

Takaaki Saeki

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RESEARCH INTERESTS

Spoken language processing: Speech synthesis, speech recognition, speech representation learning
Natural language processing
Deep learning

EDUCATION

The University of Tokyo Tokyo, Japan
Ph.D. Degree in Graduate School of Information Science and Technology Apr. 2021 – Present
• Supervisor: Prof. Hiroshi Saruwatari

The University of Tokyo Tokyo, Japan
Master's Degree in Graduate School of Information Science and Technology Apr. 2019 – Mar. 2021
• Supervisor: Prof. Hiroshi Saruwatari

The University of Tokyo Tokyo, Japan
Bachelor's Degree in Aerospace Engineering Apr. 2015 – Mar. 2019
• Supervisor: Prof. Kimiya Komurasaki

EXPERIENCE

Carnegie Mellon University Pittsburgh, USA
Visiting Scholar Oct. 2022 – Jan. 2023
• Researched on speech synthesis.
• Advisor: Prof. Shinji Watanabe

Google Research Tokyo, Japan
Student Researcher (Intern) Apr 2022 – Sep. 2022
• Researched on multilingual speech representation learning.
• Advisor: Dr. Heiga Zen

LINE Corporation Tokyo, Japan
Part-Time Researcher Mar. 2021 – Mar. 2022
• Worked on text-to-speech synthesis at Voice Team.
• Advisor: Kentaro Tahchibana and Ryuichi Yamamoto

Preferred Networks, Inc. Tokyo, Japan
Research Intern Aug. 2021 – Sep. 2021
• Researched on application of deep learning to music creation at Music Team.
• Advisor: Daiki Higurashi and Dr. Brian Vogel

NEC Data Science Research Laboratories Kanagawa, Japan
Research Intern Aug. 2019 – Sep. 2019
• Worked on speech enhancement.
• Advisor: Dr. Osamu Hoshuyama

Recruit Holdings Co., Ltd. Tokyo, Japan
Data Engineering Intern & Part-Time Engineer Feb. 2019 – June 2019
• Worked on data analysis and developed recommendation engine.
• Advisor: Naoya Osugi

Delight Inc. Tokyo, Japan
Part-Time Engineer May 2017 – Apr. 2019
• Developed simulation software of fluid dynamics.

TECHNICAL SKILLS

Languages: Python, C/C++, Shell, LaTeX, SQL (BigQuery), HTML/CSS

Developer Tools: Git, Docker, Amazon Web Service, Google Cloud Platform, VS Code

Libraries: NumPy, pandas, PyTorch, Tensorflow, Chainer

LANGUAGE SKILLS

Japanese (native) and English (fluent)

HONORS AND AWARDS

Yamashita SIG Research Award | *Information Processing Society of Japan (IPSJ)* July 2022

Best Paper Award | *The Institute of Electronics, Information and Communication Engineers (IEICE)* Apr. 2022

Ranked 1st Place in 10/16 Metrics (22 Teams in Total) | *VoiceMOS Challenge 2022* Mar. 2022

Telecom System Technology Award for Students | *The Telecommunication Advancement Foundation* Mar. 2022

Best Student Presentation Award | *Acoustical Society of Japan* Oct. 2021

IEICE ISS Best Student Poster Award | *IEICE Speech Committee 2021* Mar. 2021

Award for Excellence (2nd place) | *Natural Language Processing Hackathon at Recruit Co., Ltd.* Feb. 2019

GRANTS AND SCHOLARSHIPS

Google East Asia Student Travel Grants (100,000 JPY) Sep. 2022

Research Fellowship for Young Scientists (DC2) (2,400,000 JPY/year) Apr. 2022 – Mar. 2024

UTokyo-TOYOTA Study Abroad Scholarship in AI Field (220,000 JPY/month) Mar. 2022

Tobitate Study Abroad Initiatives (160,000 JPY/month) July 2021

TOYOTA/Dwango AI Scholarship (1,200,000 JPY/year) Apr. 2021 – Mar. 2022

PUBLICATIONS (JOURNAL PAPER)

Takaaki Saeki, Yuki Saito, Shinnosuke Takamichi, and Hiroshi Saruwatari,
“Real-time Full-Band Voice Conversion with Sub-Band Modeling and Data-Driven Phase Estimation of Spectral Differentials,”

IEICE Transactions on Information and Systems, vol. E104-D, no.7, pp. 1002–1016, Jul. 2021.

