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ARTIDORO PAGNONI

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EDUCATION

Seattle, WA **University of Washington** **Fall 2021 – present**
- Ph.D. Student Computer Science & Engineering, Advisor: Luke Zettlemoyer
- Research in NLP with focus on resource efficiency and improving LLM scaling trends.

Pittsburgh, PA **Carnegie Mellon University** **Fall 2019 - Summer 2021**
- M.S. Language Technologies (MLT), Advisor: Yulia Tsvetkov
- Research in NLP on language generation, evaluation, and reasoning.

Cambridge, MA **Harvard University** **Fall 2014 - Spring 2018**
- M.S. Computer Science, Advisor: Alexander Rush
- B.A. Physics with Advanced Standing, Secondary in Mathematics

PUBLICATIONS

Under Review
- **Pagnoni, Artidoro**, Ram Pasunuru, Pedro Rodriguez, John Nguyen, Benjamin Muller, Margaret Li, Chunting Zhou et al. "Byte latent transformer: Patches scale better than tokens." arXiv preprint arXiv:2412.09871 (2024).

Peer Reviewed. (* indicates equal contribution for first authorship)
- Dettmers, Tim***, Artidoro Pagnoni***, Ari Holtzman, and Luke Zettlemoyer. "Qlora: Efficient finetuning of quantized llms." *Proceedings of NeurIPS 2023* (**oral presentation**).
- **Pagnoni, Artidoro**, Alexander R. Fabbri, Wojciech Kryściński, and Chien-Sheng Wu. "Socratic Pretraining: Question-Driven Pretraining for Controllable Summarization." *Proceedings of ACL* 2023.
- Spiliopoulou, Evangelia*, **Artidoro Pagnoni***, Eduard Hovy, Yonatan Bisk "EvEntS ReaLM: Event Reasoning of Entity States via Language Models" *Proceedings of EMNLP* 2022.
- **Pagnoni, Artidoro**, Martin Graciarena, Yulia Tsvetkov "Threat Scenarios and Best Practices to Detect Neural Fake News: A Case Study on COVID News" *Proceedings of COLING* 2022 (**best paper nomination**).
- Yu, Gyeong-In, Saeed Amizadeh, Sehoon Kim, **Artidoro Pagnoni**, Byung-Gon Chun, Markus Weimer, and Matteo Interlandi. "Making classical machine learning pipelines differentiable: A neural translation approach." *PVLDB 2022.*
- **Pagnoni, Artidoro,** Vidhisha Balachandran, and Yulia Tsvetkov. "Understanding Factuality in Abstractive Summarization with FRANK: A Benchmark for Factuality Metrics." *Proceedings of NAACL* 2021.
- Balachandran, Vidhisha, **Artidoro Pagnoni**, Jay Yoon Lee, Dheeraj Rajagopal, Jaime Carbonell, and Yulia Tsvetkov. "StructSum: Incorporating Latent and Explicit Sentence Dependencies for Single Document Summarization." *Proceedings of EACL 2021.*
- Spiliopoulou, Evangelia, **Artidoro Pagnoni**, and Eduard Hovy. "Definition Frames: Using Definitions for Hybrid Concept Representations." *Proceedings of COLING* 2020.
- **Pagnoni, Artidoro**, Felix Labelle, Lauren Duan, Anjalie Field, Alan Black, and Yulia Tsvetkov. "Ideological Bias in News on Anti-Government Protests." *Poster presentation at SocInfo* 2020.
- Ahmed, Zeeshan, et al. "Machine Learning at Microsoft with ML. NET." *Proceedings of KDD* 2019.

Preprint
- Li, Margaret, Weijia Shi, **Artidoro Pagnoni**, Peter West, Ari Holtzman. "Predicting vs. Acting: A Trade-off Between World Modeling & Agent Modeling."
- Lively, Thomas, William Long, and **Artidoro Pagnoni**. "Analyzing Branch-and-Bound Algorithms for the Multiprocessor Scheduling Problem." *arXiv preprint arXiv:1901.07070* (2019).
- **Pagnoni, Artidoro**, Kevin Liu, and Shangyan Li. "Conditional variational autoencoder for neural machine translation." *arXiv preprint arXiv:1812.04405* (2018).
- **Pagnoni, Artidoro**, Stefan Gramatovici, and Samuel Liu. "PAC Learning Guarantees Under Covariate Shift." *arXiv preprint arXiv:1812.06393* (2018).
- Szanto, Aron, Timothy Tamm, and **Artidoro Pagnoni**. "Taint tracking for webassembly." *arXiv preprint arXiv:1807.08349* (2018).

REASEARCH AND WORK EXPERIENCE

Visiting Researcher **Meta – Fundamental AI Research (FAIR)** **September 2023 - present**
- Designed approaches to perform efficient language modeling on raw byte level data matching BPE tokenization

Graduate Research Assistant **UW** **September 2022 - present**
- Developed methods to improve efficiency of large language model finetuning and inference
- Trained state-of-the-art chatbot systems and designed evaluation methods to benchmark their performance

Research Intern **Salesforce Research** **June 2022 - October 2022**
- Developed a pretraining objective for improved controllability of summarization systems with SOTA on QFS datasets
- Filed patent application based on this work

Graduate Research Assistant **CMU** **August 2019 - June 2022**
- Established evaluation framework for factuality metrics and assessed LMs' reasoning on physical event implications
- Funded by DARPA SemaFor project on detection, characterization, and attribution of falsified news

Software Engineer **Microsoft AI Frameworks** **August 2018 - August 2019**
- Contributed to the development and open sourcing of ML.NET
- Explored efficient inference and finetuning of classical ML models by converting them to neural networks

Undergraduate Researcher **Harvard NLP Group** **Fall 2017 - Spring 2018**
- Constructed and evaluated latent variable model for neural machine translation relying on conditional VAE
- Participated in small seminar with Prof. Rush on recent NLP techniques for text generation, reading and presenting papers

Software Engineer, intern **Microsoft** **May - August 2017**
- Reduced impact of load operations in Azure distributed database SQL Data Warehouse, through on demand construction of new cluster of compute nodes for bulk load operations, this also improved compression quality

PRISE Research Fellow **Harvard - Cadence Design Systems** **June - August 2016**
- Developed a new method to optimize and automate the design of the layout of Printed Circuit Boards

Analyst, intern **Lonsin Capital Hedge Fund** **May - June 2015**
- Assessed companies' distressed assets and debt, analyzed long term effects of bankruptcy and credit restructuring

Marketing, intern **Geely Auto, Chinese Owner of Volvo** **July - August 2015**
- Participated to the organization of a new sponsorship deal with the Chinese National Swimming Team

TEACHING & SERVICE

Academic Reviewer
- ACL ARR 25 February, 24 February, 23 December, EMNLP 23, COLING 24, ACL 23, EMNLP 22, COLING 22

Teaching Assistant **Harvard CS 1, UW CSE 573** **2017, 2018, 2024**
- Directed weekly sections for 20 students, held office hours, graded problem sets and advised groups on final projects

AWARDS

- Madrona Prize 2023

SPORTS

Varsity Team **Fencing** **Fall 2014 - Spring 2016**
- Starter on Harvard Fencing Varsity Team, 2015 Ivy League Champions

Italian National Team **Modern Pentathlon** **Summer 2012**
- Member of the Italian National Pentathlon Team leading it to victory at the International Budapest Competition 2012
- Ten years of competitive activity, with last four years of solo training