Iacer Calixto

Nationality: Brazilian citizen, born in July, 1983.

Languages: Portuguese (native); English (fluent); French, Italian, and Spanish (professional proficiency).

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Work Experience

Mar/2019— Now

Postdoctoral Research Fellow
ILLC, University of Amsterdam (UvA), Amsterdam, Netherlands.
I am currently a Marie Skwodówska-Curie Global Fellow and I work on a personal research project called "IMAGINE: Informing Multi-modal lAnguage Generation wIth world kNowledgE". I will visit **New York University**'s **Courant Institute for Mathematical Sciences** and **Centre for Data Science** for 1 year and 9 months starting in June 2019, and **Facebook AI Research** for 3 months starting in March 2021. I also teach and supervise students in the Master of AI.

Mar/2018— Now

Postdoctoral Research Associate
ILLC, University of Amsterdam (UvA), Amsterdam, Netherlands.
I was a Research Associate at the ILLC and worked with Prof. Khalil Sima'an. I investigated different aspects of *multi-modal natural language processing* (NLP) and (neural) *machine translation* (NMT), *latent variable models*, and *representation learning*.

Jul/2017— Mar/2018

Postdoctoral Research Associate
ADAPT Centre, Dublin City University, School of Computing, Dublin, Ireland.
As a Research Associate at the ADAPT Centre my main activities included working with PhD students, on research projects with industry partners, and co-supervising MSc. students.
I worked on a project with *eBay Inc.* where we applied *multi-modal NMT* 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.

Oct/2014— Dec/2014

Research Assistant (Intern)
Sapienza Università di Roma, Rome, Italy.
I used machine learning to automatically identify images available in Wikipedia article pages to illustrate concepts in BabelNet.

Jun/2012— Sep/2012

Research Assistant (Intern)
The University of Sheffield, Sheffield, United Kingdom.
I worked on exploiting images as contextual information to increase the quality of statistical machine translation systems. Funded by the EPSRC Network on Vision and Language, UK.

Teaching Experience

Apr/2018— Jun/2018

Instructor in the Master of AI at the ILLC-UvA, Amsterdam, The Netherlands.
Natural Language Processing 2: Statistical and neural machine translation.

Feb/2015— Jun/2015

Teaching Assistant, Dublin City University (DCU), Dublin, Ireland.
CA446 Statistical Machine Translation: teaching, coding/evaluation of lab exercises and grading.
CA229 Developing Internet Applications: PHP+MySQL, lab work and graded exams.

Feb/2010— Nov/2010

Teaching Assistant, Universidade Federal de Goiás (UFG), Goiânia, Brazil.
Theory of Computation: taught classes, solved in-class exercises and graded exams.

Supervision

	Period	Student	Title
Msc. Thesis	Feb/19–	J. Leible	Jointly learning to tag images and translate.
	Feb/19–	V. Milewski	Image description generation with objects and graph reasoning.
	Jan/19–	H. Alberts	Grounding image encoders using knowledge base information.
	Jul/18–	F. Curi	Towards Incorporating Typological Linguistic Features into Low-resource Machine Translation.
Project AI	Jul/18–Dec/18	V. Milewski	A topic mixture model for neural image description generation.

Education

2013—2017   **PhD. in Computer Science**
Dublin City University (DCU), School of Computing, Dublin, Ireland.

title: Incorporating visual information into neural machine translation.

supervisors: Prof. Qun Liu (DCU) and Prof. Nick Campbell (Trinity College Dublin).
summary: I proposed different ways to incorporate features derived from images, e.g. visual features, into neural machine translation (NMT) and obtained promising results. I used both *global* and *local* visual features, and applied multi-modal NMT models to translate image descriptions from Flickr and also product listings from eBay, in both cases using the raw image as an additional input to the model.

2011—2013   **Erasmus Mundus Master**, **Univ. of Wolverhampton**, **do Algarve**, **de Franche-Comté.**
summary: Worked on the automatic extraction of information from research papers. It covered the fields of machine learning, NLP, information extraction and data mining (GPA *14.8/20*).

