

Marcos Treviso

Curriculum Vitae

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📄 <https://mtreviso.github.io>

Google Scholar

Current Position

Assistant Professor. I am an Assistant Professor at the Computer Engineering Department at Instituto Superior Técnico, University of Lisbon.

Research. I work on efficiency, long context modeling, and interpretability.

Post-doc. I was a **post-doc** researcher at Instituto de Telecomunicações during 2024-2025.

Education

2019–2023 **PhD in Electrical and Computer Engineering**, *Instituto Superior Técnico*, University of Lisbon, Portugal.

Selective Sparsity for Explainability with Applications to Translation Quality Estimation

**With Distinction and Honour.*

Supervisor Dr. André F. T. Martins

2016–2017 **MSc in Computer Science and Computational Math.**, *University of São Paulo*, USP, SP, Brazil.

Segmentation and Disfluency Detection in Narrative Transcripts from Neuropsychological Tests

**Best MSc thesis at PROPOR 2018.*

Supervisor Dra. Sandra M. Aluísio

Selected Publications (* denotes equal contribution)

- LONG-CONTEXT GENERALIZATION WITH SPARSE ATTENTION
Pavlo Vasylenko, **Marcos Treviso**, André F. T. Martins
- ADSPLASH: ADAPTIVE SPARSE FLASH ATTENTION
Nuno Gonçalves, **Marcos Treviso**, André F. T. Martins
At ICML 2025. **Spotlight (top 1%)*
- LATIM: MEASURING LATENT TOKEN-TO-TOKEN INTERACTIONS IN MAMBA MODELS
Hugo Pitorro, **Marcos Treviso**
At ACL 2025. **Outstanding Paper Award*
- xTOWER: A MULTILINGUAL LLM FOR EXPLAINING AND CORRECTING TRANSLATION ERRORS
Marcos Treviso, Nuno Guerreiro, Sweta Agrawal, Ricardo Rei, José Pombal, Tania Vaz, Helena Wu, Beatriz Silva, Daan van Stigt, and André F. T. Martins
At EMNLP Findings 2024.
- HOW EFFECTIVE ARE STATE SPACE MODELS FOR MACHINE TRANSLATION?
Hugo Pitorro*, Pavlo Vasylenko*, **Marcos Treviso**, and André F. T. Martins
At WMT 2024 within EMNLP 2024.
- EFFICIENT METHODS FOR NATURAL LANGUAGE PROCESSING: A SURVEY
Marcos Treviso*, Ji-Ung Lee*, Tianchu Ji*, Betty Aken, Qingqing Cao, Manuel R Ciosici, Michael Hassid, Kenneth Heafield, Sara Hooker, Pedro H Martins, André Martins, Peter Milder, Colin Raffel, Edwin Simpson, Noam Slonim, Niranjan Balasubramanian, Leon Derczynski, Roy Schwartz
At TACL 2023. Presented at ACL 2023.

- A JOINT FRAMEWORK FOR RATIONALIZATION AND COUNTERFACTUAL TEXT GENERATION
Marcos Treviso, Alexis Ross, Nuno Guerreiro, and André F. T. Martins
At ACL 2023.
- COMETKIWI: IST-UNBABEL 2022 SUBMISSION FOR THE QE SHARED TASK
Ricardo Rei*, **Marcos Treviso***, Nuno Guerreiro*, Chrysoula Zerva*, Ana C Farinha, Christine Maroti, José GC Souza, Taisiya Glushkova, Duarte M Alves, Alon Lavie, and André F. T. Martins
At WMT within EMNLP 2022. **Shared Task Winner*
- LEARNING TO SCAFFOLD: OPTIMIZING MODEL EXPLANATIONS FOR TEACHING
Patrick Fernandes*, **Marcos Treviso***, Danish Pruthi, Graham Neubig, and André F. T. Martins
At NeurIPS 2022.
- PREDICTING ATTENTION SPARSITY IN TRANSFORMERS
Marcos Treviso, António Góis, Patrick Fernandes, Erick Fonseca, and André F. T. Martins
At SPNLP within ACL 2022.
- SPARSE CONTINUOUS DISTRIBUTIONS AND FENCHEL-YOUNG LOSSES
André F. T. Martins, **Marcos Treviso**, António Farinhas, Pedro MQ Aguiar, Mário AT Figueiredo, Mathieu Blondel, and Vlad Niculae
At JMLR 2022.
- IST-UNBABEL 2021 SUBMISSION FOR THE EXPLAINABLE QE SHARED TASK
Marcos Treviso, Nuno Guerreiro, Ricardo Rei, and André F. T. Martins
At Eval4NLP within EMNLP 2021. **Shared Task Winner & Best Explainability Approach Award*
- TOWARDS PREDICTION EXPLAINABILITY THROUGH SPARSE COMMUNICATION
Marcos Treviso, and André F. T. Martins
At BlackboxNLP within EMNLP 2020.
- SPARSE AND CONTINUOUS ATTENTION MECHANISMS
André F. T. Martins, António Farinhas, **Marcos Treviso**, Vlad Niculae, Pedro Aguiar, and Mario Figueiredo
At NeurIPS 2020. **Spotlight Presentation*
- OPENKIWI: AN OPEN SOURCE FRAMEWORK FOR QUALITY ESTIMATION
Fabio Kepler, Jonay Trénous, **Marcos Treviso**, Miguel Vera, and André F. T. Martins
At ACL 2019. **Best Demo Paper Award*

Experience

- 2019-2025 **Reviewer** at ACL, EACL, NAACL, EMNLP*, NeurIPS*, ICLR*, ICML. (*outstanding)
- 2024-2025 **Area chair** at ACL and EMNLP.
- 2025- **Senior Area chair** at ACL.
- 06–09/2018 **Junior Research AI Intern** at UNBABEL, Lisbon, Portugal.
I contributed to OpenKiwi, an open source tool for machine translation quality estimation.

Skills

- Languages B. Portuguese (native), English (fluent)
- Technical PYTHON, C, C++, PHP, HTML, CSS, JAVASCRIPT, \LaTeX , LINUX
↔ PyTorch, JAX, Triton, HuggingFace's Transformers & Datasets & Accelerate, vLLM, PyG, Scikit-Learn, Pandas, Numpy, Scipy, Matplotlib, Seaborn
- Misc. Tensor Puzzles with Sasha Rush.