

Gonçalo Mordido

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Experience

2022 – Now	Mila - Quebec AI Institute (Canada) <i>Postdoctoral Fellow</i> <ul style="list-style-type: none">• Efficient training and inference methods for deep neural networks.• Mentored a total of 7 Ph.D. students, 5 M.Sc. students, and 2 interns.• Awarded FRQ's <i>postdoctoral merit scholarship</i>.• <i>Advisors</i>: Prof. Sarath Chandar, Prof. François Leduc-Primeau
2017 – 2021	Hasso Plattner Institute (Potsdam, Germany) <i>Research Associate & Ph.D. Candidate</i> (4 years) <ul style="list-style-type: none">• Diversification, compression, and evaluation methods for generative models.• Mentored 7 M.Sc. students and 1 intern.• Graduated with <i>great distinction</i>.• <i>Advisor</i>: Prof. Christoph Meinel
Fall 2020	NVIDIA (Germany) <i>Research Intern</i> (4 months) <ul style="list-style-type: none">• Compression of depth-wise separable convolutions in deep neural networks.• Awarded a <i>recognition award</i> for "exceptional and outstanding contributions".• <i>Host</i>: Dr. Alexander Keller
Fall 2018	NVIDIA (Germany) <i>Research Intern</i> (6 months) <ul style="list-style-type: none">• Compression of deep neural networks using Monte Carlo methods.• <i>Host</i>: Dr. Alexander Keller

Education

2017 – 2021	Hasso Plattner Institute (Germany) <i>Ph.D. in Artificial Intelligence</i> <ul style="list-style-type: none">• Grade: <i>Magna cum laude</i>• Thesis: Diversification, compression, and evaluation methods for generative adversarial networks.
2012 – 2017	NOVA University Lisbon (Portugal) <i>B.Sc. and M.Sc. in Computer Science & Engineering</i> <ul style="list-style-type: none">• Grades: A• Master's thesis: Automated organization and quality analysis of user-generated audio content.

Awards & Recognition

2023	Postdoctoral merit scholarship. <i>Fonds de Recherche du Québec</i>
2021	Honors Ph.D. graduation. Hasso Plattner Institute
2020	Recognition award for "exceptional and outstanding contributions". NVIDIA
2015	Best final year B.Sc. project. NOVA University Lisbon
2015	1st place hackathon winner. NOVA University Lisbon

Publications

- 2023 | **Training DNNs resilient to adversarial and random bit-flips by learning quantization ranges.**
K. Chitsaz, G. Mordido, J. David, F. Leduc-Primeau. *TMLR*
Deep learning on a healthy data diet: Finding important examples for fairness and performance.
A. Zayed, P. Parthasarathi, G. Mordido, H. Palangi, S. Shabanian, S. Chandar. *AAAI 2023*
- 2022 | **Sharpness-aware training for accurate inference on noisy DNN accelerators.**
G. Mordido, S. Chandar, F. Leduc-Primeau. *CoLLAs 2022 workshop & EIW 2022*
Improving meta-learning generalization with activation-based early-stopping.
S. Guiroy, C. Pal, G. Mordido, S. Chandar. *CoLLAs 2022*
MemSE: Fast MSE prediction for noisy memristor-based DNN accelerators.
J. Kern, S. Henwood, G. Mordido, E. Dupraz, A. Aissa-El-Bye, Y. Savaria, F. Leduc-Primeau. *AICAS 2022*
Tiny CNN for seizure prediction in wearable biomedical devices.
Y. Zhang, Y. Savaria, S. Zhao, G. Mordido, M. Sawan, F. Leduc-Primeau. *EMBC 2022*
- 2021 | **Compressing 1D time-channel separable convolutions using sparse random ternary matrices.**
G. Mordido, M. Keirsbilck, A. Keller. *INTERSPEECH 2021*
Assessing image and text generation with topological analysis and fuzzy logic.
G. Mordido*, J. Niedermeier*, C. Meinel. *WACV 2021*
- 2020 | **Mark-Evaluate: Assessing language generation using population estimation methods.**
G. Mordido, C. Meinel. *COLING 2020*
Best student forcing: A simple training mechanism in adversarial language generation.
J. Sauder*, T. Hu*, X. Che, G. Mordido, H. Yang and C. Meinel. *LREC 2020*
Monte Carlo gradient quantization.
G. Mordido, M. Keirsbilck, A. Keller. *CVPR 2020 EDLCV workshop*
Improving the evaluation of generative models with fuzzy logic.
J. Niedermeier*, G. Mordido* and C. Meinel. *AAAI 2020 Meta-Eval workshop*
microbatchGAN: Stimulating diversity with multi-adversarial discrimination.
G. Mordido, H. Yang, and C. Meinel. *WACV 2020*
- 2019 | **Instant quantization of neural networks using Monte Carlo methods.**
G. Mordido*, M. Keirsbilck*, A. Keller. *NeurIPS 2019 EMC2 workshop*
- 2018 | **Pseudo-ground-truth for adversarial text generation using reinforcement learning.**
J. Sauder, X. Che, G. Mordido, H. Yang and C. Meinel. *NeurIPS 2018 Deep RL workshop*
Dropout-GAN: Learning from a dynamic ensemble of discriminators.
G. Mordido, H. Yang, and C. Meinel. *KDD 2018 Deep Learning Day*
- 2017 | **Automatic organisation, segmentation, and filtering of user-generated audio content.**
G. Mordido, J. Magalhaes, and S. Cavaco. *MMSP 2017*
Automatic organisation and quality analysis of user-generated content with audio fingerprinting.
G. Mordido, J. Magalhaes, and S. Cavaco. *EUSIPCO 2017*

