carolina. [Video]

**Baker, D.**, Ventura, J., Shanahan, D., & Elliott, E. (November, 2017). Modeling Performance on Aural Skills Examinations, Music Informatics Group, Society for Music Theory. Arlington, VA Poster

**Baker, D.**, Ventura, J., Shanahan, D., & Elliott, E. (August, 2017). Modeling Performance on Aural Skills Examinations, This is Your Brain on Art. Valencia, Spain Poster

**Baker, D.** and Shanahan, D. (August, 2017). The Modeling and Perception of Melodic Similarity in Jazz Improvisation, Society for Music Perception and Cognition. San Diego, California [Poster]

Gran, J. and **Baker, D.** (August, 2017). A Relational Network Approach to Rock Music Syntax, Society for Music Perception and Cognition. San Diego, California [Poster]

**Baker, D.**, Ventura, J., Shanahan, D., & Elliott, E. (August, 2017). Validating the Goldsmiths Musical Sophistication Index in a Sample of American Participants, Society for Music Perception and Cognition. San Diego, California [Poster]

Ventura, J., **Baker, D.**, Elliott, E., & Shanahan, D. (August, 2017). Cognitive Abilities in Non-Musicians and Musicians: Does Musicality Matter? 125th Annual Convention of the American Psychological Association in Washington, D.C. Poster

**Baker, D.** and Müllensiefen, D. (November, 2016). Wagner, Leitmotives, and Music Informatics. Society of Music Theory, Music Informatics Special Interest Group. Vancouver, Canada [Short Talk]

Ventura, J., Elliott, E., **Baker, D.**, & Shanahan, D. (November, 2016). Investigating the Relationship between Musical Working Memory and Musical Sophistication in Non-Musicians. Poster to be presented at the 57th Annual Meeting of the Psychonomic Society in Boston, MA.[Poster Presentation]

**Baker, D.**, Müllensiefen, D. (2016) Perception of Leitmotives in Richard Wagner's *Der Ring des Niebelungen*. Proceedings of 2016 International Conference on Music Perception and Cognition. [Short Format Talk]

**Baker, D.**, Rosado, A, Shanahan, E., Shanahan, D. (2016) The Interaction of Schema-Driven Gestures and Instrumental Affordances in Bebop Improvisations. International Conference on Music Perception and Cognition, San Francisco, USA. [Long Format Talk]

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

and Cognition. [Poster Presentation]

Blust, A., **Baker, D.**, Richard, K., Shanahan, D. (2016) Music, Animacy, and Rubato: What makes music sound human? International Conference on Music Perception and Cognition. [Poster Presentation]

**Baker, D.**, Müllensiefen, D. (2016) Hearing Wagner: Physiological Responses to Richard Wagners Der Ring des Nibelungen. Proceedings of 2016 International Conference on Music Perception and Cognition. [Poster Presentation]

**Baker, D.**, Rindfleisch, C., Müllensiefen, D. (2015) Parsifal and the effect of narrative on unconscious arousal. Presentation given at Society of Music Perception and Cognition (SMPC) 2015, Nashville, TN, 4th of August. [Conference Talk]

Müllensiefen, D., **Baker, D.** (2015) Music in Advertising: Testing What Works. Presentation given at Audio Branding Academy 2015 (ABA) 2015, Berlin, Germany, 27th of May. [Industry Workshop]

Müllensiefen, D. **Baker, D.** (2014) The Ring Cycle Experiment. Presentation given at 'Hearing Wagner' event part of AHRC Being Human Festival, Birmingham, England, UK, 22nd of November. [Public Outreach Talk]

**Baker, D.** Psychology of Leitmotives in Wagner: Two Studies on Cue Abstraction. Presentation given at SysMus14, London, England, UK, 20th September. [Graduate Student Conference Talk]

**Baker, D.**, Albrecht, H. (2014) The Psychology of Leitmotive Processing in Richard Wagner's Music: Evidence from Two Memory Experiments. Presentation give at Deutsch Gesellschaft fur Musikpsychologie, Fraunhofer, Germany, September 2014. [Conference Talk]

Müllensiefen, **Baker, D.**, D., Rhodes, C., Crawford, T., Dreyfus, L. (2014). Recognition of leitmotives in Richard Wagner's music: chroma distance and listener expertise. Presentation given at 2014 European Conference on Data Analysis (ECDA) 2014, Jacobs University, Germany, July 2014 [Conference Talk]

**Baker, D.** (2014) Salience and Memorability of Wagner's Leitmotives as a Function of Listener's Experience. Presentation give at OBERTO Graduate Student Conference, Oxford, England, UK, July 2014. [Graduate Student Conference Talk]

## 8. DATA SCIENCE

### Consultancy Projects

**Scientist**

Winter 2020

London, England

Assisted in creation of audio identity for 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