

# Dr. Patrick E. Savage

Curriculum Vitae – March 2020

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Citizenship: USA & New Zealand

## EDUCATION

- 2017 **PhD** Musicology (ethnomusicology), Tokyo University of the Arts, Japan
- 2014 **MA** Musicology (ethnomusicology), Tokyo University of the Arts, Japan
- 2011 **MSc** Psychology, Neuroscience and Behaviour, McMaster University, Canada
- 2007 **BA** *summa cum laude* Music (composition), Amherst College, USA

## ACADEMIC APPOINTMENTS

- 2018- Project Associate Professor, Faculty of Environment and Information Studies, Keio University Shonan Fujisawa Campus, Japan
- 2017-18 Postdoctoral Researcher in Statistical Data Analysis, School of Anthropology and Museum Ethnography, University of Oxford, UK

## AWARDS AND GRANTS (~USD\$734,000 total)

### Academic

- 2020-21 Research Power-Up Grant (Keio Research Institute at SFC, ¥336,000 [US\$3,300])
- 2019-25 Fostering Joint International Research (B) Grant (Japan Society for the Promotion of Science, ¥18,330,000 [US\$180,000]). **PI: Savage, P.E.**; Co-Is: Jacoby, N., Margulis, L., Fujii, S., Tokui, N., Kitayama, Y., Ajimi, J.
- 2019 Grant-in-Aid for Early-Career Scientists (Japan Society for the Promotion of Science; awarded ¥5,660,000 [US\$56,000] for 4 years but withdrew after 6 months in order to accept the “Fostering Joint International Research” grant listed above)
- 2019-20 Collaborative Research Grant (Yamaha Corporation, ¥1,500,000 [US\$15,000])
- 2019-20 Startup Grant (Keio Global Research Institute, ¥2,000,000 [US\$20,000])
- 2019-20 Departmental Grant (Keio Gijuku Academic Development Fund, ¥1,133,000 [US\$11,000])
- 2019-20 Startup Grant (Keio Research Institute at SFC, ¥500,000 [US\$5,000])
- 2019-20 Research Power-Up Grant (Keio Research Institute at SFC, ¥336,000 [US\$3,300])
- 2019 International Journal Article Publication Fee Grant, Type A (Keio University, ¥82,049 [US\$800])
- 2019 International Journal Article Publication Fee Grant, Type B (Keio University, ¥50,000 [US\$500])
- 2019 Collaborative Research Grant (Panasonic Corporation, ¥2,160,000 [US\$21,000]). **PI: Nakatani, M.**; Co-Is: Fujii, S., **Savage, P. E.**
- 2018-19 Individual Grant (Keio Gijuku Academic Development Fund, ¥1,000,000 [US\$10,000])
- 2018-19 Startup Grant (Keio Research Institute at SFC, ¥728,000 [US\$7,200])

2017	Ikushi Prize (Japan Society for the Promotion of Science, ¥1,100,000 [US\$11,000])
2017	Hirayama Ikuo Arts and Culture Prize (Tokyo University of the Arts, ¥300,000 [US\$3,000])
2011-17	MEXT Scholar (Ministry of Education, Culture, Sports, Science & Technology, Japan, ¥13,000,000 [US\$130,000])
2015	Travel Award (International Society for Music Information Retrieval, €600)
2015	Travel Award (International Council for Traditional Music, Young Scholars Fund, €1,000)
2014	Travel Award (International Conference on Music Perception and Cognition / Sempre, US\$500)
2013	Insight Grant (McMaster University, co-written with Principal Investigator Steven Brown, CAD\$5,000)
2011	Graduate Student Award (Society for Music Perception and Cognition, US\$150)
2010-11	Travel Awards (Department of Psychology, Neuroscience & Behaviour, McMaster University, CAD\$1,000)
2010-11	Roland Wood Fellowship (Amherst College, US\$7,000)
2009-12	Insight Grant (Social Sciences and Research Council of Canada, to Principal Investigator Steven Brown, CAD\$108,000)
2009-11	Graduate Fellowship and Visa Student Tuition Bursary (McMaster University, CAD\$34,000)
2010	Travel Award (Society for Education, Music and Psychology Research, €485)
2010	Travel Award (Graduate Students Association, McMaster University, CAD\$500)
2007-08	Amherst-Doshisha Fellowship (Amherst College & Doshisha University, US\$25,000)
2007	Alpha Delta Phi Thesis Fund (Amherst College, US\$660)
2007	Composer-in-Residence (Samuel Marsden Collegiate High School, NZ\$2,500)
2006	Phi Beta Kappa (Phi Beta Kappa Society)
2006	Dean of Faculty Thesis Research Fellowship (Amherst College, US\$2,400)
2005	Howard Hughes Summer Research Fellowship & Financial Aid Bursary (Amherst College, US\$5,800)
2003-07	Financial Aid Grants (Amherst College, US\$108,000)
2003	National Merit Scholar (National Merit Scholarship Corporation, USA, US\$2,500)

### Other

2019	1 <sup>st</sup> place (Foreigner division) (National Nanbu Cow-Driving Song Championship)
2015	1 <sup>st</sup> place (Under-55) (Sagamihara Folk Song Association Championship)
2014	1 <sup>st</sup> place (Under-55) (Sagamihara Folk Song Association Championship)
2014	2 <sup>nd</sup> place (Grand final) (Sagamihara Folk Song Association Championship)
2014	1 <sup>st</sup> place (Intermediate div.) (Kanagawa Pref. Championship, Nat. Folk Song Assoc. of Japan)
2013	1 <sup>st</sup> equal (Intermediate div.) (National Championship, Nat. Folk Song Association of Japan)
2007	3 <sup>rd</sup> place, International Championship of Collegiate A Cappella (group member)
2003	ATCL (Recital) Diploma in Piano Performance (Trinity College of London)

2001	1 <sup>st</sup> place, New Zealand Under-18 Basketball Championship (team member)
2000	1 <sup>st</sup> place (Wellington Under-18 Piano Competition, Institute of Registered Music Teachers, NZ)
1995-97	New Zealand Under-12 Chess Champion (three consecutive years)

## PUBLICATIONS

(\* = equal contribution, *italics* = student supervisee, **bold** = own name)

### Books

**Savage, P. E.** (Under contract). *Comparative musicology: The science of the world's music*. Oxford: Oxford University Press.

