

Maureen de Seyssel

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EDUCATION

PhD candidate in Cognitive Science and Machine Learning October 2020 - present
*Laboratoire de Sciences Cognitives et Psycholinguistique, CoML Team, École Normale Supérieure
Laboratoire de Linguistique Formelle, Université de Paris*

DISSERTATION TOPIC: “Unsupervised and multilingual models of speech representation, a cognitive science inspired approach” | Supervisors: Dr. Emmanuel DUPOUX & Dr. Guillaume WISNIEWSKI

- Focus on language acquisition processes for children raised in bilingual environments.
- Reverse engineering approach : use of computational models of speech and language using the same input as children in order to infer hypotheses on the human cognitive processes
- Unsupervised and semi-supervised models of speech and language processing using multilingual input.
- Effect of language distance in multilingual unsupervised models of speech

MSc in Speech and Language Processing · Distinction 2016-2017
University of Edinburgh

- Focus on Speech Technology and Natural Language Processing.
- Program co-taught between the Informatics and Linguistics departments.
- Courses include: Automatic Speech Recognition, Speech Synthesis, Natural Language Understanding, Machine Translation, Computational Cognitive Neuroscience

DISSERTATION TOPIC: “Active learning for training data selection for Automatic Speech Recognition using Unreliable Transcriptions” | Supervisor: Dr. Peter BELL. In collaboration with Quorate Technology Limited

BSc in Psychology (Hons) · First Class Honours 2013-2016
City, University of London

- Focus on cognitive sciences and neurosciences

DISSERTATION: “The Role of Statistical and Crosslinguistic Prosodic Cues in Segmenting Groups of Words” | Supervisor: Dr. Ansgar ENDRESS

WORK EXPERIENCE

Research Engineer November 2019 - September 2020
*Laboratoire de Sciences Cognitives et Psycholinguistique, CoML Team
École Normale Supérieure*

- Research on Language Identification (LID) processes in language acquisition for infants raised in bilingual environments. Modelling of LID processes, focusing on i-vectors systems.
- Design of linguistic tests for unsupervised speech representation computational models.

Research Engineer in Automatic Speech Recognition

April 2019 - October 2019

Qwant Research

- In charge of the research in Automatic Speech Recognition.
- Creation of a French prototype ASR system with very scarce data.
- Qwant Research is the research-focused subsidiary company of the search engine Qwant. State-of-the-art research is covered in a variety of domains including NLP, Speech, Vision.

Speech Scientist

October 2017 - March 2019

Quorate Technology Limited

- In charge of the Acoustic Modelling research and development division. Creating state-of-the-art domain-adapted acoustic models for speech recognition.
- Quorate Technology is a spin-out from the University of Edinburgh, and still tightly collaborates with the Centre of Speech and Technology Research, leading to state of the art academic research.

Research Assistant · voluntary position

2015-2016

City, University of London, with Dr. Ansgar ENDRESS

- Research, data analysis and experimental design in the cognitive fields of Working Memory and Language Acquisition.

SKILLS

Programming languages: Python, Matlab, R, Bash

Toolkits: Tensorflow, Kaldi, HTK, Pytorch, Theano, Festival

Skills: Speech Processing (ASR, TTS), NLP, Machine Learning, Statistics, Machine Translation, Computational Cognition

Industry skills: Agile, AWS, Git, Docker, Jira

Languages: French (native), English (fluent), Spanish (good working knowledge)

SELECTED PUBLICATIONS

First author publications (* denotes equal contribution as first author)

- **de Seyssel, M.**, Lavechin, M., Adi, Y., Dupoux, E., & Wisniewski, G. (2022). Probing phoneme, language and speaker information in unsupervised speech representations. *arXiv preprint arXiv:2203.16193*. [Accepted at Interspeech 2022]
- **de Seyssel, M.**, Wisniewski, G., Dupoux, E., & Ludusan, B. (2022). Investigating the usefulness of i-vectors for automatic language characterization. In *Proc. Speech Prosody 2022*, 460-464
- **de Seyssel, M.**, Wisniewski, G., & Dupoux, E.. (2022). Is the Language Familiarity Effect gradual? A computational modelling approach. In *Proceedings for the Annual Meeting of the Cognitive Science Society 2022*.
- Nguyen, T. A.*, **de Seyssel, M.***, Rozé, P., Rivière, M., Kharitonov, E., Baevski, A., Dunbar, E., & Dupoux, E. (2020). The zero resource speech benchmark 2021: Metrics and baselines for unsupervised spoken language modeling. *Neurips Workshop on Self-Supervised Learning for Speech and Audio Processing*.
- **de Seyssel, M.** & Dupoux, E. (2020). Does bilingual input hurt? A simulation of language discrimination and clustering using i-vectors. In *Proceedings for the Annual Meeting of the Cognitive Science Society 2020*.

Other publications

- Lavechin, M., **de Seyssel, M.**, Métais, M., Metze, F., Mohamed, A., Bredin, H., ... & Cristia, A. (2022). Early phonetic learning from ecological audio: domain-general versus domain-specific mechanisms. *PsyArxiv*. <https://doi.org/10.31234/osf.io/5tmgy>
- Lavechin, M., **de Seyssel, M.**, Gautheron, L., Dupoux, E., & Cristia, A. (2021). Reverse-engineering language acquisition with child-centered long-form recordings. *Annual Review of Linguistics 2022* 8(1)
- Dunbar, E., Bernard, M., Hamilakis, N., Nguyen, T.A., **de Seyssel, M.**, Rozé, P., Rivière, M., Kharitonov, E., Dupoux, E. (2021) The Zero Resource Speech Challenge 2021: Spoken Language Modelling. In *Proc. Interspeech 2021*, 1574-1578
- Maudet, E., Cattan, O., **de Seyssel, M.**, & Servan, C. (2019). Qwant Research@ DEFT 2019: appariement de documents et extraction d'informations à partir de cas cliniques. *DEFT*, 67.

TEACHING AND SUPERVISION

More information is available on my personal website

Teaching

- **Language Processing and Acquisition (teaching assistant and guest lecturer)** · Graduate course, ENS Paris, Département d'Etudes Cognitives. · *2021 and 2022*
- **Conversation among People and Bots (teaching assistant)** · Graduate course, ENS Paris, Département d'Etudes Cognitives. · *2020*

Student Supervision

- **Arthur Thomas** · MSc student · *June to August 2022*
- **Andrea Santos** · MSc student · *July to December 2021*

Guest Lectures

- **Introduction to Computational Modelling for Language Acquisition** · Cognitive Science BA students, University of Haifa, Israel · *June 2021*