

Iacer Calixto

Address: New York University, 60 5th Avenue, Office #637, Manhattan, NY.
Languages: Portuguese (native); English (fluent); French, Italian, and Spanish (professional proficiency).
Contact: (+1) 929-471-6271 / iacer.calixto@nyu.edu / github.io
Nationality: Brazilian citizen, born in July, 1983.

Professional Experience

New York University

Mar. 2019 – now

Visiting Postdoctoral Fellow in the Courant Institute for Mathematical Sciences and Center for Data Science (CDS).

- I am a **Marie Skłodowska-Curie Global Fellow** working on a personal research project called “IMAGINE: Informing Multi-modal Language Generation With World Knowledge”.
- I collaborate with many people in the [Machine Learning for Language group \(ML²\)](#), especially Kyunghyun Cho and Sam Bowman. Broad research areas include latent variable models, multi-modal machine learning, and zero-shot cross-lingual transfer learning.
- After NYU I will visit Facebook AI Research for 3 months starting in March 2021.

University of Amsterdam

Mar. 2018 – now

Postdoctoral Research Fellow in the Institute for Logic, Language and Computation (ILLC).

- **Mar. 2019 – now** I am affiliated to the [Dialogue Modelling](#) group where I work with [Raquel Fernández](#).
- **Mar. 2018 – Mar. 2019** I worked with [Wilker Aziz](#) and [Khalil Sima'an](#).
- Research topics include deep generative models for language, representation learning and machine translation.
- I sometimes teach on the Master of AI.

ADAPT Centre, Dublin City University

Jul. 2017 – Mar. 2018

Research Associate/Postdoctoral Fellow in the ADAPT Centre / School of Computing.

- Collaborated with PhD students, co-supervised 8 MSc. students, and worked on research projects with industry partners under the supervision of [Andy Way](#).
- I worked on a project with *eBay Inc.* where we applied *multi-modal machine translation* to improve their e-commerce platform. The main goal was to train neural models to translate product listings while also using the products images, both user-generated data.
- Some topics I worked on include multi-modal neural machine translation, multi-task learning, and multilingual and multi-modal representations.

La Sapienza Università di Roma

Oct. 2014 – Dec. 2014

Research Assistant/Intern in the Computer Science department.

- I used machine learning approaches to automatically identify images available in Wikipedia article pages to illustrate concepts in BabelNet. I was supervised by [Roberto Navigli](#).

The University of Sheffield

Jun. 2012 – Sep. 2012

Research Assistant/Intern in the Computer Science department.

- I worked on exploiting images as contextual information to increase the quality of statistical machine translation systems. I was funded by the EPSRC Network on Vision and Language (UK) and co-supervised by professors [Lucia Specia](#) and [Teófilo de Campos](#).

Teaching Experience

University of Amsterdam, Master of Artificial Intelligence 2018, 2019

I was lecturer for **Natural Language Processing 2**: language models, statistical and neural machine translation, generative models for NLP, neural networks.

Dublin City University, BSc. in Computer Science 2015, 2016

I was teaching assistant for **Statistical Machine Translation** and **Developing Internet Applications**.

Universidade Federal de Goiás, BSc. in Computer Science 2010

I was teaching assistant for **Computer Theory**.

Education

Dublin City University 2013 – 2017

PhD in Computer Science

Thesis: [Incorporating visual information into neural machine translation](#)

Supervisors: Prof. Qun Liu and Prof. Nick Campbell (Trinity College Dublin).

Summary: I proposed different methods to incorporate features derived from images into neural machine translation (NMT) and obtained promising results. I applied multi-modal NMT models to translate image descriptions from Flickr and also product listings from eBay, and was able to improve translations across different use-cases. I also proposed models to fuse vision and language information in the context of searching and indexing.

University of Wolverhampton, Université de Franche-Comté, Universidade do Algarve 2011 – 2013

Erasmus Mundus Master (multiple Degrees)

Summary: I worked on the automatic extraction of information from research papers. It covered the fields of NLP, machine learning, information extraction and data mining.

Universidade Federal de Goiás 2009 – 2011

MSc. in Computer Science

Summary: I worked on an optimisation problem to improve city traffic: the *estimation of origin-destination demand matrices based on fuzzy linear programming for Brazilian congested traffic networks*.

I covered topics involving computer theory, graphs, algorithms and non-linear optimisation.