### Peer-reviewed journal articles (17)

Jacoby, N.\*, Margulis, E.\*, Clayton, M., Hannon, E., Honing, H., Iversen, J., Klein, T. R., London, J., Mehr, S., Pearson, L., Peretz, I., Perlman, M., Polak, R., Ravignani, A., **Savage, P. E.**, Steingo, G., Stevens, C., Trainor, L., Trehub, S., Veal, M., Wald-Fuhrmann, M. (2020). Cross-cultural work in music cognition: Methodologies, pitfalls, and practices. *Music Perception*, 37(3), 185–195. <https://doi.org/10.1525/mp.2020.37.3.185>

Whitehouse, H.\*, François, P.\*, **Savage, P. E.\***, Currie, T. E., Feeney, K. C., Cioni, E., Purcell, R., Ross, R. M., Larson, J., Baines, J., ter Haar, B., Covey, A., Turchin, P. (2019). Complex societies precede moralizing gods throughout world history. *Nature*, 568, 226–229. <http://doi.org/10.1038/s41586-019-1043-4>

**Savage, P. E.** (2019). Cultural evolution of music. *Palgrave Communications*, 5(6), 1–12. <http://doi.org/10.1057/s41599-019-0221-1>

**Savage, P. E.** (2018). Alan Lomax's Cantometrics Project: A comprehensive review. *Music & Science*, 1, 1–19. <http://doi.org/10.1177/2059204318786084>

Turchin, P., Currie, T. E., Whitehouse, H., François, P., Feeney, K., Mullins, D., Hoyer, D., Collins, C., Grohmann, S., **Savage, P. E.**, Mendel-Gleason, G., Turner, E., Dupeyron, A., Cioni, E., Reddish, J., Levine, J., Jordan, G., Brandl, E., Williams, A., Cesaretti, R., Krueger, M., Cecceralli, A., Figliulo-Rosswurm, J., Peregrine, P., Marciniak, A., Preiser-Kapeller, J., Kradin, N., Korotayev, A., Palmisano, A., Baker, D., Bidmead, J., Bol, P., Christian, D., Cook, C., Covey, A., Feinman, G., Júlíusson, Á. D., Kristinsson, A., Miksic, J., Mostern, R., Petrie, C., Rudiak-Gould, P., ter Haar, B., Wallace, V., Mair, V., Xie, L., Baines, J., Bridges, E., Manning, J., Lockhart, B., Tuan, P.-J., Bogaard, A., & Spencer, C. (2018). Quantitative historical analysis uncovers a single dimension of complexity that structures global variation in human social organization. *Proceedings of the National Academy of Sciences of the United States of America*. 115(2), E144–E151. <http://doi.org/10.1073/pnas.1708800115>

- Mullins, D. A.\*, Hoyer, D.\*, Collins, C., Currie, T., Fenney, K., François, P., **Savage, P. E.**, Whitehouse, H., Turchin, P. (2018). A systematic assessment of “Axial Age” proposals using global comparative historical evidence. *American Sociological Review*, 83(3), 596–626. <http://doi.org/10.1177/0003122418772567>
- Ellis, B. K., Hwang, H., **Savage, P. E.**, Pan, B.-Y., Cohen, A. J., & Brown, S. (2018). Identifying style-types in a sample of musical improvisations using dimensional reduction and cluster analysis. *Psychology of Aesthetics, Creativity, and the Arts*, 12(1), 110–122. <http://doi.org/10.1037/aca0000072>
- Savage, P. E.**, Tierney, A. T., & Patel, A. D. (2017). Global music recordings support the motor constraint hypothesis for human and avian song contour. *Music Perception*, 34(3), 327–334. <http://doi.org/10.1525/mp.2017.34.3.327>
- Savage, P. E.**, Brown, S., Sakai, E., & Currie, T.E. (2015). Statistical universals reveal the structures and functions of human music. *Proceedings of the National Academy of Sciences of the United States of America*, 112(29), 8987–8992. <http://doi.org/10.1073/pnas.1414495112>
- Savage, P. E.**, Matsumae, H., Oota, H., Stoneking, M., Currie, T.E., Tajima, A., Gillan, M., & Brown, S. (2015). How 'circumpolar' is Ainu music? Musical and genetic perspectives on the history of the Japanese archipelago. *Ethnomusicology Forum*, 24(3), 443–467. <http://doi.org/10.1080/17411912.2015.1084236>
- Savage, P. E.** & Brown, S. (2014). Mapping music: Cluster analysis of song-type frequencies within and between cultures. *Ethnomusicology*, 58(1), 133–155. <http://doi.org/10.5406/ethnomusicology.58.1.0133>
- Savage, P. E.** & Brown, S. (2014). Pour une nouvelle musicologie comparée: Cinq champs de recherche, cinq débats essentiels [Toward a new comparative musicology: Five key areas and debates]. *Anthropologie et Sociétés*, 38(1), 193–216. <http://doi.org/10.7202/1025814ar>
- Brown, S., **Savage, P. E.**, Ko, A. M.-S., Stoneking, M., Ko, Y.-C., Loo, J.-H., & Trejaut, J.A. (2014). Correlations in the population structure of music, genes, and language. *Proceedings of the Royal Society B: Biological Sciences*, 281(1774), 20132072. <http://doi.org/10.1098/rspb.2013.2072>
- Takezawa, Y., Kato, K., Oota, H., Caulfield, T., Fujimoto, A., Honda, S., Kamatani, N., Kawamura, S., Kawashima, K., Kimura, R., Matsumae, H., Saito, A., **Savage, P. E.**, Seguchi, N., Shimizu, K., Terao, S., Yamaguchi-Kabata, Y., Yasukouchi, A., Yoneda, M., Tokunaga, K. (2014). Human genetic research, race, ethnicity and the labeling of populations: Recommendations based on an interdisciplinary workshop in Japan. *BMC Medical Ethics*, 15(33). <http://doi.org/10.1186/1472-6939-15-33>
- Savage, P. E.** & Brown, S. (2013). Toward a new comparative musicology. *Analytical Approaches to World Music*, 2(2), 148–197. <https://doi.org/10.31234/osf.io/q3egp>

**Savage, P. E., Merritt, E., Rzeszutek, T., & Brown, S. (2012).** CantoCore: A new cross-cultural song classification scheme. *Analytical Approaches to World Music*, 2(1), 87-137.  
<https://doi.org/10.31234/osf.io/s9ryg>

Rzeszutek, T., **Savage, P. E.**, & Brown, S. (2012). The structure of cross-cultural musical diversity. *Proceedings of the Royal Society B: Biological Sciences*, 279(1733), 1602-1612.  
<http://doi.org/10.1098/rspb.2011.1750>

#### **Peer-reviewed conference proceedings papers (4)**

Kuroyanagi, J., Sato, S., Ho, M.-J., Chiba, G., Six, J., Pfordresher, P., Tierney, A., Fujii, S., & **Savage, P. E.** (2019). Automatic comparison of human music, speech, and bird song suggests uniqueness of human scales. In *Proceedings of the 9th International Workshop on Folk Music Analysis (FMA2019)*, 35–40. [https://dmtlab-static.oss-eu-west-1.aliyuncs.com/fma2019/FMA2019\\_paper\\_12.pdf](https://dmtlab-static.oss-eu-west-1.aliyuncs.com/fma2019/FMA2019_paper_12.pdf)

Sato, S., Six, J., Pfordresher, P., Fujii, S., & **Savage, P. E.** (2019). Automatic comparison of global children's and adult songs supports a sensorimotor hypothesis for the origin of musical scales. In *Proceedings of the 9th International Workshop on Folk Music Analysis (FMA2019)*, 41–46. [https://dmtlab-static.oss-eu-west-1.aliyuncs.com/fma2019/FMA2019\\_paper\\_13.pdf](https://dmtlab-static.oss-eu-west-1.aliyuncs.com/fma2019/FMA2019_paper_13.pdf)

**Savage, P. E.**, Cronin, C., Müllensiefen, D., & Atkinson, Q. D. (2018). Quantitative evaluation of music copyright infringement. In *Proceedings of the 8th International Workshop on Folk Music Analysis (FMA2018)*, 61–66.  
[http://fma2018.mus.auth.gr/files/papers/FMA2018\\_paper\\_4.pdf](http://fma2018.mus.auth.gr/files/papers/FMA2018_paper_4.pdf)

