

# Giorgos Vernikos

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## Research Interests

My research focus lies in the intersection of Machine Learning and Natural Language Processing. I am interested in large language models (LLMs), machine translation (MT) systems and evaluation.

## Professional Experience

### Research Intern

Google, Google Assistant

Zurich, Switzerland

10/2022–02/2023

- Conducted research on improving the performance of large language models for specific tasks.
- Proposed the use of smaller models to correct the predictions of LLMs, [published](#) at EACL 2024.

Supervisors: [Eric Malmi](#) and [Aliaksei Severyn](#)

### Applied Scientist Intern

Amazon Web Services, AI Labs

Santa Clara, CA, USA

04/2022–08/2022

- Conducted research on document-level machine translation evaluation which was [published](#) at WMT 2022.
- Proposed document-level metrics that have been used as baselines in subsequent [WMT metrics shared tasks](#).

Supervisors: [Brian Thompson](#) and [Marcello Federico](#)

### Machine Learning Engineer

DeepSea Technologies, AI Research Department

Athens, Greece

09/2018–02/2020

- Worked with real-world noisy and missing data from sensory input.
- Implemented neural networks for vessel monitoring and cost optimization and deployed them in production.

## Education

### Ph.D candidate

École Polytechnique Fédérale de Lausanne (EPFL), Electrical Engineering (EDEE)

Lausanne, Switzerland

08/2020–10/2024

- Thesis: *The Use of External Knowledge in Machine Translation*
- Contributed to applied projects with external partners:
  - FamilyMT: Multilingual MT for families of languages and dialects, supported by Armasuisse
  - UniSub: Unsupervised MT with innovative multilingual subword models, supported by Armasuisse
- Supervisor: Prof. [Andrei Popescu-Belis](#)

### Master of Science (MSc) in Data Science and Machine Learning

National Technical University of Athens (NTUA)

Athens, Greece

11/2018–07/2020

- GPA: 9.22/10 (excellent)
- Thesis: *Adversarial Fine-tuning of Pretrained Language Models*

### Erasmus exchange student

Universidad Carlos III de Madrid (UC3M), School of Electrical Engineering

Madrid, Spain

01/2016–06/2016

### BEng & MEng in Electrical and Computer Engineering

National Technical University of Athens (NTUA)

Athens, Greece

10/2011–11/2017

- GPA: 8.02/10 (top 15% of class)
- Thesis: *Machine Learning Algorithms and Data Stream Storage Techniques for Sentiment Analysis*

## Invited talks

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- Machine Translation Reading group, Microsoft / virtual, on-line 02/2024
- [ELLIS & Unbabel Seminars](#), Lisbon ELLIS Unit (LUM LIS) and Unbabel / virtual, on-line 02/2024
- [Workshop on Natural Language Processing](#), Archimedes Research Center / Athens, Greece 07/2023
- [ELLIS & Unbabel Seminars](#), Lisbon ELLIS Unit (LUM LIS) and Unbabel / virtual, on-line 10/2022

## Publications

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- [1] **Vernikos, G.**, and Popescu-Belis, A. (2024). *Don't Rank, Combine! Combining Machine Translation Hypotheses Using Quality Estimation*. Under submission. [\[paper\]](#) [\[code\]](#)
- [2] **Vernikos, G.**, Bražinskas, A., Adamek, J., Mallinson, J., Severyn, A., and Malmi, E. (2023). *Small Language Models Improve Giants by Rewriting Their Outputs*. EACL 2024 (oral). [\[paper\]](#) [\[code\]](#)
- [3] Wolleb, B., Silvestri, R., **Vernikos, G.**, Dolamic, L. and Popescu-Belis, A. (2023). *Assessing the Importance of Frequency versus Compositionality for Subword-based Tokenization in NMT*. EAMT 2023. [\[paper\]](#) [\[code\]](#)
- [4] Popescu-belis, A., Atrio, À.R., Bernath, B., Boisson, E., Ferrari, T., Theimer-lienhard, X., and **Vernikos, G.** (2023). *GPoeT: a Language Model Trained for Rhyme Generation on Synthetic Data*. LaTeCH-CLfL 2023 (oral). [\[paper\]](#) [\[code\]](#)
- [5] **Vernikos, G.**, Thompson, B., Mathur, P. and Federico, M. (2022). *Embarrassingly Easy Document-Level MT Metrics: How to Convert Any Pretrained Metric Into a Document-Level Metric*. WMT22 (oral). [\[paper\]](#) [\[code\]](#)
- [6] **Vernikos, G.**, and Popescu-Belis, A. (2021). *Subword Mapping and Anchoring across Languages*. EMNLP 2021 (Findings). [\[paper\]](#) [\[code\]](#)
- [7] Margatina, K., **Vernikos, G.**, Barrault, L., and Aletras, N. (2021). *Active Learning by Acquiring Contrastive Examples*. EMNLP 2021 (oral). [\[paper\]](#) [\[code\]](#)
- [8] Atrio, À.R., Luthier, G., Fahy, A., **Vernikos, G.**, Popescu-Belis, A. and Dolamic, L. (2021). *The IICT-Yverdon System for the WMT 2021 Unsupervised MT and Very Low Resource Supervised MT Task*. WMT21. [\[paper\]](#)
- [9] **Vernikos, G.**, Margatina, K., Chronopoulou, A., and Androutsopoulos, I. (2020). *Domain Adversarial Fine-Tuning as an Effective Regularizer*. EMNLP 2020 (Findings). [\[paper\]](#) [\[code\]](#)

## Honors and Awards

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- **Facebook Scholarship for Attendance at EurNLP 2019**  
Recipient of travel grant to attend the EurNLP summit in London, UK.
- **Nationwide University Entrance Examination**  
Scored 19.398/20 on the national qualification exams (top 1% nationwide).

## Programming skills

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- **Languages:** Python, R, C, Matlab, Bash, Assembly, SQL
- **ML Frameworks:** Pytorch, Tensorflow, Keras, HuggingFace, scikit-learn
- **Big Data Tools:** Apache Storm, Apache Spark, Apache Flume
- **Other:** L<sup>A</sup>T<sub>E</sub>X, Git, Flask

## Languages

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Greek (native), English (C2), Spanish (B2), German (B1)