2009—2011   **Master in Computer Science (MSc.), Federal University of Goiás, Goiânia, Brazil.**

summary: Worked on an optimisation problem to improve cities' traffic, namely the *estimation of origin-destination demand matrices based on fuzzy linear programming for Brazilian congested traffic networks*. Covered computer theory, graphs, algorithms and non-linear optimisation. Registered for 8 modules and obtained the highest grade (A) in all of them.

2003—2007   **Bachelor in Information Systems (BSc.), Faculdades ALFA, Goiânia, Brazil**. GPA *8.52/10*.

Soft skills

- Excellent written and oral communication, and great interpersonal skills;

- Great leadership and teamwork attested by multiple contributions to successful academic and industrial projects;

- Excellent problem solving and research and development skills;

- Broad international experience: Netherlands, Canada, Portugal, France, Italy, UK, Ireland, and Brazil.

Technical skills (low to high experience, 1–5)

Programming languages: Python (5), Java (4.5), PHP (4.5), C/C++ (4), Shell (bash) (4), Perl (3.5), Javascript (AJAX, JQuery) (3.5), Matlab (3), Octave (3). (X)HTML (4.5), CSS (4). XML (4.5), XSLT (4.5), XPath (4).

Machine Learning: PyTorch (5), numpy (5), Theano (5), Tensorflow (4.5), scipy (4.5), scikit-learn (4.5), Keras (4), Caffe (4), IBM CPLEX (3), GLTK (3).

Operating Systems and technologies: Ubuntu/Debian (5), Windows (5), LaTeX (5), MySQL (5), HPC/cluster (PBS and Slurm) (4.5), Linux VMs (4.5), PostgreSQL (4.5), OpenSUSE (4), Windows Server (3.5), SQL Server (3.5).

Grants and Awards

Jun/2019–
Mar/2022
Marie Skłodowska-Curie Global Fellowship. I was awarded an **MSCA Fellowship** to work on my project **IMAGINE: Informing Multi-modal Language Generation With World Knowledge**. I will visit New York University in the US for 1 year and 9 months (collaborating with **Kyunghyun Cho**), **Facebook Artificial Intelligence Research** in France for 3 months (collaborating with **Antoine Bordes**), and the **University of Amsterdam** for 9 more months (collaborating with **Raquel Fernández**). Valued at €232,393.92.

Sep/2017
Best Long Paper Award in 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"*.

Jan/2017
ADAPT Centre Director's Commercialisation Award for collaboration with the industry, valued at €2,500.

Apr/2017
DCU Postgraduate Grant. Travel grant to enable conference attendance, valued at €500.

Nov/2016
DCU Invent Commercialisation Award for industry applications of multi-modal neural MT, valued at €300.

2015–2017
COST Action IC1307 Integrating Vision and Language. Received *five grants* from the COST Action IC1307 to present my work at three workshops (2015, 2016, 2017), to visit the Institute for Logic, Language and Computation (ILLC) in the University of Amsterdam (2016), and to visit the Department of Computer Science in the University of Sheffield (2017). Valued at €6,580.

2013–2017
Science Foundation Ireland, SFI. PhD is funded by SFI through the ADAPT Centre, valued at €16,000 a year for three years.

2011–2013
Erasmus Mundus (EM) Scholarship. Master in NLP&HLT was funded by an EM scholarship, valued at €24,000 a year for two years.

2009–2011
CAPES Scholarship (Brazil). MSc. was funded by a CAPES Scholarship, valued at €5,160 a year for two years.

2007–2008
Information Systems Best Student Award. Won the "Best student award" in two semesters, competing against all Information Systems BSc. students in both cases (~ 300 students).

Invited Talks, Lectures and Seminars

27 Jun/2018 | **Summer School on Translation (In Portuguese) in the Faculty of Arts of Univ. do Porto** Invited Lectures on Statistical and neural machine translation.
8 Dec/2017 | **GIAN Workshop, Indian Institute of Technology Patna**.
25 Oct/2017 | **Colloquium of Department of Computational Linguistics, Universität Heidelberg**.
6 July/2017 | **NLP Group Seminar, Department of Computer Science, The University of Sheffield**.

Scientific outreach

Dec/2016 | **Dublin Natural Language Processing Meet-up in Workday Inc., Dublin**. Gave the talk "Multi-modal machine translation: what is it and why bother?"
Feb/2016 | **Dublin Machine Learning Meet-up in Nitro HQ, Dublin**. Gave the talk "Multi-modal multilingual representations for NLP".

