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Gabriel Synnaeve
Research Scientist Manager

Google Scholar
github.com/syhw
linkedin.com/in/gabrielsynnaeve

Generalist deep learning researcher with a knack for nurturing teams, and growing leaders. In AI research to empower humans.

SKILLS

Tools and Languages	Python, C++, Git, Unix, LaTeX, PyTorch, Flashlight
Research	Deep Learning, Code Generation, Audio, CV, ASR, Reinforcement Learning, NLP, Bayesian models
Communication	French, English

TECHNICAL EXPERIENCE

Research Scientist Manager   2021 — Present
Meta AI, Meta Reality Labs Research – FAIR   *Paris, France*
- As a manager: Speech & Audio in EMEA, audio compression, evaluating speech models, audio SSL.
- As an IC: code generation, code translation, vision transformers.

Research Scientist   2019 — 2021
Facebook AI Research   *Paris, France and New York, USA*
- Staff and then Senior Staff (Q1 2021) research scientist
- Robust speech recognition, semi-supervised learning, transformers,
- object detection with transformers,
- speech denoising with ConvNets.

Research Scientist & Manager   2017 — 2019
Facebook AI Research   *New York, USA*
- Tech leading a StarCraft: Brood War AI (bot) research project.
- Distributed Actor-Critic methods with a hierarchical action space.

Research Scientist   2016 — 2017
Facebook AI Research   *New York, USA*
- End-to-end fully convolution speech recognition,
- Establishing reinforcement learning benchmarks.

Postdoctoral Researcher   2015 — 2016
Facebook AI Research   *Paris, France*
- Weakly supervised and end-to-end speech recognition.

Postdoctoral Researcher   2013 — 2015
Ecole Normale Supérieure   *Paris, France*
- Modeling language acquisition in babies,
- Bayesian nonparametrics,
- Weakly supervised deep learning for acoustic modeling.

PhD student and Teaching Assistant   2009 — 2012
INRIA Grenoble, Collège de France, Prof. Pierre Bessière   *Grenoble, Paris, France*
- Bayesian modeling for StarCraft AI research.
- Teaching: systems programming, programming languages, introduction to CS.

Master thesis internship   2009
National Institude of Informatics, Prof. Katsumi Inoue and Taisuke Sato   *Tokyo, Japan*
- Applying Inductive Logic Programming to systems biology,
- HMMs for discretizing time series.

EDUCATION

PhD in Machine Learning, *Grenoble University*	10 2012
Master of Computer Science in AI, *Grenoble University*	06 2009
Master of Computer Science and Engineering, *ENSIMAG*	06 2009
PhD student and teaching assistant, Grenoble University, France, and Paris VI (Jussieu), France	2009 — 2012
Engineering school: Maths and Computer Science , ENSIMAG, Grenoble, France	2006 — 2009
Preparatory school (PCSI/PSI), Lycée Saint-Louis, Paris, France	2004 — 2006

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ACTIVITIES

Reviewing: NeurIPS, ICML, ICLR, ICASSP, TASLP, AAAI	since 2015
Reviewing: IEEE CIG, TCAIG, AIIDE	2011 — 2018
Area Chair: NeurIPS, ICML, ICLR	various years
Workshops Chair, ICLR	2020
Teaching speech recognition, African Master of Machine Intelligence	2020

SELECTED PUBLICATIONS

Baptiste Roziere, Jie M Zhang, Francois Charton, Mark Harman, Gabriel Synnaeve, and Guillaume Lample. Leveraging automated unit tests for unsupervised code translation. *arXiv preprint arXiv:2110.06773*, 2021.

Aishwarya Kamath, Mannat Singh, Yann LeCun, Gabriel Synnaeve, Ishan Misra, and Nicolas Carion. Mdetr-modulated detection for end-to-end multi-modal understanding. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 1780–1790, 2021.

Alexandre Défossez, Yossi Adi, and Gabriel Synnaeve. Differentiable model compression via pseudo quantization noise. *arXiv preprint arXiv:2104.09987*, 2021.

Hugo Touvron, Matthieu Cord, Alexandre Sablayrolles, Gabriel Synnaeve, and Hervé Jégou. Going deeper with image transformers. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 32–42, 2021.

Nicolas Carion, Francisco Massa, Gabriel Synnaeve, Nicolas Usunier, Alexander Kirillov, and Sergey Zagoruyko. End-to-end object detection with transformers. In *European conference on computer vision*, pages 213–229. Springer, 2020.

Tatiana Likhomanenko, Qiantong Xu, Vineel Pratap, Paden Tomasello, Jacob Kahn, Gilad Avidov, Ronan Collobert, and Gabriel Synnaeve. Rethinking evaluation in asr: Are our models robust enough? *arXiv preprint arXiv:2010.11745*, 2020.

Alexandre Defossez, Gabriel Synnaeve, and Yossi Adi. Real time speech enhancement in the waveform domain. *arXiv preprint arXiv:2006.12847*, 2020.

Gabriel Synnaeve, Qiantong Xu, Jacob Kahn, Tatiana Likhomanenko, Edouard Grave, Vineel Pratap, Anuroop Sriram, Vitaliy Liptchinsky, and Ronan Collobert. End-to-end asr: from supervised to semi-supervised learning with modern architectures. *arXiv preprint arXiv:1911.08460*, 2019a.

Gabriel Synnaeve, Jonas Gehring, Zeming Lin, Daniel Haziza, Nicolas Usunier, Danielle Rothermel, Vegard Mella, Da Ju, Nicolas Carion, Laura Gustafson, et al. Growing up together: Structured exploration for large action spaces. 2019b.

Gregory Farquhar, Laura Gustafson, Zeming Lin, Shimon Whiteson, Nicolas Usunier, and Gabriel Synnaeve. Growing action spaces. In *International Conference on Machine Learning*, pages 3040–3051. PMLR, 2020.

Neil Zeghidour, Qiantong Xu, Vitaliy Liptchinsky, Nicolas Usunier, Gabriel Synnaeve, and Ronan Collobert. Fully convolutional speech recognition. *arXiv preprint arXiv:1812.06864*, 2018.

Gabriel Synnaeve, Zeming Lin, Jonas Gehring, Dan Gant, Vegard Mella, Vasil Khalidov, Nicolas Carion, and Nicolas Usunier. Forward modeling for partial observation strategy games-a starcraft defogger. *Advances in Neural Information Processing Systems*, 31, 2018.

Nicolas Usunier, Gabriel Synnaeve, Zeming Lin, and Soumith Chintala. Episodic exploration for deep deterministic policies: An application to starcraft micromanagement tasks. *arXiv preprint arXiv:1609.02993*, 2016.

Ronan Collobert, Christian Puhrsch, and Gabriel Synnaeve. Wav2letter: an end-to-end convnet-based speech recognition system. *arXiv preprint arXiv:1609.03193*, 2016.

Gabriel Synnaeve and Pierre Bessiere. Multiscale bayesian modeling for rts games: An application to starcraft ai. *IEEE Transactions on Computational intelligence and AI in Games*, 8(4):338–350, 2015.