

Emanuele Bugliarello

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Research Interests

Multimodal multilingual natural language processing, representation learning, transfer learning, modularity

Education

PhD in Computer Science 2019–present (July 2023)
University of Copenhagen Copenhagen, Denmark
Advisors: Desmond Elliott, Anders Søgaard

MSc in Communication Systems, Data Analytics specialisation 2015–2018
École Polytechnique Fédérale de Lausanne (EPFL) Lausanne, Switzerland
Thesis: *Matrix Completion in the Unit Hypercube via Structured Matrix Factorization*
GPA: 5.53/6 (3/44)

Eng in Electronics and Information Engineering 2013–2018
Tongji University (同济大学) Shanghai, China
Thesis: *General large-batch methods for scalable accurate training of neural networks*
GPA: 29.34/30

BSc in Telecommunications Engineering 2012–2015
Politecnico di Torino Turin, Italy
GPA: 28.86/30 (3/120) – Graduation Grade: 110/110 *Cum Laude*

Machine Learning Schools: LxMLS 2020, Oxml 2020, ALPS 2021

Experience

Research Scientist Intern with Paul Voigtlaender and Pieter-Jan Kindermans 11/2022–02/2023
Google AI, Perception and Brain Teams Zürich, Switzerland

Research Scientist Intern with Lisa Anne Hendricks and Aida Nematzadeh 06/2022–10/2022
DeepMind, Language Team London, UK

Visiting Researcher with Prof. Aishwarya Agrawal and Prof. Siva Reddy 01/2022–05/2022
Mila – Quebec AI Institute Montreal, Canada

Research Scientist Intern with Rishabh Mehrotra and Mounia Lalmas 08/2020–11/2020
Spotify Research, Tech Research Team London, UK

Research Associate with Prof. Naoaki Okazaki 10/2018–09/2019
Tokyo Institute of Technology (東京工業大学), Okazaki Lab Tokyo, Japan

Visiting Scholar with Prof. Rui Fan and Prof. Dan Alistarh 04/2018–07/2018
ShanghaiTech University (上海科技大学) Shanghai, China

Research Intern with Swayambhoo Jain, Brian Eriksson and Jean Bolot 09/2017–03/2018
Technicolor AI Lab Palo Alto, CA, USA

Research Assistant with Marcel Schöngens, Maxime Martinasso and Claudio Gheller 06/2017–09/2017
Swiss National Supercomputing Centre (CSCS) Lugano, Switzerland

Teaching

Teaching Assistant, EPFL: Internet Analytics (COM-308) Spring 2017

Teaching Assistant, UCPH: Advanced Topics in Natural Language Processing (NDAK19001U) Winter 2020

Teaching Assistant, UCPH: Neural Information Retrieval (NDAK20002U) Spring 2021

Selected Publications

8. **Language Modelling with Pixels**
P. Rust, J. Lotz, E. Bugliarello, E. Salesky, M. de Lhoneux, D. Elliott
In *ICLR 2023*
7. **Reassessing Evaluation Practices in Visual Question Answering: A Case Study on Out-of-Distribution Generalization**
A. Agrawal*, I. Kajić*, E. Bugliarello*, E. Davoodi, A. Gergely, P. Blunsom, A. Nematzadeh*
In *EACL-Findings 2023*
6. **IGLUE: A Benchmark for Transfer Learning across Modalities, Tasks, and Languages**
E. Bugliarello, F. Liu, J. Pfeiffer, S. Reddy, D. Elliott, EM. Ponti, I. Vulić
In *ICML 2022*
5. **Visually Grounded Reasoning across Languages and Cultures**
F. Liu*, E. Bugliarello*, EM. Ponti, S. Reddy, N. Collier, D. Elliott
In *EMNLP 2021* **Best Long Paper Award**
4. **Vision-*and*-Language or Vision-*for*-Language? On Cross-Modal Influence in Multimodal Transformers**
S. Frank*, E. Bugliarello*, D. Elliott
In *EMNLP 2021*
3. **Multimodal Pretraining Unmasked: A Meta-Analysis and a Unified Framework of Vision-*and*-Language BERTs**
E. Bugliarello, R. Cotterell, N. Okazaki, D. Elliott
TACL 2021
2. **The Role of Syntactic Planning in Compositional Image Captioning**
E. Bugliarello, D. Elliott
In *EACL 2021*
1. **It's Easier to Translate *out of* English than *into* it: Measuring Neural Translation Difficulty by Cross-Mutual Information**
E. Bugliarello, SJ. Mielke, A. Anastasopoulos, R. Cotterell, N. Okazaki
In *ACL 2020*

Invited Talks

- **Towards Multimodal Technologies for the World**
Heidelberg University (ICL) 06/2022
Heriot-Watt University (Edinburgh Centre for Robotics) 01/2023
EPFL 02/2023
University of Zürich 03/2023
- **IGLUE: A Benchmark for Transfer Learning across Modalities, Tasks, and Languages**
Google Research 02/2022
University of Cambridge (LTL) 03/2022

Skills

Programming

- Python, Matlab
- NumPy, Pandas, scikit-learn
- PyTorch, JAX, TensorFlow

Languages

- native: Italian
- fluent: English (TOEFL iBT 109)
- basic: French, Chinese (HSK III), Japanese

Fellowships, Honors, and Awards

- University of Copenhagen Marie Skłodowska-Curie TALENT Doctoral Fellowship 06/2019
PoliTong Merit Scholarship 07/2013
MIUR National Register of Excellences 06/2012

Service

- Reviewer:** ACL, ARR, EMNLP, ICLR, ICML, IJCAI, NeurIPS
Organiser: Multilingual Multimodal Learning Workshop (ACL 2022)