**Savage, P. E.**, & Atkinson, Q. D. Automatic tune family identification by musical sequence alignment. (2015). In *Proceedings of the 16th International Society for Music Information Retrieval Conference (ISMIR 2015)*, 162-168. [http://ismir2015.uma.es/articles/76\\_Paper.pdf](http://ismir2015.uma.es/articles/76_Paper.pdf)

#### **Other publications (19)**

**Savage, P. E.** (In press). An overview of cross-cultural music corpus studies. In D. Shanahan, A. Burgoyne, & I. Quinn (Eds.), *Oxford Handbook of Music and Corpus Studies*. New York: Oxford University Press. Preprint: <http://doi.org/10.31235/osf.io/nxtbg>

Whitehouse, H., François, P., **Savage, P. E.**, Currie, T. E., Feeney, K. C., Cioni, E., Purcell, R., Ross, R. M., Larson, J., Baines, J., ter Haar, B., Covey, A., Turchin, P. (In press). A new era in the study of global history is born but it needs to be nurtured. *Journal of Cognitive Historiography*. doi: 10.1558/jch.39422. Preprint: <https://osf.io/preprints/socarxiv/t8hgu>

Turchin, P., Whitehouse, H., François, P., Hoyer, D., Alves, A., Baines, J., Baker, D., Bartkowiak, M., Bates, J., Bennett, J., Bidmead, J., Bol, P., Ceccarelli, A., Christakis, K., Christian, D., Covey, A., De Angelis, F., Earle, T. K., Edwards, N. R., Feinman, G., Grohmann, S., Holden, P. B., Júlíusson, Á., Korotayev, A., Kradin, N., Kristinsson, A., Larson, J., Litwin,

- O., Mair, V., Manning, J. G., Manning, P., Marciniak, A., McMahon, G., Miksic, J., Moreno Garcia, J. C., Morris, I., Mostern, R., Mullins, D., Oyebamiji, O., Peregrine, P., Petrie, C., Prieser-Kapeller, J., Rudiak-Gould, P., Sabloff, P., **Savage, P. E.**, Spencer, C., Stark, M., ter Haar, B., Thurner, S., Wallace, V., Witoszek, N., Xie, L. (In press). An introduction to Seshat: Global History Databank. *Journal of Cognitive Historiography*. doi: 10.1558/jch.39395. Preprint: <https://osf.io/preprints/socarxiv/394w2>
- Freundlich, K. D., Biamonte, N., Cronin, C., Eskelin, G., Farina, A. F., Fink, R., Frieler, K., Harrington, M., Leo, K. M., Müllensiefen, D., Redwood, A. O., Ricigliano, A., **Savage, P. E.**, Selfridge-Field, E., Spicer, M., Walser, R. (2020). Brief of amicus curiae musicologists in support of defendants' renewed motion for judgment as a matter of law or, alternatively, for a new trial (Marcus Gray v. Katy Perry). Retrieved from [https://www.digitalmusicnews.com/wp-content/uploads/2020/01/Katy\\_Perry\\_Flame\\_514\\_Amici\\_Brief\\_Filed.pdf](https://www.digitalmusicnews.com/wp-content/uploads/2020/01/Katy_Perry_Flame_514_Amici_Brief_Filed.pdf)
- Savage, P. E.** (2019). Universals. In J. L. Sturman (Ed.), *The SAGE International Encyclopedia of Music and Culture* (p. 2282–2285). Thousand Oaks: SAGE Publications. <http://doi.org/10.4135/9781483317731.n759>
- Freundlich, K. D., Biamonte, N., Covach, J., Cronin, C., Eskelin, G., Fink, R., Harrington, M., Leo, K. M., Osborn, B., Ricigliano, A., **Savage, P. E.**, Selfridge-Field, E., Spicer, M., Walser, R. (2019). Amici curiae brief of musicologists in support of defendants-appellees at en banc rehearing (Michael Skidmore v. Led Zeppelin). <https://cpb-us-w2.wpmucdn.com/blogs.law.gwu.edu/dist/a/4/files/2019/07/2019-07-01-Amici-Musicologists-in-Led-Zepp.pdf>
- Shenghao, D., Daikoku, H., Sanne, U. S., Kinoshita, M., Konno, R., Kitayama, Y., Fujii, S., **Savage, P. E.** (2019). Human and automated judgements of similarity in a global music sample: A preliminary analysis. In *Extended abstracts for the Late-Breaking Demo Session of the 20th International Society for Music Information Retrieval Conference (ISMIR 2019)*. <http://archives.ismir.net/ismir2019/latebreaking/000017.pdf>
- Savage, P. E.** (2019). Additional robustness analyses confirm that complex societies precede moralizing gods throughout world history. *Nature Ecology & Evolution Community*. <https://go.nature.com/2vFpUj0>
- Savage, P. E.** (2019). Cooperation and resilience: From music to religion. *Nature Ecology & Evolution Community*. <https://go.nature.com/2VJo1N4>
- Ho, M.-J., Sato, S., Kuroyanagi, J., Six, J., Brown, S., Fujii, S., & **Savage, P. E.** (2018). Automatic analysis of global music recordings suggests scale tuning universals. In *Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018)*, Paris, France. <http://doi.org/10.31234/osf.io/zv6pf>



- Daikoku, H., Kinoshita, M., Fujii, S., & **Savage, P. E.** (2018). Human vs. automated judgements of cross-cultural musical similarity. In *Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018)*, Paris, France. <http://doi.org/10.31234/osf.io/x67nh>
- Sato, S., Fujii, S., & **Savage, P. E.** (2018). Automated comparison of children's and adult songs supports the vocal mistuning theory of scale origins. In *Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018)*, Paris, France. <http://doi.org/10.31234/osf.io/ptvw7>
- Konno, R., **Savage, P. E.**, Schlaug, G., & Fujii, S. (2018). Development and reliability of the Harvard Beat Assessment Test iOS app. In *Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018)*, Paris, France. <https://tinyurl.com/konno2018ismir>
- Currie, T. E., Turchin, P., Whitehouse, H., Francois, P., Feeney, K., Mullins, D., Hoyer, D., Collins, C., Grohmann, S., **Savage, P. E.**, Mendel-Gleason, G., Turner, E., Dupeyron, A., Cioni, E., Reddish, J., Levine, J., Jordan, G., Brandl, E., Williams, A., Cesaretti, R., Krueger, M., Cecceralli, A., Figliulo-Rosswurm, J., Peregrine, P., Marciniak, A., Preiser-Kapeller, J., Kradin, N., Korotayev, A., Palmisano, A., Baker, D., Bidmead, J., Bol, P., Christian, D., Cook, C., Covey, A., Feinman, G., Júlíusson, Á. D., Kristinsson, A., Miksic, J., Mostern, R., Petrie, C., Rudiak-Gould, P., ter Haar, B., Wallace, V., Mair, V., Xie, L., Baines, J., Bridges, E., Manning, J., Lockhart, B., Tuan, P.-J., Bogaard, A., Spencer, C. (2018). Reply to Tosh et al: Quantitative analyses of cultural evolution require engagement with historical and archaeological research. *Proceedings of the National Academy of Sciences of the United States of America*. <http://doi.org/10.1073/pnas.1807312115>
- Savage, P. E.** (2017). "Deep diversity" and other reflections on the inaugural Cultural Evolution Society conference. *Seshat: Global History Databank blog*. ([http://seshatdatabank.info/cultural\\_evolution\\_society/](http://seshatdatabank.info/cultural_evolution_society/)).
- Savage, P. E.** (2017). "Solutions in search of a problem": Commentary on Videira and Rosa (2017). *Empirical Musicology Review*, 12(3–4), 244–246. <http://doi.org/10.18061/emr.v12i3-4.5775>
- Savage, P. E.** (2017).  
音楽の文化的進化を測る——ブリティッシュ・アメリカンと日本の民謡・ポップス・古典音楽の事例を通して [Measuring the cultural evolution of music: With case studies of British-American and Japanese folk, pop, and art music]. PhD dissertation in Musicology, Tokyo University of the Arts. <http://tinyurl.com/SavagePhD>
- Leroi, A., Mauch, M., **Savage, P. E.**, Benetos, E., Bello, J., Panteli, M., Six, J., & Weyde, T. (2015). The deep history of music project. In *Proceedings of the Folk Music Analysis 2015 Workshop* (pp. 83–84). [http://researchgate.net/publication/286926649\\_The\\_Deep\\_History\\_of\\_Music\\_Project](http://researchgate.net/publication/286926649_The_Deep_History_of_Music_Project)

