

Emanuele Bugliarello

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Research Interests

Multimodal generation and evaluation, agentic RLxF, world modeling, representation learning

Education

PhD in Computer Science
University of Copenhagen
Advisors: Desmond Elliott, Anders Søgaard
10/2019–08/2023
Copenhagen, Denmark

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

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

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

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

Experience

Research Scientist
Google DeepMind
11/2023–present
Grenoble, France

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

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

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

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

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

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

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

Teaching

Teaching Assistant, EPFL: Internet Analytics (COM-308)
Teaching Assistant, UCPH: Advanced Topics in Natural Language Processing (NDAK19001U)
Teaching Assistant, UCPH: Neural Information Retrieval (NDAK20002U)
Teaching Assistant, Instituto Superior Técnico: Lisbon Machine Learning School (LxMLS)
Spring 2017
Winter 2020
Spring 2021
Summer 2023

Recent Talks

- **Towards Inclusive Multimodal AI**
HiTZ Chair of AI< Webinar 04/2025
- **An Introduction to (Multicultural) Vision and Language Models**
3rd Cardiff NLP Summer Workshop 07/2024

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

EMNLP 2024 Outstanding Area Chair	10/2024
EMNLP 2021 Best Long Paper Award	10/2021
University of Copenhagen Marie Skłodowska-Curie TALENT Doctoral Fellowship	06/2019
EPFL PhD Program in Computer Science Fellowship [offer declined]	05/2019
The Japanese Government (MEXT) Scholarship [offer declined]	01/2019
PoliTong Merit Scholarship	07/2013
MIUR National Register of Excellences	06/2012

Service

Reviewer: AACL, ACL, ARR, COLM, EMNLP, ICLR, ICML, IJCAI, NeurIPS

Area Chair: ARR, EACL, EMNLP, NAACL

Senior Area Chair: ACL

Organizer: Multilingual Multimodal Learning Workshop (ACL 2022)

Publications

29. **What Are You Doing? A Closer Look at Controllable Human Video Generation**
E. Bugliarello, A. Arnab, R. Paiss, P.J. Kindermans, C. Schmid
ArXiv Preprint
28. **Revisiting Text-to-Image Evaluation with Gecko: on metrics, prompts, and human ratings**
O. Wiles*, C. Zhang*, I. Albuquerque*, I. Kajić, S. Wang, E. Bugliarello, Y. Onoe, P. Papalampidi, I. Ktena, C. Knutsen, C. Rashtchian, A. Nawalgaria, J. Pont-Tuset, A. Nematzadeh
In *ICLR 2025 Spotlight*
27. **PaliGemma 2: A family of versatile VLMs for transfer**
A. Steiner*, AS. Pinto*, M. Tschannen*, D. Keysers, X. Wang, Y. Bitton, A. Gritsenko, M. Minderer, A. Sherbondy, S. Long, S. Qin, R. Ingle, E. Bugliarello, S. Kazemzadeh, T. Mesnard, I. Alabdulmohsin, L. Beyer, X. Zhai
ArXiv Preprint
26. **No Filter: Cultural and Socioeconomic Diversity in Contrastive Vision-Language Models**
A. Pouget, L. Beyer, E. Bugliarello, X. Wang, A. Steiner, X. Zhai, I. Alabdulmohsin
In *NeurIPS 2024*
25. **PaliGemma: A versatile 3B VLM for transfer**
L. Beyer*, A. Steiner*, AS. Pinto*, A. Kolesnikov*, X. Wang*, D. Salz, M. Neumann, I. Alabdulmohsin, M. Tschannen, E. Bugliarello, T. Unterthiner, D. Keysers, S. Koppula, F. Liu, A. Grycner, A. Gritsenko, N. Houlsby, M. Kumar, K. Rong, J. Eisenschlos, R. Kabra, M. Bauer, M. Bošnjak, X. Chen, M. Minderer, P. Voigtlaender, I. Bica, I. Balazevic, J. Puigcerver, P. Papalampidi, O. Henaff, X. Xiong, R. Soricut, J. Harmsen, X. Zhai*
ArXiv Preprint
24. **MuLan: A Study of Fact Mutability in Language Models**
C. Fierro*, N. Garneau*, E. Bugliarello, Y. Kementchedjieva, A. Søgaard
In *NAACL 2024*
23. **PAELLA: Parameter-Efficient Lightweight Language-Agnostic Captioning Model**