Patents

- 2022 | **Incorporating a ternary matrix into a neural network.**
A. Keller, G. Mordido, M. Van keirsbilck. *US Patent*
- 2019 | **Representing a neural net utilizing paths within the network to improve a performance of the neural net.**
A. Keller, G. Mordido, N. Gamboa, M. Van keirsbilck. *US Patent*

Submissions (under review)

AAAI'24	Fairness-aware structured pruning in Transformers. A. Zayed, G. Mordido, S. Shabanian, I. Baldini, S. Chandar. Sharpness-aware minimization scaled by outlier normalization for improving DNN robustness. G. Mordido*, S. Henwood*, S. Chandar, F. Leduc-Primeau
EACL'24	Should we attend more or less? Modulating attention for fairness. A. Zayed, G. Mordido, S. Shabanian, S. Chandar.
ICLR'24	Lookbehind optimizer: k steps back, 1 step forward. G. Mordido*, P. Malviya*, A. Baratin, S. Chandar. Promoting exploration in memory-augmented Adam using critical momenta. P. Malviya, G. Mordido, A. Baratin, R. Harikandeh, J. Huang, S. Lacoste-Julien, R. Pascanu, S. Chandar.
IEEE TSP	Fast and accurate output error estimation for memristor-based deep neural networks. J. Kern, S. Henwood, G. Mordido, E. Dupraz, A. Bey, Y. Savaria, F. Leduc-Primeau.

Invited Talks

2023	Lookbehind optimizer: k steps back, 1 step forward. <i>Mila</i>
2022	Sharpness-aware training for accurate inference on noisy DNN accelerators. <i>Mila</i>
2021	Compression methods for neural networks. <i>MIT and University of British Columbia</i> 1x1-convolutions by random ternary matrices. <i>GPU Technology Conference (GTC)</i> Towards sustainable digital technologies. <i>OpenHPI</i>
2017	Dialogue generation with generative adversarial networks. <i>SAP TechEd</i>

Selected Activities

2022 – Now	Organizer. <i>Hardware-Aware Efficient Training (HAET) workshop at ICML 2022, 1st Conference on Lifelong Learning Agents (CoLLAs 2022), Chandar Research Lab (CRL) 2022 and 2023 symposium at Mila</i>
2017 – Now	Reviewer. <i>EMNLP 2023, ACL 2023, EMNLP 2021, EACL 2021, CVPR 2021, Knowledge-Based Systems (2021), ACL 2020, EMNLP 2020, WACV 2020, ICIS 2019, Neural Computing and Applications (2019),</i>

Selected Skills

Python (PyTorch, TensorFlow, Hugging Face, NumPy), C++

Teaching

2022	Machine Learning (graduate course, Polytechnique Montreal) <i>Lead Teaching Assistant</i> Neural networks: Architectures and applications (graduate course, Polytechnique Montreal) <i>Guest Lecturer & Assignment Editor</i>
2020	Practical applications of deep learning (graduate course, Hasso Plattner Institute) <i>Teaching Assistant</i>
2019	Machine intelligence with deep learning (graduate course, Hasso Plattner Institute) <i>Teaching Assistant</i>
2018	Competitive problem solving with deep learning (graduate course, Hasso Plattner Institute) <i>Teaching Assistant</i>
2017	Machine intelligence with deep learning (graduate course, Hasso Plattner Institute) <i>Teaching Assistant</i> Natural language generation using GANs (graduate project, Hasso Plattner Institute) <i>Teaching Assistant</i>