**Savage, P. E.** (2014).

音楽と遺伝子からみた日本列島への民族移動——アイヌ音楽の事例を中心に  
[Music, genes, and the peopling of Japan: With special reference to the music of the Ainu  
(in Japanese)]. MA thesis in Musicology, Tokyo University of the Arts.

<http://tinyurl.com/SavageMA>

**Savage, P. E.** (2011). Musical evolution and human migration: Classification, quantification, and application. MSc thesis in Psychology, McMaster University.

<http://macsphere.mcmaster.ca/bitstream/11375/10988/1/fulltext.pdf>

### Articles under review/revision (9)

**Savage, P. E.**, Loui, P., Tarr, B., Schachner, A., Glowacki, L., Mithen, S. J., & Fitch, W. T. (Under revision). Music as a coevolved system for social bonding.

Whitehouse, H., François, P., **Savage, P. E.**, Currie, T. E., Feeney, K. C., Cioni, E., Purcell, R., Ross, R. M., Larson, J., Baines, J., ter Haar, B., Covey, A., Turchin, P. (Under review). Reply to: Treatment of missing data determines conclusions regarding moralizing gods.

**Savage, P. E.**, Yamauchi, M., Hamaguchi, M., Tarr, B., Kitayama, Y., & Fujii, S. (2020). Rhythm, synchrony, and cooperation. *PsyArXiv* preprint:

<https://doi.org/10.31234/osf.io/46bd9>

Matsumae, H. \*, **Savage, P. E.** \*, Ranacher, P. \*, Blasi, D., Currie, T. E., Sato, T., Tajima, A., Brown, S., Stoneking, M., Shimizu, K. K., Oota, H., Bickel, B. (2019). Exploring deep-time relationships between cultural and genetic evolution in Northeast Asia. *bioRxiv* preprint:

<http://doi.org/10.1101/513929>

Turchin, P., Whitehouse, H., François, P., Hoyer, D., Nugent, S., Larson, J., Covey, A., Altaweel, M., Peregrine, P., Carballo, D., Feinman, G., Wallace, V., Bol, P., Korotayev, A., Kradin, N., Anderson, E., **Savage, P. E.**, Cioni, E., Levine, J., Reddish, J., Brandl, E., (2019). Explaining the rise of moralizing religions: A test of competing hypotheses using the Seshat Databank. *SocArXiv* preprint: <https://doi.org/10.31235/osf.io/2v59j>

Chiba, G., Ho, M.-J., Sato, S., Kuroyanagi, J., Six, J., Pfordresher, P., Tierney, A., Fujii, S., & **Savage, P. E.** (2019). Small-integer ratios predominate throughout the world's musical scales. *PsyArXiv* preprint: <https://doi.org/10.31234/osf.io/5bghm>

**Savage, P. E.** & Currie, T. E. (2017). Music perception: No strong evidence to reject innate biases. *SocArXiv* preprint: <http://doi.org/10.31235/osf.io/964ut>

Cronin, C. & **Savage, P. E.** (Submitted). Give it up!: The “Blurred Lines” dispute and its harmful implications for music and musicians.

**Savage, P. E.** (Submitted). How science can improve music copyright.



## COMMENTARIES AND SAMPLE MEDIA COVERAGE

**Sample of responses to Savage et al., 2015, *PNAS*, Statistical universals reveal the structures and functions of human music** (see <https://pnas.altmetric.com/details/4225286/news> for links to 13 news articles):

- Trehub, S. E. (2015). Cross-cultural convergence of musical features. *Proceedings of the National Academy of Sciences of the United States of America*, 112(29), 8809–8810.
- Quartz - "Researchers have figured out the 18 characteristics shared by (almost) all music", July 8, 2015.
- NPR - "From Pygmy hunting songs to Taylor Swift, what makes music universal", July 9, 2015.
- Le Scienze - "Gli universali del linguaggio musicale", July 2, 2015.
- Stern - "Warum Musik weltweit die gleichen Grundlagen hat", June 30, 2015.
- FNMNL - "音楽はなぜ僕らを動かすのか", August 30, 2016
- NY Times – "Can you tell a lullaby from a love song?", January 25, 2018
- The Atlantic – "A study suggests that people can hear universal traits in music", January 25, 2018

**Samples of responses to Freundlich et al., 2020, Brief of amicus curiae musicologists in support of defendants' renewed motion for judgment as a matter of law or, alternatively, for a new trial (Marcus Gray v. Katy Perry)**

- Billboard – "Musicologists come to Katy Perry's defense in 'Dark Horse' case: Verdict Is 'inhibiting the work of songwriters.'" *Billboard*. January 13, 2020.
- NME – "Katy Perry's 'Dark Horse' copyright case is 'inhibiting the work of songwriters' says musicologists." January 14, 2020.
- Digital Music News – "Katy Perry receives overwhelming support from 15 musicologists after \$2.8 million copyright infringement ruling." January 13, 2020.

**Sample of responses to Whitehouse\*, François\*, Savage\*, et al., 2019, *Nature*, Complex societies precede moralizing gods throughout world history** (see <https://www.altmetric.com/details/57358513/news> for links to 61 news articles):

- Science - "Did judgmental gods help societies grow?", March 20, 2019.
- The Economist - "Did judgmental gods help societies grow?", March 20, 2019.
- Scientific American - "Big Religion May Have Gotten Too Much Credit for the Evolution of Modern Society", March 20, 2019.
- PBS - "Which came first: society or a fear of god?", March 20, 2019.
- 日本経済新聞 – "AI が変える人文学研究", July 28, 2019.
- The Atlantic – "Did human sacrifice help people form complex societies?", February 27, 2018.

