Dr. Frederik Bous *Résumé*

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Research interest

AI for voice, music, and sound: Controllable and interpretable generative models, self-supervised representation learning, multi-modal representation learning. Open to new challenges related to artistic media.

Experience

Supertone Inc., *Korea*   2024 – today
Research Scientist
- Research related to Supertone's voice technology:
  - Improve quality and controllability on voice backbone model
  - Analysis and transformation of room acoustics, pitch, subharmonics, breathiness and intensity.
  - Self-supervised- and representation learning related to TTS
- Application development: Develop and maintain voice editing tool using Supertone's voice technology

IRCAM, *France*   2018 – 2024
Post-doc, Doctoral researcher, Intern
- Research on deep learning for voice
  - 6 peer reviewed publications including 5 as first author and 2 journal articles.
  - Topics: Neural vocoding and representation, self-supervised learning, voice attribute transformation.
- Technical support for film, music and art: Bespoke implementations of voice transformation.
- Application development: Implement research results into voice editing and live transformation app.

Siemens AG, *Germany*   2015
Intern

Education

Doctor of Philosophy (PhD) *Sorbonne Université, France*	2023
Master of Science (MSc) (Computational Engineering) *TU Darmstadt, Germany*	2019
Bachelor of Science (BSc) (Electrical Engineering) *TU Darmstadt, Germany*	2014

Skills

Deep learning Self-supervised learning, generative AI, representation learning, AI for speech and audio
Signal processing Strong DSP background, DSP pre- and post-processing for AI, DDSP
Voice and language Phonetics, source-filter model, physical voice production, voice accoustics
Music Singing, classical composition techniques, live coding (Tidal Cycles), Piano
Programming languages Python (torch, tensorflow), Haskell, Java, Kotlin, Unix Shell (bash, zsh, fish)
App development Android, GTK, VST
Languages German (native), English (C2), French (B2), Polish (B1), Chinese (A2), Korean (basic)

Other

Full PhD scholarship *EDITE de Paris (ED130)*	2019 – 2022
Full study scholarship *Studienstiftung des deutschen Volkes (SdV)*	2015 – 2019
Additional credits (Maths & Music) *TU Darmstadt, Germany*	2015 – 2018
Study exchange *Tongji University, Shanghai, China*	2014 – 2015
Deutschlandstipendium *TU Darmstadt, Inro Elektrotechnik, Siemens*	2013 – 2014
Teaching assistant (Stochastic signals and systems) *TU Darmstadt, Germany*	2014
Study exchange *AC Davis High School, Yakima, WA, USA*	2009 – 2010