Professional services

I often contribute to the research community by co-organising scientific events, as a reviewer and in programme committees.

Year		Conference, Journal, or Workshop	Activity
2019	journal	**Artificial Intelligence (Elsevier)**	Reviewer
	conference	**NAACL, ACL, EMNLP, IJCAI, AAAI, MT Summit**	PC Member / Reviewer
	workshop	**Shortcomings in Vision & Language (SiVL)**	PC Member
2018	journal	**Machine Translation, Computational Linguistics**	Reviewer
	conference	**ACL, EMNLP, COLING, IJCAI-ECAI, EAMT**	PC Member / Reviewer
	workshop	**LoResMT Workshop (AMTA)**	Co-Organiser
2017	conference	**RANLP**	Reviewer
	workshop	**Cupral Workshop (IJCNLP 2017)**	Co-Organiser

Selected Research Activities and Outcomes

- In the last two years, I have presented my work at the following conferences, shared tasks, and workshops: **ACL 2017**, **EMNLP 2017**, **EACL 2017**, **RANLP 2017**, **Multi-modal MT 2016**, **Multi-modal MT 2017** (part of WMT), **iVision&Language Workshop 2017** (part of EACL).

- A data-driven study reported by a Lecturer at the University of Cambridge (Marek Rei) 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 have spearheaded the discussion and drafting of the COST Action proposal **Multi3Generation**, leaded by prof. Isabelle Augenstein (University of Copenhagen), on the topic of natural language generation.

- I have visited leading European research groups working at the intersection of vision and language: **Lucia Specia** at the **University of Sheffield**, **Desmond Elliott** at the **University of Amsterdam** (now in the University of Copenhagen), **Stefan Riezler** at the **University of Heidelberg**.

See below a short list of the most important research visits and activities I have had in the previous two years.

Nov/2018	**Multi3Generation COST Action**.
	I am secondary proposer of the **Multi3Generation: Multi-task, multilingual, multi-modal language generation** COST Action proposal.
Jul/2018	**DO-IT Project: Detecting Oncology Information Technology**.
	Participated as NLP specialist in the defence of the DO-IT project proposal to Cancer Research UK (CRUK) Grand Challenge Advisory Panel.
Jul/2017	**Department of Computer Science in The University of Sheffield, Sheffield, UK**.
	Academic visit (16 days) to the NLP group in the Department of Computer Science, where we worked on attention strategies for multi-task learning.
Apr/2016	**Institute for Logic, Language and Computation (ILLC) in The University of Amsterdam, Amsterdam, Netherlands**.
	Academic visit (15 days) to the ILLC, where we worked on multi-task learning models for multi-modal translation. Informal talk: "Multilingual and Multi-modal Embeddings".

Selected publications

I did not publish in 2018 because I was involved on a more applied project with eBay Inc. while I was a Research Associate at the ADAPT Centre, and was concomitantly wrapping-up my PhD work.

2019

ACL | **Iacer Calixto**, Miguel Rios, Wilker Aziz. *Latent Variable Model for Multi-modal Translation*. (*paper accepted*). Arxiv pre-print: https://arxiv.org/abs/1811.00357.

MT Journal | **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.

CICLing | 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.

2017

ACL | **Iacer Calixto**, Qun Liu, Nick Campbell. *Doubly-Attentive Decoder for Multi-modal Neural Machine Translation*. In: The Annual Meeting of the Association for Computational Linguistics.

EMNLP | **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.

EACL | **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.

RANLP | **Iacer Calixto**, Qun Liu. *Multilingual Multi-Modal Embedding for Natural Language Processing*. In: Recent Advances in Natural Language Processing.

VL | **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.

INLG | 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**.

PBML | 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.

2016

WMT | **Iacer Calixto**, Desmond Elliott, Stella Frank. *DCU–UvA Multimodal MT System Report*. In: The First Conference on Machine Translation.

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

LREC | 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.

Older articles and papers

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

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

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.

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**.

VL 2012 | **Iacer Calixto**, Lucia Specia, Teófilo de Campos. *Images as context in Statistical Machine Translation*. In: The Workshop on Vision and Language.