

# SHU SAKAMOTO

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**Research Keywords:** Neuroscience & Music (Neuromusic), Auditory System, Music Cognition, Emotion, Predictive Coding, EEG, Neural Oscillation, Brain-Computer Interface

## EDUCATION

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| 2020 – Present | <b>Graduate School of Media and Governance, Keio University</b><br>Research Topic: Neuroscience and Music<br>Research Supervisor: Dr. Shinya Fujii, Dr. Atsuhiko Aoyama<br>GPA: N/A   |
| 2017 – 2020    | <b>Faculty of Environment and Information Studies, Keio University</b><br><b>Bachelor's-Master's Four-Year Integrated Education Program</b><br><b>Excellent Graduation Project</b><br>Research Topic: Neuroscience and Music<br>Research Supervisor: Dr. Shinya Fujii, Dr. Atsuhiko Aoyama<br>GPA: 3.86 |

## WORK EXPERIENCES

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| 2020.10 – 2021.03 | <b>Research Intern</b><br>International Research Center for Neurointelligence, University of Tokyo.<br>Supervised by Dr. Tatsuya Daikoku. |
| 2018.12 – Present | <b>Neuro-Engineer</b><br>Sandbox Inc.   |
| 2017.07 – Present | <b>Translator</b><br>Freelance  |
| 2019.12 – 2020.06 | <b>Writer</b><br>Techflyer Inc.   |
| 2018.02 – 2020.04 | <b>Research Intern</b><br>NTT Communication Science Laboratories. Supervised by Dr. Makio Kashino.  |
| 2019.02 – 2019.07 | <b>Engineer</b><br>Probspace Inc.   |

## HONORS AND AWARDS

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- 2020 **Gold Prize**  
Online Conference, Keio SFC Academic Society
- 2020 **Excellent Graduation Project**  
Faculty of Environment and Information Studies, Keio University
- 2020 **Given “Likes” (9th place)**  
The 43rd Annual Meeting of the Japan Neuroscience Society
- 2019 **Student Paper Award (3rd Prize)**  
2019 IEEE 1st Global Conference on Life Sciences and Technologies
- 2018 **Abe Research Award for Young Researchers (Nominated)**  
The 57th Annual Conference of Japanese Society for Medical and Biological Engineering

## PUBLICATIONS

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- Sakamoto, S.**, Kobayashi, A., Matsushita, K., Shimizu, R., & Aoyama, A. (2019) “Decoding Relative Pitch Imagery Using Functional Connectivity: An Electroencephalographic Study”, in *Proceedings of 2019 IEEE 1st Global Conference on Life Sciences and Technologies (LifeTech)*, vol. 1, pp. 48-49.
- Kawabata, M., Koyama, Y., **Sakamoto, S.**, Sato, S., Sato, Y., Takagi, S., Nagano, M., Misu, T., Yagi, S., & Yamashita, A. (2019). *2019 nenndo jigenn kenkyuukai jisshi houkoku noukagaku wakate no kai dai 11 kai gasshuku “Wakate Kenkyuusha Ni Muketa Recucha & Wa-kushoppu Gasshuku ~Shinkei Katsudou Ga Kinou Wo Umu Mekanizumu No Tankyuu, Riron No Jissenn to Ouyou~”* [Report on the 2019 Symposium, The 11th Symposium by Society for Young researchers on Neuroscience "Lecture & Workshop Symposium for Young Researchers: Exploring Function-related Neural Mechanisms and Practice and Application of its Theory]. *The Brain & Neural Networks.*, vol. 26 (3), pp. 105-109.

## CONFERENCE PRESENTATIONS

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### TALKS

- Sakamoto, S.**, Kobayashi, A., Matsushita, K., Shimizu, R., & Aoyama, Atsushi. (2020). *Choukaku Souki No Shinkei Shori Ni Kannsuru Ritsudou No Kaiseki* [Oscillatory analysis related to neural processes of auditory imagery]. Talk presented at the the 29th Workshop on Multimodal Brain Information Technology, Japanese Society for Medical and Biological Engineering. Online.
- Sakamoto, S.** (2020). Neural Oscillations Related to Auditory Imagery and Neural Representations of Imaged Sound. Talk presented at the *Online Conference, Keio SFC Academic Society*. Online.
- Sakamoto, S.**, Kobayashi, A., Matsushita, K., Shimizu, R., & Aoyama, A. (2019). Decoding Relative Pitch Imagery Using Functional Connectivity: An Electroencephalographic Study. Talk presented at the *2019 IEEE 1st Global Conference on Life Sciences and Technologies*. Osaka, Japan.
- Watanabe, N., **Sakamoto, S.**, & Aoyama, A. (2018). *Ketsugouon ni Chakumoku Shita Waon ni Kannsuru Noujouhoushori no Kentou* [Investigating Neural Processing of Chords Focusing on Combination Tones]. Talk presented at the 21st Application of Multimodal Neural Information Symposium in Japanese Society of Medical and Biological Engineering. Yokohama, Japan

