

Badr ALKHAMISSI

PhD Candidate at EPFL

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I am passionate about building intelligent systems that can solve complex machine learning tasks and at the same time reveal insights about the inner workings of biological agents. Such systems do not only pave a way for solving long-standing societal problems but also shed light on what it means to be human. Please see [website](#) for a more detailed resumé.

🎓 EDUCATION

Present	EPFL, PhD, Lausanne, Switzerland
September 2023	➤ Co-advised by Antoine Bosselut (NLP Lab) and Martin Schrimpf (NeuroAI Lab).
September 2020	Goldschmidt, University of London, MASTER OF SCIENCE, London, UK
September 2019	➤ MSc. in Computational Cognitive Neuroscience - Pass with Distinction. ➤ Thesis: Episodic Meta-Reinforcement Learning on the Two-Step and Harlow Tasks (Grade: 90%).
June 2018	The American University in Cairo, BACHELOR OF SCIENCE, Cairo, Egypt
September 2014	➤ BSc. in Computer Science - Summa Cum Laude. GPA 4.0 ➤ Thesis: Video Search via Natural Language.

💼 SELECTED RESEARCH AND INDUSTRIAL EXPERIENCE

November 2022	AI Resident, META AI, Seattle, US
November 2021	➤ Research in NLP. Published 5 first-author papers, and 1 co-author paper. (See Publications) NLP Hate Speech Responsible AI Reasoning Arabic NLP FAIR
October 2021	Research Intern, SONY AI, Tokyo, Japan (Remotely)
October 2020	➤ Published 2 papers in collaboration with DeepMind and 1 paper with Sony CSL. (See Publications) Meta-learning Reinforcement Learning Symbolic Alchemy
September 2019	Applied Scientist, MICROSOFT ADVANCED TECHNOLOGY LAB IN CAIRO, Cairo, Egypt
April 2019	➤ Part of the LUIS Applied Science Team and the Machine Teaching Innovation Group. NLU NLP MT Keras Tensorflow PyTorch Python C#
March 2019	Machine Intelligence Researcher, VKANSEE, Cairo, Egypt
January 2018	➤ Research in fingerprint matching, spoofing and quality analysis through deep learning. Computer Vision Few-Shot Learning Keras Tensorflow Python C++ QT

✍ SELECTED PUBLICATIONS

Selected Preprints

APERTUS: DEMOCRATIZING OPEN AND COMPLIANT LLMs FOR GLOBAL LANGUAGE ENVIRONMENTS	TECHNICAL REPORT
🔗 Paper Paper Media Models Tweets Authors: Alejandro Hernández-Cano, Alexander Hägele, [...], Badr AlKhamissi , [...], Antoine Bosselut*, Imanol Schlag*, Martin Jaggi*	
MIXTURE OF COGNITIVE REASONERS: MODULAR REASONING WITH BRAIN-LIKE SPECIALIZATION	UNDER REVIEW
🔗 Paper Paper Website Tweets github.com/https://github.com/bkhmsi/mixture-of-cognitive-reasoners Authors: Badr AlKhamissi , C. Nicolò De Sabbata, Zeming Chen, Martin Schrimpf*, Antoine Bosselut*	
INDUCING DYSLEXIA IN VISION LANGUAGE MODELS	UNDER REVIEW
🔗 Paper Paper Tweets github.com/https://github.com/epfneuroailab/WFA-Localization Authors: Melika Honarmand, Ayati Sharma, Badr AlKhamissi , Johannes Mehrer*, Martin Schrimpf*	
HIRE YOUR ANTHROPOLOGIST! RETHINKING CULTURE BENCHMARKS THROUGH AN ANTHROPOLOGICAL LENS	UNDER REVIEW
🔗 Paper Paper Tweets Authors: Mai AlKhamissi*, Yunze Xiao*, Badr AlKhamissi , Mona Diab	
MEDITRON: OPEN MEDICAL FOUNDATION MODELS ADAPTED FOR CLINICAL PRACTICE	PREPRINT 2024
🔗 Paper Paper github.com/https://github.com/epfLLM/meditron Authors: Zeming Chen, Angelika Romanou*, Antoine Bonnet*, Alejandro Hernández-Cano*, Badr AlKhamissi* , Kyle Matoba*, [...], Physician Evaluation Group, Noémie Boillat-Blanco, Kristina Keitel, Javier Elkin, Blaise Robert, Syrielle Montariol, Mary-Anne Hartley*, Martin Jaggi*, Antoine Bosselut*	

RATIONAL METAREASONING FOR LARGE LANGUAGE MODELS

[Paper](#) [Tweets](#)

Authors: C. Nicolò De Sabbata, Theodore R. Sumers, **Badr AlKhamissi**, Antoine Bosselut, Thomas L. Griffiths

UNDER REVIEW

A REVIEW OF LANGUAGE MODELS AS KNOWLEDGE BASES

[Paper](#) [Website](#) [Tweets](#)