(Best Paper Award in 2021)

Takaaki Saeki, Shinnosuke Takamichi, and Hiroshi Saruwatari,
“Incremental Text-to-Speech Synthesis Using Pseudo Lookahead with Large Pretrained Language Model,”
IEEE Signal Processing Letters, vol. 28, pp. 857–861, Apr. 2021.

(The 37th Telecom System Technology Award for Students from TAF)

(Presented at *ICASSP 2022*)

PUBLICATIONS (PEER-REVIEWED CONFERENCE PAPER)

Takaaki Saeki, Heiga Zen, Zhehuai Chen, Nobuyuki Morioka, Gary Wang, Yu Zhang, Ankur Bapna, Andrew Rosenberg, and Bhuvana Ramabhadran,

“Virtuoso: Massive Multilingual Speech-Text Joint Semi-Supervised Learning for Text-to-Speech,”
in *Proc ICASSP*, June 2023. (Accepted)

Soumi Maiti, Yifan Peng, **Takaaki Saeki**, Shinji Watanabe,
“SpeechLMscore: Evaluating Speech Generation Using Speech Language Model,”
in *Proc ICASSP*, June 2023. (Accepted)

Dong Yang, Tomoki Koriyama, Yuki Saito, **Takaaki Saeki**, Detai Xin, and Hiroshi Saruwatari,
“Duration-Aware Pause Insertion Using Pre-trained Language Model for Multi-speaker Text-to-Speech,”
in *Proc ICASSP*, June 2023. (Accepted)

Kentaro Seki, Shinnosuke Takamichi, **Takaaki Saeki**, and Hiroshi Saruwatari,
“Text-to-Speech Synthesis from Dark Data with Evaluation-in-the-Loop Data Selection,”
in *Proc ICASSP*, June 2023. (Accepted)

Yoshifumi Nakano, **Takaaki Saeki**, Shinnosuke Takamichi, Katsuhito Sudoh, and Hiroshi Saruwatari,
“vTTS: Visual-Text to Speech,”
in *Proc. IEEE SLT*, pp. 936–942, Jan. 2023.

Yuta Matsunaga, **Takaaki Saeki**, Shinnosuke Takamichi, and Hiroshi Saruwatari,
“Empirical Study Incorporating Linguistic Knowledge on Filled Pauses for Personalized Spontaneous Speech Synthesis,”
in *Proc. APSIPA ASC*, pp. 1898–1903, June 2022.

Takaaki Saeki, Shinnosuke Takamichi, Tomohiko Nakamura, Naoko Tanji, and Hiroshi Saruwatari,
“SelfRemaster: Self-Supervised Speech Restoration with Analysis-by-Synthesis Approach Using Channel Modeling,”
in *Proc. Interspeech*, pp.4406–4410, Sep. 2022. (**Oral**)

Takaaki Saeki, Kentaro Tachibana, Ryuichi Yamamoto,
“DRSpeech: Degradation-Robust Text-to-Speech Synthesis with Frame-Level and Utterance-Level Acoustic Representation Learning,”
in *Proc. Interspeech*, pp. 793–797. Sep. 2022.

Takaaki Saeki^{*}, Detai Xin^{*}, Wataru Nakata^{*}, Tomoki Koriyama, Shinnosuke Takamichi, and Hiroshi Saruwatari (^{*} Equal Contribution),
“UTMOS: UTokyo-SaruLab System for VoiceMOS Challenge 2022,”
in *Proc. Interspeech*, pp. 4521–4525, Sep. 2022. (**Oral**)

Yuta Matsunaga, **Takaaki Saeki**, Shinnosuke Takamichi, and Hiroshi Saruwatari,
“Personalized Filled-Pause Generation with Group-Wise Prediction Models,”
in *Proc. LREC*, June 2022.