**Sample of responses to Brown, Savage, et al., 2014, *Proc. Roy. Soc. B*, Correlations in the population structure of music, genes, and language.**

- Science News - "Humans' music and genes may have evolved together", November 15, 2013.
- NBC News - "Take note: Folk music could track human migrations". November 14, 2013.

Science Daily - "Evidence of ancient human history encoded in music's complex patterns", November 19, 2013.

**Sample of responses to Savage and Brown, 2013, *AAWM*, Toward a new comparative musicology.**

Clarke, D. (2014). On not losing heart: A response to Savage and Brown's "Toward a new comparative musicology." *Analytical Approaches to World Music*, 3(2), 1–14.

Grauer, V. (2014). Toward a new comparative musicology: Some comments on the paper by Savage and Brown. *Analytical Approaches to World Music*, 3(2), 15–21.

Locke, D. (2014). Let it be called "comparative ethnomusicology." *Analytical Approaches to World Music*, 3(2), 22–23.

**INVITED TALKS**

**External (19)**

**Savage, P. E.** (2021). Gods, genes, and songs: Lessons learned from cross-cultural and cross-disciplinary collaborations. Talk to be presented as co-organizer of the symposium "Building sustainable global collaborative research networks" at the Max Planck - NYU Center for Language, Music and Emotion, NYC, USA.

**Savage, P. E.** (2020). Quantitative evaluation of music copyright infringement. Talk to be presented at the symposium "I hear America suing: Implications of unsettled copyright infringement jurisprudence for American music and musicians" at the George Washington , University Law School, Washington, D.C., USA.

**Savage, P. E.** (2020). Music as a coevolved system for social bonding. Talk for the "Evolutionary Origins of Music" symposium at the Primate Research Institute, Kyoto University, Japan. [Cancelled due to COVID-19]

**Savage, P. E.** (2019). Cross-cultural music cognition. Talk presented at the "Neuroscience of Music" workshop at Tokyo University, Tokyo, Japan.

**Savage, P. E.** (2019). Cross-cultural perspectives on nature and nurture in human music. Talk presented at the "Deciphering the biology of human musicality through state-of-the-art genomics" workshop at the Royal Netherlands Academy of Arts and Sciences (KNAW), Amsterdam, Netherlands.

**Savage, P. E.** (2019). Comparative musicology: The science of the world's music. Talk presented at Queen Mary University London's Center for Digital Music, London, UK.

**Savage, P. E.** (2019). Complex societies precede moralizing gods throughout world history. Talk presented at the Victoria University of Wellington, School of Psychology, Mind in Context Lab, Wellington, New Zealand.

- Savage, P. E.** (2018). Toward inclusive cross-cultural music research. Talk presented at the “Cross-Cultural Research in Music Cognition: Methodologies, Pitfalls, and Practices” workshop at the Max Planck Institute for Empirical Aesthetics, Frankfurt, Germany.
- Savage, P. E.** (2018). The science of the world’s music. Talk presented at the Ikushi Prize Annual Research Presentation, Japan Society for the Promotion of Science, Tokyo, Japan.
- Savage, P. E., Cronin, C., Müllensiefen, D., & Atkinson, Q. D.** (2018). Quantitative evaluation of music copyright infringement. Talk presented at the joint ICTM-SEM-IMS-IAML-CSTM forum on “Approaches to research on music and dance in the internet era”, Central Conservatory of Music, Beijing, China.
- Savage, P. E.** (2018). Measuring music. Talk presented at the “(Co-)evolution of genes, languages, and music: From data analyses to theoretical models” workshop at the Kihara Institute for Biological Research, Yokohama City University, Yokohama, Japan.
- Savage, P. E.** (2018). The science of the world’s music. Talk presented at Tokyo Nerd Nite, Nagatacho GRID, Tokyo, Japan.
- Savage, P. E.** (2017). Comparative musicology and the origins of music. Talk presented at the “Conference on the Origins of Music in Human Society” organized by the Institute for Advanced Study in Toulouse. Fondation Royaumont, Paris, France.
- Savage, P. E.** (2017). The role of supernatural punishment in the evolution of social complexity. Talk presented at the University of Tokyo Institute for Advanced Studies on Asia, Tokyo, Japan.
- Savage, P. E.** (2014). How “circumpolar” is Ainu music? A musical and genetic perspective on the history of the Japanese archipelago. Talk presented at a symposium on “Dispersion of People, Crops, and Languages: Focusing on Millets in Asia” at the National Institute for Japanese Language and Linguistics (NINJAL), Tokyo, Japan.
- Savage, P. E.** (2014). 音楽と遺伝子からみた日本列島への民族移動——アイヌ音楽の事例を中心に [Music, genes, and the peopling of Japan: With special reference to the music of the Ainu]. Talk presented at the annual thesis presentation of the 東洋音楽学会 [Society for Research in Asiatic Music] at Daito Bunka University, Tokyo, Japan.
- Savage, P. E.** (2013). Cultural evolution of music. Talk presented at a panel on “Music and Evolution” at the University of Michigan, MI, USA.
- Savage, P. E.** (2012). 音楽と震災——岩手県における民俗芸能と震災後の復興—— [Music and disaster: The performing arts and disaster recovery in Iwate prefecture]. Talk presented at the 全日本共同芸能協会民俗芸能 STREAM [Japanese folk arts society monthly talk], Tokyo, Japan.

**Savage, P. E.**, Rzeszutek, T., Grauer, G., Wang, Y., Trejaut, J., Lin, M., & Brown, S. (2011). Music as a marker of human migration. Talk presented at “Mapping and Unmapping the Pacific”, the inaugural conference of the Taiwan Society for Pacific Studies, Taipei, Taiwan.

### **Internal (10)**

**Savage, P. E.** (2020). A global network for experimental music cognition. Talk presented at the Keio University Global Research Institute, Tokyo, Japan.

**Savage, P. E.** (2019). The science of the world’s music. Talk presented at the Keio University SFC Agora, Fujisawa, Japan.

**Savage, P. E.** (2018). The science of the world’s music. Talk presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.

Fujii, S. & **Savage, P. E.** (2018). MUSIK: MUsik Science Institute at Keio University SFC. Talk presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.

Fujii, S., **Savage, P. E.**, Tanase, R., Yamagishi, R., Furuya, S., & Uozumi, Y. (2018). 音楽の未来 [The future of music] Panel session organized by Fujii & Savage for the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.

**Savage, P. E.** (2017). The role of ritual and religion in the evolution of social complexity. Talk presented at the “Primate Conversations” seminar at the Institute for Cognitive and Evolutionary Anthropology, University of Oxford, UK.

**Savage, P. E.** (2017). The role of ritual and religion in the evolution of social complexity. Talk presented at the Seshat: Global History Databank workshop at the School of Anthropology and Museum Archeology, University of Oxford, UK.

**Savage, P. E.** (2017). 音楽の文化的進化を測る——ブリティッシュ・アメリカンと日本の民謡・ポップス・古典音楽の事例を通して [Measuring the cultural evolution of music: With case studies of British-American and Japanese folk, pop, and art music]. Talk presented at the Department of Musicology annual thesis presentation at the Tokyo University of the Arts, Tokyo, Japan.

**Savage, P. E.** (2014). 音楽と遺伝子からみた日本列島への民族移動——アイヌ音楽の事例を中心に [Music, genes, and the peopling of Japan: With special reference to the music of the Ainu]. Talk presented at the Department of Musicology annual thesis presentation at the Tokyo University of the Arts, Tokyo, Japan.