Authors: **Badr AlKhamissi***, Millicent Li*, Asli Celikyilmaz, Mona Diab, Marjan Ghazvininejad

PREPRINT 2022

Selected Conferences

FROM LANGUAGE TO COGNITION: HOW LLMs OUTGROW THE HUMAN LANGUAGE NETWORK

[Oral](#) [Paper](#) [Tweets](#)

Authors: **Badr AlKhamissi**, Greta Tuckute, Yingtian Tang, Taha Binhuraib, Antoine Bosselut*, Martin Schrimpf*

EMNLP 2025

THE LLM LANGUAGE NETWORK: A NEUROSCIENTIFIC APPROACH FOR IDENTIFYING CAUSALLY IMPORTANT UNITS

[Oral](#) [Paper](#) [Website](#) [github.com/https://github.com/bkhmsi/llm-localization](#)

Authors: **Badr AlKhamissi**, Greta Tuckute, Antoine Bosselut*, Martin Schrimpf*

NAACL 2025

TOPOLM: BRAIN-LIKE SPATIO-FUNCTIONAL ORGANIZATION IN A TOPOGRAPHIC LANGUAGE MODEL

[Oral](#) [Paper](#) [Tweets](#)

Authors: Neil Rathi*, Johannes Mehrer*, **Badr AlKhamissi**, Taha Binhuraib, Nicholas M. Blauch, Martin Schrimpf

ICLR 2025

INVESTIGATING CULTURAL ALIGNMENT OF LARGE LANGUAGE MODELS

[Paper](#) [Tweets](#) [github.com/https://github.com/bkhmsi/cultural-trends](#)

Authors: **Badr AlKhamissi**, Muhammad ElNokrashy, Mai AlKhamissi, Mona Diab

ACL 2024

A CONTEXT-CONTRASTIVE INFERENCE APPROACH TO PARTIAL DIACRITIZATION

[Oral](#) [Paper](#) [Demo](#) [github.com/https://github.com/munael/ccpd-partial-arabic-diacritization](#)

Authors: Muhammad ElNokrashy, **Badr AlKhamissi**

ARABICNLP 2024

INSTRUCTION-TUNING ALIGNS LLMs TO THE HUMAN BRAIN

[Paper](#) [Tweets](#)

Authors: Khai Loong Aw, Syrielle Montariol*, **Badr AlKhamissi**, Martin Schrimpf, Antoine Bosselut

COLM 2024

DEPTH-WISE ATTENTION (DWATT): A LAYER FUSION METHOD FOR DATA-EFFICIENT CLASSIFICATION

[Oral](#) [Paper](#) [Poster](#)

Authors: Muhammad ElNokrashy*, **Badr AlKhamissi**, Mona Diab

LREC-COLING 2024

“FLEX TAPE CAN’T FIX THAT”: BIAS AND MISINFORMATION IN EDITED LANGUAGE MODELS

[Paper](#)

Authors: Karina Halevy, Anna Sotnikova, **Badr AlKhamissi**, Syrielle Montariol, Antoine Bosselut

EMNLP 2024

ALERT: ADAPT LANGUAGE MODELS TO REASONING TASKS

[Paper](#) [Poster](#)

Authors: Ping Yu, Tianlu Wang, Olga Golovneva, **Badr AlKhamissi**, Siddharth Verma, Zhijing Jin, Gargi Ghosh, Mona Diab, Asli Celikyilmaz

ACL 2023

TOKEN: TASK DECOMPOSITION AND KNOWLEDGE INFUSION FOR FEW-SHOT HATE SPEECH DETECTION

[Oral](#) [Paper](#) [Tweets](#)

Authors: **Badr AlKhamissi***, Faisal Ladakh*, Srini Iyer, Ves Stoyanov, Zornitsa Kozareva, Xian Li, Pascale Fung, Lambert Mathias, Asli Celikyilmaz, Mona Diab

EMNLP 2022

Selected Workshops

A SELF-SYNTHESIS APPROACH FOR TRAINING VISION-LANGUAGE MODELS WITH DEVELOPMENTALLY PLAUSIBLE DATA BABYLM 2024

[CoNLL 2024](#) [Paper](#)

Authors: **Badr AlKhamissi***, Yingtian Tang*, Abdulkadir Gökce*, Johannes Mehrer, Martin Schrimpf

2024

KHATTAT: ENHANCING READABILITY AND CONCEPT REPRESENTATION OF SEMANTIC TYPOGRAPHY

[ECCV 2024](#) [Paper](#) [Website](#) [Tweets](#)

Authors: Ahmed Hussein*, Alaa Elsetohy*, Sama Hadhoud*, Tameem Bakr*, Yasser Rohaim*, **Badr AlKhamissi**

AI4VA 2024

OPT-R: EXPLORING THE ROLE OF EXPLANATIONS IN FINETUNING AND PROMPTING FOR REASONING SKILLS OF LLMs NLRSE 2023

[ACL 2023](#) [Paper](#) [Poster](#) [Tweets](#)