## POSTERS

- Sakamoto, S.,** Aoyama, A. and Fujii, S. (2020). Electroencephalographic Activity While Anticipating Uncertainty Resolution in Music. Poster presented at *The 43rd Annual Meeting of the Japan Neuroscience Society*. Online.
- Sakamoto, S.,** Kobayashi, A., Matsushita, K., Shimizu, R. and Aoyama, A. (2019). Classification of electroencephalographic oscillations during relative pitch imagery. *Society for Neuroscience, 2019*. Chicago, IL
- Sakamoto, S.,** Kobayashi, A., Matsushita, K., Shimizu, R., & Aoyama, A. (2019). Classification of Electroencephalogram during Pitch Imagery based on Relative Pitch Change. Poster presented at *The 58th Annual Conference of Japanese Society for Medical and Biological Engineering*. Okinawa, Japan.
- Sakamoto, S.,** Matsushita, K., Kobayashi, A., Shimizu, R., & Aoyama, A. (2018). Classification of EEG data during imagery of higher and lower pitched sounds. Poster presented at *The 41st Annual Meeting of the Japan Neuroscience Society*. Kobe, Japan.
- Kobayashi, A., **Sakamoto, S.,** Matsushita, K., Shimizu, R., & Aoyama, A. (2018). Classification of EEG data during imaging higher and lower pitched sounds using machine learning. Poster Presented at *The 57th Annual Conference of Japanese Society for Medical and Biological Engineering*. Sapporo, Japan. (Presenter)

## GRANTS

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| <b>Research Grant.</b>   | Keio SFC Eccentric Research Program. 2021. (150,000 JPY)  |
| <b>Full Scholarship.</b> | GAO Scholarship. 2020. (1,460,000 JPY)  |
| <b>Research Grant.</b>   | Yamagishi Student Project Support Program. 2020. (150,000 JPY)  |
| <b>Research Grant.</b>   | Incentive to Study and Conduct Research Through SFC Education Promotion Foundation. 2019. (210,000 JPY) |
| <b>Research Grant.</b>   | Incentive to Study and Conduct Research Through SFC Education Promotion Foundation. 2018. (160,000 JPY) |
| <b>Research Grant.</b>   | Keio SFC Academic Society. 2018. (14,300 JPY)   |

## TEACHING EXPERIENCE

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### INSTRUCTOR OF RECORD

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|-------------------|---|
| 2017.07 – 2020.02 | <b>Private Tutor of High School Math</b>                    |
| 2018.02 – 2020.02 | <b>Private Tutor of Junior High School Math and Physics</b> |
| 2019.10 – 2020.01 | <b>Private Tutor of College Math</b>                        |
| 2020.02 – 2020.06 | <b>Private Tutor of Junior High School Math and Physics</b> |

### TEACHING ASSISTANTSHIPS

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|-------------------|---|
| 2020.09 – 2021.02 | <b>Evolution of Music</b> , Keio University (Patrick E. Savage, Ph.D.)      |
| 2020.09 – 2021.02 | <b>History of Music</b> , Keio University (Patrick E. Savage, Ph.D.)        |
| 2018.04 – 2021.02 | <b>Calculus</b> , Keio University (Atushi Aoyama, Ph.D.)                    |
| 2019.09 – 2020.02 | <b>Neural Information Science</b> , Keio University (Atsushi Aoyama, Ph.D.) |
| 2020.04 – 2020.07 | <b>Music and Brain</b> , Keio University (Shinya Fujii, Ph.D.)              |

2020.04 – 2020.07	<b>Knowledge Processing and Discovery</b> , Keio University (Yasushi Kiyoki, Ph.D. and Atsushi Aoyama, Ph.D.)
2020.04 – 2020.07	<b>Sing</b> , Keio University (Yoichi Kitayama)

## SKILLS

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### *LANGUAGE*

<b>Japanese</b>	Native
<b>English</b>	Fluent. TOEFL iBT 105. TOEIC 990, EIKEN Grade1. Graduated from Phillips Academy, a boarding school in Massachusetts.

### *COURSEWORK*

Experimental neuroscience, cognitive neuroscience, machine learning, signal processing, musicology

### *PROGRAMMING*

<b>Proficient</b>	Matlab, Python, Git, LaTeX, UNIX
<b>Basic</b>	C, R, Mathematica, Haskell, HTML, Javascript, CSS

## TRAINING EXPERIENCE

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2019.09	<b>Free Energy Principle Workshop</b> National Institute of Physiological Sciences
2017.09 – 2018.07	<b>Brain Science Training Program</b> RIKEN Center for Brain Science
2018.02 – 2018.04	<b>NICO2AI School</b> Dwango AI Lab.