Alfonso Amayuelas

PhD Student at UC Santa Barbara
Santa Barbara, CA · USA

Education

University	**University of California, Santa Barbara**	Santa Barbara, USA
Degree	PhD Computer Science	
Period	September 2022 — ongoing	

University	**ETH Zurich**	Zurich, Switzerland
Degree	Master's Thesis (Visiting):	
	Neural Methods for Logical Reasoning over Knowledge Graphs [1]	
Period	February 2021 — August 2021	

University	**École Polytechnique Fédérale de Lausanne**	Lausanne, Switzerland
Degree	MSc Data Science	
Period	September 2019 — August 2021	

University	**Autonomous University of Barcelona**	Barcelona, Spain
Degree	BSc in Computer Science	
	BSc in Telecommunication Systems Engineering	
Period	September 2014 — June 2019	

University	**University of California, San Diego**	San Diego, USA
Degree	Computer Science / Electrical Engineering (Exchange program)	
Period	September 2017 — June 2018	

Work Experience

Employer	**JP Morgan Chase**	New York, USA
Job Title	AI Research Scientist Intern	
Period	June 2024 — September 2024	
	Internship with the JP Morgan Chase AI Research team, where I worked on grounding Large Language Models with Knowledge Graphs for complex multi-hop question-answering: *Grounding LLM Reasoning with Knowledge Graphs* [2]	
Employer	**Megagon Labs**	Mountain View, USA
Job Title	Research Scientist Intern	
Period	June 2023 — September 2023	
	Worked with the Knowledge Team on a project for Knowledge Graph Distillation. We used academic knowledge graph datasets, PyTorch and PyTorch Geometric as the building block of our solution.	
Employer	**BigML**	Remote, Spain
Job Title	Machine Learning Engineer	
Period	June 2021 — August 2022	
	Worked in the Predictive Applications Team creating ML applications for clients on top of the comprehensive BigML's proprietary platform. Also contributed to the early development of BigML's spinoff Accushoot.com.	
Employer	**Oracle**	Zurich, Switzerland
Job Title	Research Assistant	
Period	July 2020 — August 2020	
	Worked at Oracle Labs in Zurich with the PGX Applications Team. The project consisted in developing an application for automatic knowledge graph extraction, implementing a NLP pipeline with open-source libraries.	

EMPLOYER	**Indra**	Barcelona, Spain
JOB TITLE	Intern	
PERIOD	January 2019 — June 2019	

Worked on the Bachelor's thesis for Telecommunications Engineering with the Navigation team of Indra Space. The project involved the development of a study for a communication channel and satellite transponder simulator for the ground stations (NLES) in the third generation of EGNOS (v3).

EMPLOYER	**Aalto Univeristy**	Helsinki, Finland
JOB TITLE	Research intern	
PERIOD	June 2018 — September 2018	

Worked in the Applied Physics department for the Complex Systems and Materials group (CSM), under the supervision of Prof. Mikko Alava. The goal of the project was the use machine learning techniques for the detection and forecasting of structural changes in the texture of foams.

EMPLOYER	**CERN**	Geneva, Switzerland
JOB TITLE	Intern	
PERIOD	June 2017 — September 2017	

Collaborated with the ATLAS experiment in a team from the National Technical University of Athens under the supervision of Prof. Theodoros Alexopoulos. The project involved the firmware development of FPGAs

TEACHING EXPERIENCE

EMPLOYER	**University of California, Santa Barbara**	Santa Barbara, USA
JOB TITLE	Teacher Assistant	
PERIOD	March 2024 — June 2024	

CS 130A: Data Structures and Algorithms, by Prof. Ambuj K Singh. Main course on data structures and algorithms, covering abstraction and analysis. Some of the topics during this course are: Algorithm analysis, Hashing, Sets with priority, Trees, Union/Find, Graphs, and Sorting

PUBLICATIONS

[1] A. Amayuelas, S. Zhang, X. S. Rao, and C. Zhang, "Neural methods for logical reasoning over knowledge graphs," in *International Conference on Learning Representations*, 2022.

[2] A. Amayuelas, J. Sain, S. Kaur, and C. Smiley, "Grounding llm reasoning with knowledge graphs," *arXiv preprint arXiv:2502.13247*, 2025.

[3] N. Goel, A. Amayuelas, A. Deshpande, and A. Sharma, "The importance of modeling data missingness in algorithmic fairness: A causal perspective," in *Proceedings of the AAAI Conference on Artificial Intelligence*, vol. 35, pp. 7564–7573, 2021.

[4] A. Amayuelas, K. Wong, L. Pan, W. Chen, and W. Y. Wang, "Knowledge of knowledge: Exploring known-unknowns uncertainty with large language models," in *Findings of the Association for Computational Linguistics: ACL 2024*, (Bangkok, Thailand), pp. 6416–6432, Association for Computational Linguistics, Aug. 2024.

[5] X. Wang, A. Amayuelas, K. Zhang, L. Pan, W. Chen, and W. Y. Wang, "Understanding reasoning ability of language models from the perspective of reasoning paths aggregation," in *Proceedings of the 41st International Conference on Machine Learning*, vol. 235 of *Proceedings of Machine Learning Research*, pp. 50026–50042, PMLR, 21–27 Jul 2024.