I registered for 8 modules and obtained the highest grade (A) in all of them.

Faculdades Alves Faria 2003 – 2007

BSc. in Information Systems

Supervision

Independent Study (Center for Data Science, New York Univesity)

Jan.2020 – Now Y. Liu, T. Huang, Y. Deshpande: Learning representations for multi-modal knowledge graphs.

MSc. Thesis (Master in Artificial Intelligence, University of Amsterdam)

Feb.2019 – Nov.2019 J. Leible: Jointly learning to tag images and translate.

Feb.2019 – Oct.2019 V. Milewski: Image description generation with objects and graph reasoning.

Jan.2019 – Aug.2019 H. Alberts: Grounding image encoders using knowledge base information.

Jan.2019 – Aug.2019 V. Kadar: HyGAP: Hybrid context-based embeddings generated from taxonomical paths.

Jul.2018 – Jun.2019 F. Curi: Incorporating typological linguistic features into low-resource machine translation.

Project AI (Master in Artificial Intelligence, University of Amsterdam)

Jul.2018 – Dec.2018 V. Milewski: A topic mixture model for neural image description generation.

Grants and Awards

- 2019, Outstanding Reviewer Award, Empirical Methods for Natural Language Processing (EMNLP).

- **2019, Marie-Sklodowska-Curie Global Fellowship** valued at €232,393.92
- **2017, Best Long Paper Award**, The International Conference on Natural Language Generation (INLG) for the paper [Linguistic realisation as machine translation: Comparing different MT models for AMR-to-text generation](#)
- **2017**, DCU Postgraduate **Grant** (€500) and ADAPT Centre Director's Commercialisation **Award** (€2,500)
- **2016**, DCU Invent Commercialisation **Award** valued at €300
- **2015 – 2017**, Five grants from **COST Action IC1307 Integrating Vision & Language** valued at €6,580
- **2013 – 2017**, PhD **Scholarship** funded by Science Foundation Ireland (SFI)
- **2011 – 2013**, Erasmus Mundus Master **Scholarship** funded by Master in NLP & HTL
- **2009 – 2011**, CAPES MSc. **Scholarship** (in Brazil)
- **2008**, Best Student **Award** competing against ~ 300 Information Systems BSc. students
- **2007**, Best Student **Award** competing against ~ 300 Information Systems BSc. students

Professional services

Area Chair: EACL (2021)

Standing Reviewer: Computational Linguistics Journal (2020–)

Program Committee Member / Reviewer

Journals: Artificial Intelligence (Elsevier, since 2019); Machine Translation (Springer, since 2018); Computational Linguistics (since 2018); Natural Language Engineering (Cambridge, since 2019); Prague Bulletin of Mathematical Linguistics (PBML, since 2017); IEEE Transactions on Neural Networks and Learning Systems (since 2019), Sensors (MDPI, since 2020).

Conferences: ACL (2018–2020); EMNLP (2018–2020); NAACL (2019); ICLR (2020–2021); IJCAI-ECAI (2018–2020); AAAI (2019–2020); COLING (2018,2020); EAMT (2018, 2020); RANLP (2017); MT Summit (2019).

Workshops: LANTERN Beyond Vision & Language (2020), Shortcomings on Vision & Language (2019).

Co-organiser of Workshops: Representation Learning for NLP (RepL4NLP) Workshop 2021; Low-Resource Machine Translation (LoResMT) Workshop, co-located with AMTA (2018); Comparable Corpora (Cupral) Workshop, co-located with IJCNLP (2017).

Committees and Memberships

- **ELLIS Society, 2020 – now** Member of the European Laboratory for Learning and Intelligent Systems (ELLIS).
- **KU Leuven, Supervisory committee, 2020 – now** Member of Victor Mileszki's PhD supervisory committee led by Prof. Marie-Francine Moens.
- **New York Academy of Sciences, 2019 – now** Member of the NYAS.
- **University of Amsterdam, Examinations board, 2019 – now** Member of the Examinations Board, Master of Artificial Intelligence.
- **Multi3Generation COST Action, Management Committee, 2019 – now** Member of the Management Committee of the Multi3Generation COST Action, on the topic of natural language generation involving multilingual and multi-modal language generation. I am proud to say that I actively helped shape this Action by spearheading discussions around the subject and by first drafting of the Action proposal.
- **University of Amsterdam, 2018 – 2019** Internal examiner for Tom Baumgärtner's and Mathijs Mul's MSc. theses, Master of Logic. Internal examiner for Evi Hendriks's report, Master Brain and Cognitive Sciences.