- R. Ramos, E. Bugliarello, B. Martins, D. Elliott
In *NAACL-Findings 2024*
22. **On the Interplay between Fairness and Explainability**
S. Brandl, E. Bugliarello, I. Chalkidis
In *TrustNLP @ NAACL 2024*
21. **Weakly-Supervised Learning of Visual Relations in Multimodal Pretraining**
E. Bugliarello, A. Nematzadeh, L.A. Hendricks
In *EMNLP 2023*
20. **Evaluating Bias and Fairness in Gender-Neutral Pretrained Vision-and-Language Models**
L. Cabello, E. Bugliarello, S. Brandl, D. Elliott
In *EMNLP 2023*
19. **Visual Prediction Improves Zero-Shot Cross-Modal Machine Translation**
T. Hirasawa, E. Bugliarello, D. Elliott, M. Komachi
In *WMT 2023*
18. **StoryBench: A Multifaceted Benchmark for Continuous Story Visualization**
E. Bugliarello, H. Moraldo, R. Villegas, M. Babaeizadeh, D. Erhan, V. Ferrari, P.J. Kindermans, P. Voigtlaender
In *NeurIPS 2023*
17. **A Study of Autoregressive Decoders for Multi-Tasking in Computer Vision**
L. Beyer*, B. Wan*, G. Madan*, F. Pavetic*, A. Steiner*, A. Kolesnikov, AS. Pinto, E. Bugliarello, X. Wang, LC. Chen, Q. Yu, X. Zhai*
ArXiv Preprint
16. **Measuring Progress in Fine-grained Vision-and-Language Understanding**
E. Bugliarello, L. Sartran, A. Agrawal, L.A. Hendricks, A. Nematzadeh
In *ACL 2023*
15. **Language Modelling with Pixels**
P. Rust, J. Lotz, E. Bugliarello, E. Salesky, M. de Lhoneux, D. Elliott
In *ICLR 2023* **Notable Top 5%**
14. **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*
13. **Multilingual Multimodal Learning with Machine Translated Text**
C. Qiu, D. Oneata, E. Bugliarello, S. Frank, D. Elliott
In *EMNLP-Findings 2022*
12. **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*
11. **Ancestor-to-Creole Transfer is Not a Walk in the Park**
H. Lent, E. Bugliarello, A. Søgaard
In *ACL Workshop 2022*
10. **Challenges and Strategies in Cross-Cultural NLP**
D. Hershcovich, S. Frank, H. Lent, M. de Lhoneux, M. Abdou, S. Brandl, E. Bugliarello, L. Cabello, I. Chalkidis, R. Cui, C. Fierro, K. Margatina, P. Rust, A. Søgaard
In *ACL 2022*
9. **Mostra: A Flexible Balancing Framework to Trade-off User, Artist and Platform Objectives for Music Sequencing**
E. Bugliarello, R. Mehrotra, J. Kirk, M. Lalmas
In *WWW 2022*

8. On Language Models for Creoles

H. Lent, E. Bugliarello, M. de Lhoneux, C. Qiu, A. Søgaard
In *CoNLL 2021*

7. 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**

6. Vision-and-Language or Vision-for-Language? On Cross-Modal Influence in Multimodal Transformers

S. Frank*, E. Bugliarello*, D. Elliott
In *EMNLP 2021*

5. 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

4. The Role of Syntactic Planning in Compositional Image Captioning

E. Bugliarello, D. Elliott
In *EACL 2021*

3. It's Easier to Translate *out of* English than *into* it: Measuring Neural Translation Difficulty by Cross-Mutual Information

E. Bugliarello, S.J. Mielke, A. Anastasopoulos, R. Cotterell, N. Okazaki
In *ACL 2020*

2. Enhancing Machine Translation with Dependency-Aware Self-Attention

E. Bugliarello, N. Okazaki
In *ACL 2020*

1. Matrix Completion in the Unit Hypercube via Structured Matrix Factorization

E. Bugliarello, S. Jain, V. Rakesh
In *IJCAI 2019*