Badr **ALKHAMISSI** PhD Candidate at EPFL

🗞 https://bkhmsi.github.io 🛛 github.com/bkhmsi in linkedin.com/in/bkhmsi 🎓 scholar.google.com/bkhmsi

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 (NeuroAl Lab).

September 2020 September 2019

Goldsmiths, University of London, MASTER OF SCIENCE, London, UK

> MSc. in Computational Cognitive Neuroscience - Pass with Distinction.

> Thesis: Episodic Meta-Reinforcement Learning on the Two-Step and Harlow Tasks (Grade: 90%).

June 2018 September 2014

The American University in Cairo, BACHELOR OF SCIENCE, Cairo, Egypt

> BSc. in Computer Science - Summa Cum Laude. GPA 4.0

> President's Cup and Mohamed El Beleidy Academic Award for class valedictorian.

> Mohammed Bin Abdulkarim A. Allehedan Award for highest performing STEM student.

> Academic Achievement Scholarship and Abdallah Jum'ah Study Abroad Scholarship.



Selected Research and Industrial Experience

November 2022

November 2021

Al Resident, Meta Al, Seattle, US

> Research in NLP. Published 5 first-author papers, and 1 co-author paper. (See Publications)

NLP | Hate Speech | Responsible Al | Reasoning | Arabic NLP | FAIR

October 2021 October 2020

Research Intern, Sony AI, Tokyo, Japan (Remotely)

> Published 2 papers in collaboration with DeepMind and 1 paper with Sony CSL. (See Publications)

Meta-learning Reinforcement learning Symbolic Alchemy

September 2019

April 2019

Applied Scientist, Microsoft Advanced Technology Lab in Cairo, Cairo, Egypt

> Part of the LUIS Applied Science Team and the Machine Teaching Innovation Group.

> Best Mentor Award.

NLU NLP MT Keras Tensorflow PyTorch Python C#

March 2019

January 2018

Machine Intelligence Researcher, VKANSEE, Cairo, Egypt

> Research in fingerprint matching, spoofing and quality analysis through deep learning.

Computer Vision Few-Shot Learning Keras Tensorflow Python C++ QT

Selected Projects

EGYPTIANS IN AI RESEARCH

MARCH 2023 - PRESENT

☑ Website ☑ Blog Post ☑ github.com/bkhmsi/egyptians-in-ai

Website dedicated to showcasing the profiles of prominent Egyptian researchers in the field of Artificial Intelligence.

Al Community



Selected Talks

- > EPFL EDIC Open House 2025
- > Psychology Days at Riga Stradins University (Invited Talk)
- > NCCR Evolving Language Group (Invited Talk)
- > Cohere For Al Community Talk Geo Regional Africa Group (Invited Talk)
- > ARBML Board (Invited Talk)
- > AiBelmasry Podcast (Guest Speaker)
- > TEDxMIU Talk: Representation Matters: Celebrating Egyptians in the AI Revolution
- > Cohere For AI Community Talk: Presenting OPT-R Paper (Invited Talk)
- > Mada Masr Podcast Guest Speaker (April 6th 2023 Episode)
- > IndabaX Egypt 2019: Tutorial



Selected Publications & Conferences

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

UNDER REVIEW

Paper Tweets

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

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

NAACI 2025

☑ Paper • github.com/https://github.com/bkhmsi/llm-localization

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

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

ICLR 2025 (ORAL)

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

DREAMING OUT LOUD: A SELF-SYNTHESIS APPROACH FOR TRAINING VISION-LANGUAGE MODELS WITH DEVELOPMENTALLY PLAUSIBLE DATA BABYLM @ CONLL 2024

Paper

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

MEDITRON: OPEN MEDICAL FOUNDATION MODELS ADAPTED FOR CLINICAL PRACTICE

UNDER REVIEW

Paper of 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*

INVESTIGATING CULTURAL ALIGNMENT OF LARGE LANGUAGE MODELS

ACI 2024

☑ Paper 💆 Tweets 🕠 github.com/https://github.com/bkhmsi/cultural-trends

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

Instruction-tuning Aligns LLMs to the Human Brain COLM 2024, UniReps & Instruction Tuning WS at NeurIPS 2023

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

DEPTH-WISE ATTENTION (DWATT): A LAYER FUSION METHOD FOR DATA-EFFICIENT CLASSIFICATION LREC-COLING 2024 (ORAL) & ENLSP-II WS AT NEURIPS 2022

☑ Paper ☑ Poster

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

OPT-R: EXPLORING THE ROLE OF EXPLANATIONS IN FINETUNING AND PROMPTING FOR REASONING SKILLS OF LARGE LANGUAGE NLRSE WS AT ACL 2023

☑ Paper ☑ Poster ☑ Tweets

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

TOKEN: TASK DECOMPOSITION AND KNOWLEDGE INFUSION FOR FEW-SHOT HATE SPEECH DETECTION EMNLP 2022 (ORAL)

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

META AI AT ARABIC HATE SPEECH 2022: MULTITASK LEARNING WITH SELF-CORRECTION FOR HATE SPEECH CLASSIFICATION OSACT5 AT LREC 2022 (ORAL)

🗹 Paper 🍷 Best Paper Award 💆 Tweets

Authors: Badr AlKhamissi*, Mona Diab

A REVIEW OF LANGUAGE MODELS AS KNOWLEDGE BASES

PREPRINT 2022

☑ Paper ☑ Website ☞ Tweets

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

THE EMERGENCE OF ABSTRACT AND EPISODIC NEURONS IN EPISODIC META-RL MEMARI WS (SPOTLIGHT) AT NEURIPS 2022 & L2L WS AT ICLR 2021

☑ Paper ☑ Poster

Authors: Badr AlKhamissi, Muhammad ElNokrashy, Michael Spranger

DEEP DIACRITIZATION: EFFICIENT HIERARCHICAL RECURRENCE FOR IMPROVED ARABIC DIACRITIZATION ARABICNLP WS AT COLING 2020 (ORAL)

Authors: Badr AlKhamissi, Muhammad ElNokrashy, Mohamed Gabr

ORGANIZING COMMITTEE

ArabicNLP 2025 (Publicity Chair). ICML Workshop on Large Languages and Cognition (2024). ArabicNLP 2024 (Social Chair).

SELECTED PROGRAM COMMITTEE MEMBER (REVIEWER)

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. Learning to Learn Workshop at ICLR 2021. Meta Learn Workshop at NeurIPS 2020.