Selected Research Activities and Outcomes

- I am a Marie-Sklodowska-Curie Global Fellow and work on my personal project **IMAGINE: Informing Multi-modal Language Generation With World Knowledge** with the goal of incorporating visual commonsense and world knowledge into models that generate language.
- An independent data-driven study conducted by Marek Rei at the University of Cambridge had me included among the most prolific first authors in top-tier Machine Learning / Natural Language Processing conferences in 2017 (see <http://www.marekrei.com/blog/ml-nlp-publications-in-2017/>).
- I spearheaded the discussion and drafting of the **Multi3Generation** COST Action proposal on the topic of natural language generation.

Invited Talks, Lectures and Seminars

28 Sep/2020 [Machine Learning meet-up, Dublin](#).

I gave an invited talk on our paper *Are scene graphs good enough to improve image captioning?*

27 Jun/2018 Summer School on Translation (In Portuguese) in the Faculty of Arts of Univ. do Porto

I gave two invited lectures on statistical and neural machine translation (two days).

8 Dec/2017 GIAN Workshop, Indian Institute of Technology Patna.

I gave an invited lecture to the workshop.

25 Oct/2017 [Colloquium of Department of Computational Linguistics, Universität Heidelberg](#).

I gave an invited talk on my PhD research.

6 July/2017 [NLP Group Seminar, Department of Computer Science, The University of Sheffield](#).

I gave an invited talk on my PhD research.

5 Apr/2016 [Computational Linguistics Seminar, ILLC, The University of Amsterdam](#).

I gave an invited talk on my PhD research.

Selected peer-reviewed publications

[1] **NAACL 2021 (Under Review)**. Iacer Calixto, Tommaso Pasini, Alessandro Raganato. *Robust Multilingual Representation Learning by Predicting Wikipedia Hyperlinks*.

[2] **EACL 2021 (Under Review)**. Ningyuan (Teresa) Huang, Yash Deshpande, Yibo Liu, Houda Alberts, Kyunghyun Cho, Clara Vania, Iacer Calixto. *Learning Robust Multimodal Knowledge Graph Representations*.

[3] **EACL 2021 (Under Review)**. Letitia Parcalabescu, Albert Gatt, Anette Frank, Iacer Calixto. *Seeing past words: Testing the cross-modal capabilities of pretrained V&L models*.

[4] **EACL 2021 (Under Review)**. Houda Alberts, Teresa Huang, Yash Deshpande, Yibo Liu, Kyunghyun Cho, Clara Vania, Iacer Calixto. *VisualSem: a high-quality knowledge graph for vision and language*.

[5] **WiNLP 2020**. Diksha Meghwal, Katharina Kann, Iacer Calixto, Stanislaw Jastrzebski. *Can Wikipedia Categories Improve Masked Language Model Pretraining?* In: [Proceedings of the The Fourth Widening Natural Language Processing Workshop](#).

[6] **IJCNLP-AAACL 2020**. Victor Milewski, Marie-Francine Moens, Iacer Calixto. *Are scene graphs good enough to improve image captioning?*. In: [Proceedings of the IJCNLP-AAACL 2020](#).

[7] **IJCNLP-AAACL 2020**. Jason Phang[†], Iacer Calixto[†], Phu Mon Htut, Yada Pruksachatkun, Haokun Liu, Clara Vania, Katharina Kann, Samuel R. Bowman. *English Intermediate-Task Training Improves Zero-Shot Cross-Lingual*

Transfer Too. In: Proceedings of the IJCNLP-AACL 2020. †Equal contribution.

[8] **ACL 2019**. **Iacer Calixto**, Miguel Rios, Wilker Aziz. *Latent Variable Model for Multi-modal Translation*. In: Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics.

[9] **MT Journal 2019**. **Iacer Calixto**, Qun Liu. *An Error Analysis for Image-Based Multi-Modal Neural Machine Translation*. Machine Translation Journal: Special Issue in Human Factors in Neural Machine Translation.