**Savage, P. E.**, Rzeszutek, T., & Brown, S. (2010). Using music classification to study pre-historic human migrations. Talk for Department of Psychology, Neuroscience & Behaviour’s Cognition/Perception Seminar Series, McMaster University, Canada.

## CONFERENCE PRESENTATIONS (52)

*Samma, T., Savage, P. E., and Fujii, S. (2020).* Replicability of sight-over-sound effect in the judgement of brass ensemble competition in Japan. Poster to be presented at the Neurosciences and Music conference, Aarhus, Denmark.

*Honda, K., Ikemoto, S., Savage, P. E., and Fujii, S. (2020).* Single, double, and triple tonguing speeds of professional and amateur trombone players. Poster to be presented at the Neurosciences and Music conference, Aarhus, Denmark.

*Kasashima-Shindo, Y., Tsuchimoto, S., Shindo, K., Imai, E., Kikuchi, Y., Matsugi, Y., Toyoda, A., Honda, S., Savage, P. E., Fujii, S. (2020).* The neural basis of consonance preferences in chronic stroke patients: A resting-state fMRI study. Poster to be presented at the Neurosciences and Music conference, Aarhus, Denmark.

*Daikoku, H., Dixon, S., Pearce, M., Proutskova, P., Fujii, S., Kitayama, Y., Harrison, P., Ycart, A. Sato, S., Ho, M.-J., Benetos, E., Savage, P. E. (2019).* An empirical investigation of cross-cultural musical aesthetics. Talk presented at the 2019 meeting of the International Council for Traditional Music, Chulalongkorn University, Bangkok, Thailand.

*Sato, S., Fujii, S., & Savage, P. E. (2019).* Automatic comparison of global children's and adult songs supports a sensorimotor hypothesis of scale origin. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Ho, M.-J., Konno, R., Tomokane, J., McDermott, J., Tokui, N., Fujii, S., & Savage, P. E. (2019).* Aesthetic responses to microtonal intervals. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Yamauchi, M., Hamaguchi, M., Kato, A., Kitayama, Y., Fujii, S., & Savage, P. E. (2019).* Music and cooperation: Disentangling causal mechanisms. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Oishi, S., Konno, R., Cronin, C., Müllensiefen, D., Atkinson, Q., Fujii, S., & Savage, P. E. (2019).* Melodic similarity in music copyright law: An experimental investigation. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Anzai, R., Konno, R., Honda, K., Savage, P. E., Lopes, P., & Fujii, S. (2019).* How electrical muscle stimulation assists in rapid drumming training. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Ishikawa, Y., Savage, P. E., Nakatani, M., & Fujii, S. (2019).* Does cold stimulation enhance musical frisson? Effect of cold stimulation on perceptual rating of consonant and dissonant chords. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Konno, R., Schlaug, G., **Savage, P. E.**, & Fujii, S. (2019).* The reliability of iOS application of the Harvard Beat Assessment Test: Consistency between different versions of iPad devices. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Honda, S., Tarumi, R., Noda, Y., Matsushita, K., Nomiyama, N., Ochi, R., Tsugawa, S., **Savage, P. E.**, Nakajima, S., Mimura, M., & Fujii, S. (2019).* The beat processing abnormality in patients with treatment-resistant schizophrenia. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Matsushita, K., Tarumi, R., Noda, Y., Honda, S., Ochi, R., Nomiyama, N., Tsugawa, S., **Savage, P. E.**, Nakajima, S., Mimura, M., & Fujii, S. (2019).* Cortical thickness and beat processing ability in patients with schizophrenia. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Honda, K., **Savage, P. E.**, & Fujii, S. (2019).* Single, double, and triple finger tapping performance of professional hand percussionists. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Konno, R., Anzai, R., Honda, K., **Savage, P. E.**, Lopes, P., & Fujii, S. (2019).* Evaluating effects of electrical muscle stimulation in time duration reproduction. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Jacoby, N., Polak, R., Grahn, J., Cameron, D., Fujii, S., **Savage, P. E.**, Lee, K.-M., Jakubowski, K., Clayton, M., Margulis, E., Wong, P., Undurraga, E., Godoy, R., Huanca, T., Thalwitzer, T., Mungan, E., Kaya, E., Jure, L., Rocamora, M., Goldberg, D., Holzapfel, A., & McDermott, J. (2019).* Universal constraints on rhythm revealed by large-scale cross-cultural comparisons of rhythm priors. Poster presented at the 2019 meeting of the Society for Music Perception and Cognition, New York University, New York, USA.

*Konno, R., **Savage, P. E.**, Lopes, P., & Fujii, S. (2019).* A comparison between auditory and electrical muscle stimulation in tempo-changing beat perception. Poster presented at the 2019 meeting of the Society for Neuroscience, Chicago, IL, USA.

*Honda, S., Tarumi, R., Noda, Y., Matsushita, K., Nomiyama, N., Ochi, R., Tsugawa, S., **Savage, P. E.**, Nakajima, S., Mimura, M., Fujii, S.;* Glutamate levels in the caudate correlate beat perception in patients with schizophrenia. Poster presented at the 2019 Rhythm Production and Perception Workshop, Traverse City, MI, USA.

*Anzai R., Konno, R., Honda, K., **Savage, P. E.**, Lopes, P., & Fujii, S. (2019).* Use of electrical muscle stimulation for learning rapid drumming movements: An exploratory study. Poster presented at the 2019 Rhythm Production and Perception Workshop, Traverse City, MI, USA.



- Konno, R., Anzai R., Honda, K., **Savage, P. E.**, Lopes, P., & Fujii, S. (2019). Does passive action improve rhythm perception? Use of electrical muscle stimulation for beat interval perception task. Poster presented at the 2019 Rhythm Production and Perception Workshop, Traverse City, MI, USA.
- Daikoku, H., Kinoshita, M., Konno, R. Fujii, S., & **Savage, P. E.** (2018). Measuring music. Poster presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.
- Chiba, G., Ho, M.-J., Sato, S., Kuroyanagi, J., Fujii, S., & **Savage, P. E.** (2018). Musical universals. Poster presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.
- Yamauchi, M., Hamaguchi, M., Kato, A., Kitayama, Y., Fujii, S., & **Savage, P. E.** (2018). Social harmony. Poster presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.
- Oishi, S., Yamauchi, M., Konno, R., **Savage, P. E.**, Fujii, S., & Jacoby, N. (2018). Cross-cultural rhythm perception. Poster presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.
- Honda, S., Ochi, R., Nomiyama, M., Matsushita, K., Mizutani, C., **Savage, P. E.**, & Fujii, S. (2018). Rhythm brain. Poster presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.
- Honda, S., Matsugi, Y., Kikuchi, Y., Toyoda, A., Matsumoto, H., **Savage, P. E.**, & Fujii, S. (2018). Music medicine project. Poster presented at the Keio University SFC Open Research Forum, Tokyo Midtown, Japan.
- Daikoku, H., Kinoshita, M., Fujii, S., & **Savage, P. E.** (2018). Human vs. automated judgements of cross-cultural musical similarity. In *Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018)*, Paris, France.
- Ho, M.-J., Sato, S., Kuroyanagi, J., Six, J., Brown, S., Fujii, S., & **Savage, P. E.** (2018). Automatic analysis of global music recordings suggests scale tuning universals. In *Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018)*, Paris, France.
- Sato, S., Fujii, S., & **Savage, P. E.** (2018). Automated comparison of children's and adult songs supports the vocal mistuning theory of scale origins. In *Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018)*, Paris, France.
- Konno, R., Savage, P. E., Schlaug, G., & Fujii, S. (2018). Development and reliability of the Harvard Beat Assessment Test iOS app. In *Extended abstracts for the Late-Breaking Demo*

