SHU SAKAMOTO

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

EDUCATION

2020 – Present **Graduate School of Media and Governance, Keio University**
Research Topic: Neuroscience and Music
Research Supervisor: Dr. Shinya Fujii, Dr. Atsuhi Aoyama
GPA: 3.61

2017 – 2020 **Faculty of Environment and Information Studies, Keio University**
Bachelor's-Master's Four-Year Integrated Education Program
Excellent Graduation Project
Research Topic: Neuroscience and Music
Research Supervisor: Dr. Shinya Fujii, Dr. Atsuhi Aoyama
GPA: 3.86

WORK/VOLUNTEER EXPERIENCES

2021.04 – Present **President**
Society for Young Researchers in Neuroscience. Staff since April 2018.

2021.02 – Present **Research Assistant**
Sony Computer Science Laboratory. Supervised by Dr. Shinichi Furuya.

2018.12 – Present **Engineer**
Freelance. Experienced as neuro-engineer at Sandbox Inc. (2018.12–2021.04) and AI competition engineer at Probspace Inc.(2019.02 – 2019.07).

2017.07 – Present **Translator**
Freelance

2020.10 – 2021.03 **Research Intern**
International Research Center for Neurointelligence, University of Tokyo.
Supervised by Dr. Tatsuya Daikoku.

2019.12 – 2020.06 **Writer**
Techflyer Inc.

2018.02 – 2020.04 **Research Intern**
NTT Communication Science Laboratories. Supervised by Dr. Makio Kashino.

HONORS AND AWARDS

2021	**SFC STUDENT AWARD** Keio University
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

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, M., 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, Rironn 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.

Kobayashi, K., **Sakamoto, S.,** Sato, M., Sato, Y., Sugimoto, S., Nakata, T., Noyama, T., & Yamashita, A. (2021). *2021 nenndo jigenn kenkyuukai jisshi houkoku noukagaku wakate no kai dai 13 kai gasshuku "Wakate Kenkyuusha Ni Muketa Recucha & Wa-kushoppu Gasshuku ~Seitai Jouhou No Hikari Keisoku, Sousa Fijutu To Jinkou Chinou Ni Your Shinkei Mekanizumu No Rikai Oyobi Jissen~"* [Report on the 2021 Symposium, The 13th Symposium by Society for Young researchers on Neuroscience "Lecture & Workshop Symposium for Young Researchers: Understanding and Implementing the Neural Mechanisms by Optical Imaging and Artificial Intelligence]. *The Brain & Neural Networks*., vol. 28 (2), pp. 103-108.

CONFERENCE PRESENTATIONS AND OTHERS

TALKS

Sakamoto, S., Matsushita, K., Kobayashi, A., Shimizu, R., & Aoyama, A. (2021). Oscillatory activity in multiple neural processes related to auditory imagery. Talk presented at *ICMPC16-ESCOM11 (International Conference on Music Perception and Cognition, European Society for the Cognitive Sciences of Music)*. Online.

Sakamoto, S. (2020). Oscillatory activity in multiple neural processes related to auditory imagery. Invited talk presented at Cognitive Developmental Robotics Lab, International Research Center for Neurointelligence, The University of Tokyo.

Sakamoto, S., Kobayashi, A., Matsushita, K., Shimizu, R., & Aoyama, A. (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. (201). *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., Matsushita, K., Kobayashi, A., Shimizu, R., & Aoyama, A. (2021). Neural Oscillation Related to Multiple Subprocesses in Auditory Imagery. Poster presented at *The 44th Annual Meeting of the Japan Neuroscience Society.* Kobe, Japan.

Sakamoto, S., Aoyama, A. and Fujii, S. (2021). Uncertainty Resolution and Anticipation of Pleasure in Chord Progression: An EEG Study. Poster presented at *Neurosciences and Music VII*. Online.

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

Research Grant. Taikichiro Mori Memorial Research Grants (210,000 JPY)
Research Grant. Keio SFC Eccentric Research Program. 2021. (150,000 JPY)

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

TEACHING EXPERIENCE

INSTRUCTOR OF RECORD

2017.07 – 2020.02 **Private Tutor of High School Math**
2018.02 – 2020.02 **Private Tutor of Junior High School Math and Physics**
2019.10 – 2020.01 **Private Tutor of College Math**
2020.02 – 2020.06 **Private Tutor of Junior High School Math and Physics**

TEACHING ASSISTANTSHIPS

2020.09 – 2021.02 **Evolution of Music**, Keio University (Patrick E. Savage, Ph.D.)
2020.09 – 2021.02 **History of Music**, Keio University (Patrick E. Savage, Ph.D.)
2018.04 – 2021.07 **Calculus,** Keio University (Atushi Aoyama, Ph.D.)
2021.04 – 2021.07 **Neural Information Science**, Keio University (Atsushi Aoyama, Ph.D.)
2019.09 – 2020.02 **Neural Information Science**, Keio University (Atsushi Aoyama, Ph.D.)
2020.04 – 2020.07 **Music and Brain**, Keio University (Shinya Fujii, Ph.D.)
2020.04 – 2020.07 **Knowledge Processing and Discovery**, Keio University (Yasushi Kiyoki, Ph.D. and Atsushi Aoyama, Ph.D.)
2020.04 – 2020.07 **Sing**, Keio Unievrsity (Yoichi Kitayama)

SKIILS

LANGUAGE

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

PROGRAMMING

Proficient Matlab, Python, Git, LaTeX, UNIX
Basic C, R, Mathematica, Haskell, HTML, Javascript, CSS

TRAINING EXPERIENCE

2019.09 **Free Energy Principle Workshop**
National Institute of Physiological Sciences
2017.09 – 2018.07 **Brain Science Training Program**
RIKEN Center for Brain Science

2018.02 – 2018.04 **NICO2AI School**
Dwango AI Lab.