[10] **CICLing 2019**. Haree Jeyaram, Mohammed Hasanuzzaman, **Iacer Calixto**, Andy Way. *Multimodal Image News Article Alignment*. (*paper accepted*). In: Proceedings of CICLing 2019, the 20th International Conference on Computational Linguistics and Intelligent Text Processing.

[11] **ACL 2017**. **Iacer Calixto**, Qun Liu, Nick Campbell. *Doubly-Attentive Decoder for Multi-modal Neural Machine Translation*. In: Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics.

[12] **EMNLP 2017**. **Iacer Calixto**, Qun Liu. *Incorporating Global Visual Features into Attention-Based Neural Machine Translation*. In: Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing.

[13] **EACL 2017**. **Iacer Calixto**, Daniel Stein, Evgeny Matusov, Pintu Lohar, Sheila Castilho, Andy Way. *Using Images to Improve Machine-Translating E-Commerce Product Listings*. In: The Meeting of the European Chapter of the Association for Computational Linguistics.

[14] **RANLP 2017**. **Iacer Calixto**, Qun Liu. *Sentence-Level Multilingual Multi-Modal Embedding for Natural Language Processing*. In: Recent Advances in Natural Language Processing.

[15] **VL 2017**. **Iacer Calixto**, Daniel Stein, Evgeny Matusov, Sheila Castilho, Andy Way. *Human Evaluation of Multi-modal Neural Machine Translation: A Case-Study on E-Commerce Listing Titles*. In: The Integrating Vision & Language Workshop.

[16] **INLG 2017**. Thiago Castro Ferreira, **Iacer Calixto**, Sander Wubben and Emiel Krahmer. *Linguistic realisation as machine translation: Comparing different MT models for AMR-to-text generation*. In: The International Natural Language Generation conference. **Best Long Paper Award**.

[17] **PBML 2017**. Sheila Castilho, Joss Moorkens, Federico Gaspari, **Iacer Calixto**, John Tinsley and Andy Way. *Is Neural Machine Translation the New State-of-the-Art?* In: Prague Bulletin of Mathematical Linguistics.

[18] **WMT 2016**. **Iacer Calixto**, Desmond Elliott, Stella Frank. *DCU-UvA Multimodal MT System Report*. In: The First Conference on Machine Translation.

[19] **WMT 2016**. Chris Hokamp, **Iacer Calixto**. *Multimodal neural machine translation using minimum risk training*. In: The First Conference on Machine Translation.

[20] **LREC 2016**. Debasis Ganguly, **Iacer Calixto**, Gareth Jones. *Developing a Dataset for Evaluating Approaches for Document Expansion with Images*. In: Proceedings of the Tenth International Conference on Language Resources and Evaluation.

[21] **RANLP 2015**. Sanja Stajner, **Iacer Calixto**, Horacio Saggon. *Automatic Text Simplification for Spanish: Comparative Evaluation of Various Simplification Strategies*. In: Recent Advances in Natural Language Processing.

[22] **WMT 2014**. Chris Hokamp, **Iacer Calixto**, Joachim Wagner, Jian Zhang. *Target-Centric Features for Translation Quality Estimation*. In: The Workshop on Statistical Machine Translation.

[23] **WMT 2014**. Jian Zhang, Xiaofeng Wu, **Iacer Calixto**, Ali Vahid, Andy Way, Qun Liu. *Experiments in Medical Translation Shared Task at WMT 2014*. In: The Workshop on Statistical Machine Translation.

[24] **EJOR 2013**. Les Foulds, Hugo do Nascimento, **Iacer Calixto**, Bryon Hall, Humberto Longo. *A fuzzy set based approach to origin-destination matrix estimation in urban traffic networks with imprecise data*. In: The European Journal

of Operations Research.

[25] **VL 2012.** **Iacer Calixto**, Lucia Specia, Teófilo de Campos. [*Images as context in Statistical Machine Translation.*](#) In: The Workshop on Vision and Language.

[26] **SBPO 2011.** Les Foulds, Hugo do Nascimento, **Iacer Calixto**, Bryon Hall, Humberto Longo. [*A fuzzy set approach to estimating OD matrices in congested Brazilian traffic networks.*](#) In: XLIII Simpósio Brasileiro de Pesquisa Operacional.

I have a publication gap in 2018 because I was mostly involved on an applied project with eBay Inc. while I was Research Associate at the ADAPT Centre.