*Session of the 19th International Society for Music Information Retrieval Conference (ISMIR 2018), Paris, France.*

- Savage, P. E.,** Cronin, C., Müllensiefen, D., & Atkinson, Q. D. (2018). Quantitative evaluation of music copyright infringement. To be presented at the Analytical Approaches to World music/Folk Music Analysis joint conference, Thessaloniki, Greece.
- Savage, P. E.,** Cronin, C., Müllensiefen, D., Fujii, S., & Atkinson, Q. D. (2018). Quantitative evaluation of music copyright infringement. Talk presented at the International Conference on Music Perception and Cognition, Montreal, Canada.
- Matsumae, H., **Savage, P. E.,** Bickel, B., Currie, T. E., Ranacher, P., Sato, T., Tajima, A., Stoneking, M., Shimizu, K., Brown, S., Oota, H. (2018). Complex human histories of North Asia revealed by correlations between genes, languages, and music. Talk to be presented at the 2018 meeting of the Society for Molecular Biology and Evolution, Yokohama, Japan.
- Savage, P. E.,** Currie, T., & Atkinson, Q. (2017). Automatic melodic alignment of over 10,000 English and Japanese folk songs reveals general mechanisms of musical evolution. Talk presented at the 2017 inaugural meeting of the Cultural Evolution Society, Max Planck Institute for the Science of Human History, Jena, Germany.
- Savage, P. E.** (2017). Measuring the cultural evolution of music with digital musicology. Panelist at the Study Group on Digital Musicology session on "Computational approaches to non-Western music: From technology to insight" presented at the 2017 meeting of the International Musicological Society at the Tokyo University of the Arts, Japan.
- Savage, P. E.,** & Atkinson, Q. D. (2015). Automatic tune family identification by musical sequence alignment. Poster presented at the 16th International Society for Music Information Retrieval Conference (ISMIR 2015).
- Savage, P. E.,** Panteli, M., Mauch, M., & Leroi, A. (2015). Cantometrics goes digital: Automated analysis of thousands of global music recordings. Talk presented at the 2015 meeting of the International Council for Traditional Music, Kazakh National University of the Arts, Kazakhstan.
- Leroi, A., Mauch, M., **Savage, P. E.,** Benetos, E., Bello, J., Panteli, M., Six, J., & Weyde, T. (2015) The deep history of music project. Talk presented at the 5th International Workshop on Folk Music Analysis, Sorbonne Universités, Paris, France.
- Savage, P. E.** (2014). 音楽の文化的「進化」——「江差追分」の系統的分析—— [Cultural evolution of music: A phylogenetic analysis of the Japanese folksong "Esashi Oiwake"]. Talk presented at the 2014 meeting of the 東洋音楽学会 [Society for Research in Asiatic Music], Shitennoji University, Osaka, Japan.

**Savage, P. E.,** Brown, S., Sakai, E., & Currie, T.E. (2014). Statistical universals reveal the structure and functions of human music. Talk presented at the 2014 International Conference on Music Perception and Cognition, Yonsei University, Korea.

**Savage, P. E.,** Matsumae, H., Oota, H., Stoneking, M., Currie, T.E., Tajima, A., Gillan, M., & Brown, S. (2013). 音楽、遺伝子と日本への民族移動 [Music, genes, and the peopling of Japan]. Talk presented at the 2013 meeting of the 日本人類学会 [Anthropological Society of Japan], Tsukuba, Japan.

**Savage, P. E.** (2013). Cultural evolution of music. Talk presented at the 2013 meeting of the Society for Ethnomusicology, Indianapolis, IN, USA.

Ellis, B., Pan, B.-Y., Cohen, A., **Savage, P. E.,** & Brown, S. (2013). Vocal improvisation: Analysis of creativity using classification and clustering methods. Poster presented at the McMaster Institute for Music and the Mind 9<sup>th</sup> Annual NeuroMusic Conference, Hamilton, ON, Canada.

**Savage, P. E.,** Oota, H., Stoneking, M., Currie, T.E., Matsumae, H., Tajima, A., & Brown, S. (2013). Music, genes, and the peopling of Japan. Talk presented at the 2013 meeting of the International Council for Traditional Music, Shanghai Conservatory of Music, China.

**Savage, P. E.,** Currie, T.E., & Brown, S. (2012). Musical evolution and human migration: A global empirical analysis. Poster presented at the 2<sup>nd</sup> international Conference on Analytic Approaches to World Music, University of British Columbia, Canada.

**Savage, P. E.,** Rzeszutek, T., Grauer, G., Wang, Y., Trejaut, J., Lin, M., & Brown, S. (2011). Beyond Cantometrics: Quantifying musical diversity within and between populations. Talk presented at the 2011 meeting of the International Council for Traditional Music, St. John's University, Canada.

**Savage, P. E.,** Rzeszutek, T., Grauer, G., Wang, Y., Trejaut, J., Lin, M., & Brown, S. (2011). Music as a marker of human migrations: An analysis of song structure vs. singing style. Talk presented at the 2011 meeting of the Society for Music Perception and Cognition, Eastman School of Music, USA.

Rzeszutek, T., **Savage, P. E.,** & Brown, S. (2010). Music as a novel marker in the study of prehistoric human migrations. Poster presented at the 2010 meeting of the American Society for Human Genetics, Washington DC, USA.

**Savage, P. E.,** Rzeszutek, T., & Brown, S. (2010). Using music classification to study prehistoric human migrations. Poster presented at the 10<sup>th</sup> Conference on Interdisciplinary Musicology, Sheffield University, UK.

**Savage, P. E.,** Rzeszutek, T., & Brown, S. (2010). Using music analysis to study human migrations. Poster presented at 1<sup>st</sup> International Conference on Analytic Approaches to World Music, University of Massachusetts, USA.

Rzeszutek, T., **Savage, P. E.**, & Brown, S. (2010). Music as a novel marker in the study of historical human migrations. Poster presented at 1<sup>st</sup> International Conference on Human Migration, University of Kansas, USA.

**Savage, P. E.**, & Bishop, A. (2005). Synthesis and protein tyrosine phosphatase inhibition selectivity of bumped inhibitor analogues (or lack thereof). Poster presented at Howard Hughes Summer Research Poster Session, Amherst College, USA.