Naoki Kimura, Zixiong Su, **Takaaki Saeki**, and Jun Rekimoto,
“SSR7000: A Synchronized Corpus of Ultrasound Tongue Imaging for End-to-End Silent Speech Recognition,”
in *Proc. LREC*, June 2022.

Takaaki Saeki, Shinnosuke Takamichi, and Hiroshi Saruwatari,
“Low-latency Incremental Text-to-Speech Synthesis with Distilled Context Prediction Network,”
in *Proc. ASRU*, pp. 749-756, Dec. 2021.

Takaaki Saeki, Yuki Saito, Shinnosuke Takamichi, and Hiroshi Saruwatari,
“Real-Time, Full-Band, Online DNN-Based Voice Conversion System Using a Single CPU,”
in *Proc. Interspeech*, pp. 1021–1022, Oct. 2020.

Naoki Kimura, Zixiong Su, and **Takaaki Saeki**,
“End-to-End Deep Learning Speech Recognition Model for Silent Speech Challenge,”
in *Proc. Interspeech*, pp. 1025–1026, Oct. 2020..

Takaaki Saeki, Yuki Saito, Shinnosuke Takamichi, and Hiroshi Saruwatari,
“Lifter Training and Sub-Band Modeling for Computationally Efficient and High-Quality Voice Conversion Using Spectral Differentials,”
in *Proc. ICASSP*, pp. 7784–7788, May 2020.

PUBLICATIONS (PREPRINT)

Takaaki Saeki, Soumi Maiti, Xinjian Li, Shinji Watanabe, Shinnosuke Takamichi, Hiroshi Saruwatari,
“Learning to Speak from Text: Zero-Shot Multilingual Text-to-Speech with Unsupervised Text Pretraining,”
in *arXiv preprint arXiv:2301.12596*, Jan. 2023.

Shinnosuke Takamichi, Ludwig Kürzinger, **Takaaki Saeki**, Sayaka Shiota, and Shinji Watanabe,
“JTubeSpeech: Corpus of Japanese Speech Collected from YouTube for Speech Recognition and Speaker
Verification,”
in *arXiv preprint arXiv:2112.09323*, Dec. 2021.

Tomoki Hayashi, Ryuichi Yamamoto, Takenori Yoshimura, Peter Wu, Jiatong Shi, **Takaaki Saeki**,
Yooncheol Ju, Yusuke Yasuda, Shinnosuke Takamichi, and Shinji Watanabe,
“ESPnet2-TTS: Extending the Edge of TTS Research,”
in *arXiv preprint arXiv:2110.07840*, Oct. 2021.

PATENTS (SELECTED)

Shinnosuke Takamichi, Yuki Saito, **Takaaki Saeki**, and Hiroshi Saruwatari,
“Voice Conversion System, Method, and Program,”
International Patent Application No. PCT/JP2021/4367. (Submitted)

Shinnosuke Takamichi, Yuki Saito, **Takaaki Saeki**, and Hiroshi Saruwatari,
“Voice Conversion System, Method, and Program,”
International Patent Application No. PCT/JP2020/031122. (Submitted)

MISCELLANEOUS WORK

Research Talk at Google Tokyo	ONLINE
<i>“Self-Supervised Speech Restoration for Historical Audio”</i>	<i>June 2022</i>
Exhibition at Sainokuni Buisiness Arena 2021	ONLINE
<i>“Research on Stress-Free, Real-Time, and Full-Band Voice Conversion Based on Perceptual Model”</i>	<i>Jan. 2021</i>
Exhibition at CEATEC 2020	ONLINE
<i>“Research on Stress-Free, Real-Time, and Full-Band Voice Conversion Based on Perceptual Model”</i>	<i>Oct. 2020</i>

(Last update: 2023/02/17)