Katerina Margatina

Applied Scientist at AWS AI Labs

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Twitter Github LinkedIn Google Scholar Semantic Scholar

Research Interests

large language models, agentic flows, long-term memory, advanced orchestration, active learning, evaluation & benchmarking, learning from diverse human feedback, cross-cultural natural language processing

Professional Experience

Jan. 2024 – now
Amazon Web Services, USA
Applied Scientist at AWS AI Labs in NYC
- AWS Bedrock Agents team
- Focus: evaluation of autonomous agents, long-term memory, advanced orchestration, planning, agentic flows with critics

Aug. 2022 – Mar. 2023
Meta, UK
Research Scientist Intern at Meta AI Research (FAIR Labs) in London
- *Active Learning Principles for In-Context Learning with Large Language Models* (paper published at Findings of EMNLP 2023)

Apr. 2022 – Aug. 2022
Amazon Web Services, USA
Applied Scientist Intern at Amazon Comprehend in NYC
- *Dynamic Benchmarking of Masked Language Models on Temporal Concept Drift with Multiple Views* (paper published in EACL 2023)

Jun. 2021 – Feb. 2022
University of Copenhagen, Denmark
Research Intern / Visiting Ph.D. in Computer Science at CoAStaL
- Natural Language Processing Group (CoAStaL)
- Supervisor: Prof. Anders Søgaard
- Focus: learning from disagreement, fairness, cross-cultural NLP

Feb. 2020 - Jun. 2021
University of Sheffield, UK
Teaching Assistant at the Department of Computer Science
- COM4513/6513 Natural Language Processing (2020 & 2021)
- COM3110/4115 Text Processing (2020)

Nov. 2018 - Jul. 2019
DeepSea Technologies, Athens, Greece
Machine Learning Engineer at the AI team
- Researched AI-driven models for vessel performance optimisation and voyage optimisation, with and without sensor data.
- Implemented supervised and unsupervised deep neural models and deployed them on the AI platform.

Education

Oct. 2019 – Jul. 2024 | **University of Sheffield**, UK
Ph.D. in Computer Science
- Natural Language Processing Group (SheffieldNLP)
- Supervisors: Prof. Nikolaos Aletras
- Funding: Amazon Alexa Fellowship
- Thesis: *"Exploring Active Learning Algorithms for Data Efficient Language Models"*

Jan. 2016 – Jul. 2016 | **Universidad Carlos III de Madrid**, Spain
MEng in Computer Engineering (Erasmus Mobility in Masters)

Sep. 2012 – Jul. 2019 | **National Technical University of Athens**, Greece
BEng & MEng in Electrical and Computer Engineering
- GPA: 8.06/10 (top 15%)
- Major: Electronics and Systems
- Thesis: "*Transfer Learning and Attention-based Conditioning Methods for Natural Language Processing*" – supervised by Prof. Alexandros Potamianos

Teaching & Other Academic Experience

2021 | **MSc. Dissertation Co-Supervisor**
- Co-advised Ard Snijders, a MSc student from the University of Amsterdam, along with Douwe Kiela on the thesis project *Investigating Multi-source Active Learning for Natural Language Inference* (published in EACL 2023).
- Co-advised Atsuki Yamaguchi, a MSc student from the University of Sheffield, along with George Chrysostomou and Nikolaos Aletras on the project *Frustratingly Simple Alternatives to Masked Language Modeling* (published in EMNLP 2021).

2019 - Ongoing | **Teaching Assistant**
- Lead lab sessions of the Text Processing and Natural Language Processing modules.
- Marked lab reports following a pre-determined scheme set by the Course Leader.
- Experience in face-to-face teaching with students that needed extra guidance.

2018 - Ongoing | **Program Committee**
- Reviewer for ACL, EMNLP, NAACL, EACL, AACL, WASSA, NLLP, DADC, ARR
- Co-organizer of the First Workshop on Dynamic Adversarial Data Collection at NAACL 2022 (website)

Invited Talks & Presentations

Jul. 2023 | Archimedes Summer School (slides)/ in-person in Athens

Jun. 2023 | Meta AI (slides)/ in-person in London

Jun. 2022 | Bloomberg, AI Group (slides) / in-person in NYC

Apr. 2022 | NLPhD Speaker Series, University of Saarland (slides) / remote

Honors & Awards

2023 **Microsoft**: Awarded a grant of $20,000 in credits from Accelerate Foundation Models Research for our proposal: *"The PERDI Project: PERsonalised and DIverse Feedback for Humans-and-LLMs-in-the-loop"* (with Hannah Rose Kirk, Paul Röttger, Bertie Vidgen and Scott Hale).
Archimedes: Awarded 500€ from the Archimedes Center for Research in Artificial Intelligence, Data Science and Algorithms to do an in-person presentation at the Archimedes Summer School in July 2023.