[6] K. Wong, A. Amayuelas, L. Pan, and W. Y. Wang, "Distilrr: Transferring code repair for low-resource programming languages," *arXiv preprint arXiv:2406.14867*, 2024.

[7] X. Wang, A. Antoniades, Y. Elazar, A. Amayuelas, A. Albalak, K. Zhang, and W. Y. Wang, "Generalization v.s. memorization: Tracing language models' capabilities back to pretraining data," 2024.

[8] A. Amayuelas, X. Yang, A. Antoniades, W. Hua, L. Pan, and W. Y. Wang, "MultiAgent collaboration attack: Investigating adversarial attacks in large language model collaborations via debate," in *Findings of the Association for Computational Linguistics: EMNLP 2024*, (Miami, Florida, USA), pp. 6929–6948, Association for Computational Linguistics, Nov. 2024.

[9] L. Yoffe, A. Amayuelas, and W. Y. Wang, "Debunc: Mitigating hallucinations in large language model agent communication with uncertainty estimations," *arXiv preprint arXiv:2407.06426*, 2024.

[10] W. Hua, O. Liu, L. Li, A. Amayuelas, J. Chen, L. Jiang, M. Jin, L. Fan, F. Sun, W. Wang, *et al.*, "Game-theoretic llm: Agent workflow for negotiation games," *arXiv preprint arXiv:2411.05990*, 2024.

[11] A. Romanou, N. Foroutan, A. Sotnikova, Z. Chen, S. H. Nelaturu, S. Singh, R. Maheshwary, M. Altomare, M. A. Haggag, A. Amayuelas, *et al.*, "Include: Evaluating multilingual language understanding with regional knowledge," *arXiv preprint arXiv:2411.19799*, 2024.

[12] I. Salazar, M. F. Burda, S. B. Islam, A. S. Moakhar, S. Singh, F. Farestam, A. Romanou, D. Boiko, D. Khullar, M. Zhang, D. Krzemiński, J. Novikova, L. Shimabucoro, J. M. Imperial, R. Maheshwary, S. Duwal, A. Amayuelas, *et al.*, "Kaleidoscope: In-language exams for massively multilingual vision evaluation," 2025.

[13] A. Amayuelas, J. Yang, S. Agashe, A. Nagarajan, A. Antoniades, X. E. Wang, and W. Wang, "Self-resource allocation in multi-agent llm systems," *arXiv preprint arXiv:2504.02051*, 2025.

Awards

2022	**CS Academic Excellence Fellowship**		Santa Barbara, USA
Awarder	Computer Science Department, UC Santa Barbara		
2019	**AI with Social Purposes - *Entrepreneurship track***		Madrid, Spain
Awarder	We the Humans Think Tank		
2019	**Best Student Award (Top 1) - Class 2019**		Barcelona, Spain
Awarder	Autonomous University of Barcelona		
	Col·legi Oficial d' Enginyers Tècnics de Telecomunicacions de Catalunya		
	Management Solutions		
2019	**Galileo App Competition**		Noordwijk, Netherlands
Awarder	European Space Agency (ESA)		
	Most Innovative App; Most Voted by the Audience		
2016	**1st place EU-XCEL Startup Contest**		Munich, Germany
Awarder	EU-XCEL		

Grants

- Cohere for AI Research Grant (2025)

Mentorship Experience

1. Kyle Wong - UC Santa Barbara - Undergraduate [6]
2. Luke Yoffe - UC Santa Barbara - MS Project [9]
3. Dakota Barnes - UC Santa Barbara - BS/MS
4. Nikolas Belle - UC Santa Barbara - BS/MS

Academic Service

Conference Reviewer: ICLR 2024, ACL-ARR Oct 2024, SCI-FM Workshop @ ICLR 2025, ACL-ARR Feb 2025

Other

University	**Tsinghua University**	Beijing, China
Degree	International Summer School - Industry Frontier Track	
Period	July 2019	

Volunteering

Period	**July 2016 — August 2016**	
Org.	**SMAN14 - Local high school**	Padang, Indonesia
Job Title	**Language Teacher**	

Language teacher for High School students. Created my own learning units and organized workshops related to world issues.

Period	**July 2015 — August 2015**	
Org.	**AIESEC**	Algiers, Algeria
Job Title	**Spanish Teacher**	

Spanish teacher for an Aiesec project during summer 2015. I transmitted my language and culture, worked on my communication skills and helped building global citizens.

Skills & more

Computer Technologies	Python, C++, Java, SQL, Pandas, Django, Javascript, Vue.js
Languages	Spanish (Native) English (C2) French (B2) Catalan (C1)
Certificates	- Cambridge English: Proficiency (CPE) - Cambridge English: Advanced (CAE) - Advanced English Level Certificate (Spanish Official School of Languages)
Societies & Organizations	Spain AI Nova Talent Pi Kappa Alpha (*alumni*) Aiesec (*alumni*)