## **TEACHING EXPERIENCE**

### **Sole instructor**

- 2019- “History of Music” (Keio University)
- 2019- “Evolution of Music” (Keio University)
- 2018- “Music and Culture” (Keio University)
- 2018- “Musics of Japan” (Keio University)
- 2018-19 “音楽と文化 [Music and Culture]” (Keio University)
- 2007-08 “Music, Language and Culture” (Doshisha University)

### **Joint instructor**

- 2020- “Culture, environment and technology of India” (Keio University)
- 2019- “うたをつくる [Songwriting]” (Keio University)
- 2019- “Academic Project: Music” (Keio University)
- 2018- “X-Design Review” (Keio University)

### **Teaching Assistant**

- 2014-15 「西洋音楽史」 ["History of Western Music"] (Tokyo University of the Arts, for Dr. Fuyuko Fukanaka)
- 2011 (spring) “The Neuroscience of Music Cognition” (McMaster University, for Dr. Laurel Trainor)
- 2010 (fall) “Music Cognition” (McMaster University, for Dr. Steven Brown)
- 2010 (spring) “The Arts and the Brain” (McMaster University, for Dr. Steven Brown)
- 2009 (fall) “Social Psychology” (McMaster University, for Dr. Jennifer Ostovich)

### **Thesis supervision**

#### **PhD**

- 2018- Kazuaki Honda, “Tapping performance of professional hand percussionists” [tentative title] (co-supervisor)

#### **Masters**

- 2019- Yuchen Yuan, “Perceptual vs. automated judgements of music copyright infringement” [tentative title]
- 2019- Shoichiro Sato, “Acoustic comparison of human music, speech and bird songs” [tentative title]

## Undergraduate Honours

- 2019- Hideo Daikoku, “Human and automated judgements of musical similarity in a global sample” [tentative title]
- 2019-2020 Momoka Yamauchi, “Can music boost human cooperativeness?”
- 2019-2020 Sho Oishi, “The correlation between perceptual judgment and melodic similarity in music copyright infringement”
- 2019-2020 Miri Hamaguchi, “Music and cooperation: An experimental comparison of music vs. no music”
- 2018-2019 Meng-Jou Ho, “Aesthetic responses to microtonal intervals”
- 2018-2019 Marino Kinoshita, “Why this music? Examining strong experiences with music in Tokyo’s underground extreme music scene”
- 2018-2019 Aya Kato, “Does music boost cooperation? – Singing and synchrony”
- 2018-2019 Marisa Sasaki, “General laws in cultural evolution of music - Comparing British-American and Japanese folk songs”
- 2018-2019 Shoichiro Sato, “Automatic comparison of global children’s and adult songs supports a sensorimotor hypothesis for the origin of musical scales”

## SERVICE

- 2021 Co-organizer (with N. Jacoby and L. Margulis) of symposium on “Building sustainable global collaborative research networks” (Max Planck - NYU Center for Language, Music and Emotion, NYC, USA)
- 2020- Editorial Board Member (*Empirical Musicology Review*)
- 2019- Advisory Board Member (Association for Cultural Equity)
- 2018- Keio University SFC committees (Graduate School committee)
- 2018 Panel organization (“The future of music”, Keio University SFC Open Research Forum)
- 2018 Judge, “Sounds FABulous” musical instrument 3D printing competition (Consortium for the Global Society with Planetary Fabling)
- 2018- Program Committee (*Cultural Evolution Society [2021]*; *International Conference on Analytical Approaches to World Music [2018, 2020]*; *International Conference on Music Perception and Cognition [2018]*; *Cultural Evolution: Arts, Languages, Technologies [2018]*)
- 2016- Reviewer (*Science*; *Nature Human Behavior*; *Evolution and Human Behavior*; *Evolutionary Human Sciences*; *Royal Society Open Science*; *PLOS ONE*; *Scientific Reports*; *Music Perception*; *Music & Science*; *Proceedings of the International Society for Music Information Retrieval*; *Clidynamics*; *Empirical Musicology Review*; *Journal of New Music Research*; *Routledge Music Books*; *German Research Foundation*)
- 2011- Co-founder/webmaster (Comparative Musicology website: <http://CompMus.org>)
- 2011- Volunteer (tsunami recovery efforts in Iwate Prefecture, Japan)
- 2011-17 President (Amherst Alumni Association of Japan)
- 2014 TV Panelist (NHK “TOKYO おもてなし大作戦～2020東京五輪に向けて～” [*Omotenashi* strategic planning for the 2020 Tokyo Olympics], Sep. 13)

## PERFORMANCE EXPERIENCE (with sample video links)

Japanese *min'yo* (folk song): 8 years experience as award-winning solo performer (see Awards section): <https://youtu.be/2YACUtzR0yU>

Japanese classical: 1 year experience learning *shamisen*, *koto*, and *noh* (2007-08)

Vocal ensemble: 6 years experience performing, directing, composing, and arranging for vocal ensembles including classical choir, a cappella group, and barbershop chorus/quartet:  
<https://youtu.be/eOnLKQ35EkQ>

Classical piano: 15 years experience in solo/chamber performance

Jazz: 6 years experience playing piano, singing, and composing for small ensembles and big band: <https://youtu.be/JsOVqt89pfA>

Funk: Co-founder and lead vocalist of the Funk Department (2006-07):  
<https://youtu.be/QPkSCWSsX8s>

Musicals: Performed roles of Jacob in *La Cage aux Folles* (Amherst College, 2005) and Richie in *A Chorus Line* (Tokyo University of the Arts, 2013). Musical director for *Joseph and the Amazing Technicolor Dreamcoat* (Samuel Marsden Collegiate High School, 2009):  
<https://youtu.be/HnVcHVJ7vfE>

British-American folk: Grew up singing, playing piano and guitar in informal home contexts  
Occasional singing collaborations in the following traditions:

- Irish: [https://youtu.be/Ml\\_4NqJnP18](https://youtu.be/Ml_4NqJnP18)
- Uighur (China): <https://youtu.be/2zfnpdkOrbw>
- Myanmar: <https://youtu.be/WjM2VvcacI4>
- Ainu (Japan): [https://youtu.be/TdnBK\\_iBz0U](https://youtu.be/TdnBK_iBz0U)

## LANGUAGES

English Native language

Japanese Non-native fluency (passed Level 1 Japanese Language Proficiency Test in 2008, teach and wrote PhD dissertation in Japanese)

## ADDITIONAL SKILLS

R (statistical programming)

## PROFESSIONAL AFFILIATIONS

Cultural Evolution Society

International Council for Traditional Music

International Musicological Society

International Society for Music Information Retrieval

Phi Beta Kappa

Society for Ethnomusicology

Society for Music Perception and Cognition

東洋音楽学会 [Society for Research in Asiatic Music]

日本人類学会 [Anthropological Society of Japan]

## REFERENCES (contact information available upon request)

**Harvey Whitehouse** (Professor of Social Anthropology, School of Anthropology and Museum Ethnography, University of Oxford)

**Yukio UEMURA** (Professor, Department of Musicology, Tokyo University of the Arts, Japan)



**Steven Brown** (Associate Professor, Department of Psychology, Neuroscience & Behaviour, McMaster University, Canada)

**Aniruddh Patel** (Professor, Department of Psychology, Tufts University, USA)

**Judith Becker** (Professor Emerita, School of Music, Theatre & Dance, University of Michigan, USA)

**Quentin Atkinson** (Professor, School of Psychology, Auckland University, New Zealand)

**Thomas Currie** (Associate Professor in Cultural Evolution, Centre for Ecology & Conservation Biosciences, University of Exeter, UK)