Authors: **Badr AlKhamissi**, Siddharth Verma, Ping Yu, Zhijing Jin, Asli Celikyilmaz, Mona Diab

NLRSE 2023

MULTITASK LEARNING WITH SELF-CORRECTION FOR HATE SPEECH CLASSIFICATION

[LREC 2022](#) [Oral](#) [Paper](#) [Best Paper Award](#) [Tweets](#)

Authors: **Badr AlKhamissi***, Mona Diab

OSACT5 2022

HOW TO LEARN AND REPRESENT ABSTRACTIONS: AN INVESTIGATION USING SYMBOLIC ALCHEMY

[AutoML 2022](#) [Paper](#) [Poster](#) [github.com/https://github.com/BKHMSI/alchemy](#)

Authors: **Badr AlKhamissi**, Akshay Srinivasan, Zeb Kurth-Nelson, Sam Ritter

AUTOML WORKSHOP 2022

🏆 SELECTED AWARDS

- › Swiss AI Initiative PhD Fellowship Recipient. '25
- › KAUST Rising Stars in AI Recipient. '25
- › EPFL Doc.Mobility Grant Recipient. '25
- › President's Cup and **Mohamed El Beleidy Academic Award** for class valedictorian - American University in Cairo '18.
- › Mohammed Bin Abdulkarim A. Allehedan Award for highest performing STEM student - American University in Cairo '18.
- › First place on the two categories of the Arabic Reverse Dictionary shared task at ArabicNLP 2023. '23
- › Best Paper Award for the Fine-Grained Hate Speech Detection shared task in Arabic. '22
- › First place in all four categories of the second NADI shared task. '21
- › Best Mentor Award at Microsoft Advanced Technology Lab in Cairo. '19
- › Shortlisted in Dell EMC's Graduation Project Competition - American University in Cairo '18
- › Computer Science Exemplary Student - American University in Cairo '18
- › Outstanding Performance Award in Deep Learning Summer School at Tsinghua University. '17

🎒 TEACHING EXPERIENCE

Spring '24 & '25 & Fall '24 **Teaching Assistant, EPFL, Lausanne, Switzerland**

- › Teaching assistant for Modern Natural Language Processing and Linear Algebra.

Python
PyTorch
NLP
LLMs
RLHF

Fall '15 & '17 & Spring '16 **Undergraduate Teaching Assistant, THE AMERICAN UNIVERSITY IN CAIRO, Cairo, Egypt**

- › Teaching assistant for Deep Learning and Programming Fundamentals courses.

C++
Python
Tensorflow
Keras
SFML

🎙 SELECTED INVITED TALKS

- › IndabaX Sudan Featured Speaker: Building Responsible & Ethical LLMs.
- › LauzHack Deep Learning Bootcamp: Brain-Inspired Large Language Models.
- › REST-CL Retreat for Students in Computational Linguistics (UPF University) The LLM Language Network.
- › Psychology Days at Riga Stradins University: Vision and Language in Brains, Minds and Machines.
- › Nancy Kanwisher's Lab at MIT: Mixture of Cognitive Reasoners.
- › NCCR Evolving Language Group: Brain Alignment of Untrained Models.
- › Cohere For AI Community Talk (Geo Regional Africa Group): Investigating Cultural Alignment of LLMs.
- › ARBML Board Talk: Investigating Cultural Alignment of LLMs.
- › AiBelmasry Podcast (Guest Speaker): Analyzing LLM's Ability in Reasoning.
- › TEDxMIU Talk: Representation Matters: Celebrating Egyptians in the AI Revolution.
- › Cohere For AI Community Talk: Presenting OPT-R Paper.
- › Mada Masr Podcast Guest Speaker (April 6th 2023 Episode): A New World Shaped by Artificial Stupidity.
- › IndabaX Egypt 2019 Jointly led a tutorial on cross-lingual alignment.

🌿 SERVICE

ORGANIZING COMMITTEE

ICLR 2026 Workshop on Representational Alignment (Re-Align). ArabicNLP 2025 (Publicity Chair). ICML Workshop on Large Languages and Cognition (2024). ArabicNLP 2024 (Social Chair).

SELECTED PROGRAM COMMITTEE MEMBER (REVIEWER)

EACL 2025. NeurIPS 2025. EMNLP 2025. ACL 2025. NAACL 2025 (Area Chair). EMNLP 2024. NeurIPS 2024. ArabicNLP 2024. Cognitive Computational Neuroscience (CCN) 2024. ACL 2024. NAACL 2024. EMNLP 2023. ACL 2023. ENLSP-II Workshop at NeurIPS 2022. EMNLP 2022. Main Track and Late-Breaking Workshop at AutoML 2022. I (Still) Can't Believe It's Not Better! Workshop at NeurIPS 2021. Meta-Learn Workshop at NeurIPS 2021, 2020. Learning to Learn Workshop at ICLR 2021.