2022 **Dynabench**: Awarded a research grant of $46,825 from Meta for our proposal: *"Adversarial NERDs: Optimising feedback between humans-and-model-in-the-loop"* (with Hannah Rose Kirk and Scott Hale).

2020 **EMNLP**: Awarded a scholarship to participate to the virtual Conference on Empirical Methods in Natural Language Processing (EMNLP 2020).
MLSS: Selected to participate to the highly competitive Machine Learning Summer School (MLSS) organized by the Max Planck Institute for Intelligent Systems (180 out of 1300+ applications were accepted).

2019 **Amazon Alexa Fellowship**: Awarded an Amazon Alexa Fellowship for a 3-year Ph.D. program at the University of Sheffield under the supervision of Dr. Nikolaos Aletras.
EETN Scholarship Award: Awarded a scholarship of from the Hellenic Artificial Intelligence Society (EETN) to attend the first Athens Natural Language Processing Summer School (AthNLP).
ACM-W Scholarship Award: Awarded an ACM-W scholarship of $600 to attend the Annual Meeting of the Association for Computational Linguistics in Florence (ACL 2019).

2018 **WASSA IEST**: Ranked 3rd out of 30 participants at the WASSA 2018 Implicit Emotion Shared Task (IEST) conducted by the EMNLP 2018 Conference.

Publications

2024
1. Kirk, H. R. *et al.* The PRISM Alignment Project: What Participatory, Representative and Individualised Human Feedback Reveals About the Subjective and Multicultural Alignment of Large Language Models. *Arxiv* (2024).
2. **Margatina, K.**, Schick, T., Aletras, N. & Dwivedi-Yu, J. Active Learning Principles for In-Context Learning with Large Language Models. *Findings of EMNLP* (2024).

2023
3. Alajrami, A., **Margatina, K.** & Aletras, N. Understanding the Role of Input Token Characters in Language Models: How Does Information Loss Affect Performance? *EMNLP* (2023).
4. **Margatina, K.** & Aletras, N. *On the Limitations of Simulating Active Learning* in *Findings of ACL* (2023).
5. **Margatina, K.** *et al. Dynamic Benchmarking of Masked Language Models on Temporal Concept Drift with Multiple Views* in *EACL* (2023).
6. Snijders, A., Kiela, D. & **Margatina, K.** *Investigating Multi-source Active Learning for Natural Language Inference* in *EACL* (2023).

2022
7. Hershcovich, D. *et al. Challenges and Strategies in Cross-Cultural NLP* in *ACL* (2022).
8. **Margatina, K.**, Barrault, L. & Aletras, N. *On the Importance of Effectively Adapting Pretrained Language Models for Active Learning* in *ACL* (2022).

2021
9. **Margatina, K.**, Vernikos, G., Barrault, L. & Aletras, N. *Active Learning by Acquiring Contrastive Examples* in *EMNLP* (2021).
10. Yamaguchi, A., Chrysostomou, G., **Margatina, K.** & Aletras, N. *Frustratingly Simple Alternatives to Masked Language Modeling* in *EMNLP* (2021).

2020
11. Vernikos, G., **Margatina, K.**, Chronopoulou, A. & Androutsopoulos, I. *Domain Adversarial Fine-Tuning as an Effective Regularizer* in *Findings of EMNLP* (2020).

2019
12. **Margatina, K.** *Transfer Learning and Attention-based Conditioning Methods for Natural Language Processing. Thesis, NTUA* (2019).
13. **Margatina, K.**, Baziotis, C. & Potamianos, A. *Attention-based Conditioning Methods for External Knowledge Integration* in *ACL* (2019).

2018
14. Chronopoulou*, A., Margatina*, K., Baziotis, C. & Potamianos, A. *NTUA-SLP at IEST 2018: Ensemble of Neural Transfer Methods for Implicit Emotion Classification* in *Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis* (2018).

Coding

Expert: Python, Bash, PyTorch, HuggingFace transformers, Amazon Bedrock
Familiar with: Amazon Sagemaker, C, C++, Matlab, SQL, Java / Tensorflow, Keras
Other: Git, LaTeX, Unix, Flask

Languages

Greek (*Native*), English (*C2*), Spanish (*B2*), French (*B1*)