Patrick Lewis BA MSci

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Education

2018-	University College London & Facebook AI Research: Ph.D.	
	Area:	Natural Language Processing
	Advisors:	Sebastian Riedel, Pontus Stenetorp
2012-16	Queens' College Cambridge: BA MSci Natural Sciences (1st Class)	
	MSci:	Physical & Theoretical Chemistry, & Data/NLP Project
	BA:	Chemistry, Statistical Mechanics, Mathematics, Computer Sciences, Materials Sciences.
2007-12	Epsom College, Epsom	
	A Level & EPQ:	Maths (A*) Further Maths (A) Physics (A*) Chemistry (A*) EPQ (A*)
	AS Level & GCSE:	Philosophy (A) Critical Thinking (A) 10 A* GCSEs including Maths, English & IT.

Selected Publications (see patricklewis.io for full list)

· *PAQ: 65 Million Probably-Asked Questions and What You Can Do With Them*, Lewis et al. ArXiv preprint 2021 [pdf]

· *Question and Answer Test-Train Overlap in Open-Domain QA datasets*, Lewis et al. EACL 2021 [pdf]

· *Retrieval-Augmented Generation for Knowledge-Intensive NLP Tasks*, Lewis et al. NeurIPS 2020 [pdf]

· *How Context Affects Language Models' Factual Predictions*, Petroni et al. AKBC 2020 [pdf] (Received Best Paper Award)

· *MLQA: Evaluating Cross-lingual Extractive Question Answering* , Lewis et al. ACL 2020 [pdf]

· *Language Models as Knowledgebases?*, Petroni et al. EMNLP 2019 [pdf]

· *Unsupervised Question Answering by Cloze Translation*, Lewis et al. ACL 2019 [pdf]

Work / Experience

2018-	**FAIR PhD Student**: Affiliated with UCL and Facebook AI Research, advised by Sebastian Riedel and Pontus Stenetorp. Focusing on how to represent, store and access knowledge and building more powerful, efficient and robust models for knowledge-intensive NLP tasks such as question answering.
2018-18	**Bloomsbury AI**: ML Engineer. Researching & developing cutting edge NLP techniques for question answering & knowledge dissemination. Translating & scaling world-leading AI research into production environments.
2016-18	**Healx**: NLP Engineer. Predicting drug repurposing candidates using deep learning for NER, relation extraction, semantic representation learning on structured & unstructured data, and KB completion.
2015-16	**MSci Research project**: Developing novel algorithm to recommend academic collaborations & demonstrate unsupervised scientific concept learning using web scraping, neural embeddings & network analysis.
2014	**BAE Systems Applied Intelligence**: 3 month internship prototyping the redesign of mission-critical software.
2013	**BAE Systems Detica**: 3 month internship research project developing software for more accurate circuit design.
2013	**Credit Suisse Spring Program**: Training program for a technical role within Credit Suisse I.T. department.
2010	**Expedition to Zambia**: Renovating village schoolhouse, substantial repair work & weatherproofing.

Relevant Skills

Coding:	**Expert**: Python (NumPy, Tensorflow, Pytorch, spaCy, JuPyTer, fairseq, HuggingFace Transformers)
	Prior Experience: JS, JQuery, HTML+CSS, Java, MATLAB, C#, SML
Other:	LaTeX, Gephi, AWS, GCP, Amazon Mechanical Turk, SC clearance 2013 & 2014, UK Driving Licence

Awards and Commendations

· Led the UCL-FAIR team to win 2 tracks of the EfficientQA NeurIPS competition (2020)

· Best Paper Award at AKBC 2020 for "How Context Affects Language Models' Factual Predictions" (2020)

· Healx AI developer of the year (2017)

· Cambridge University Department Prize for "Outstanding Master's Project" (2016)

- Queens' College Foundation Scholarship & Paul W Davies Prize for Chemistry (2016)
- Ranked 1st intern at Applied Intelligence (2014), EAL Certificate of "Commendable" performance at Detica (2013)
- School Debating & Public speaking teams, regional finalists & champions respectively. Extended Project & academic excellence awards (2008-2012)

Research Community Activities and Teaching

- Co-organizer for EMNLP workshop on Machine Reading for Question Answering (MRQA 2021)
- Co-organizer for ACL workshop Representation Learning for NLP (RepL4NLP 2020)
- Reviewer at EurNLP 2019, ICLR 2019, MRQA 2019, ACL 2020, EMNLP 2020, EACL 2021, NAACL 2021, ACL 2021
- Teaching Assistant for UCL NLP Master's degree course 2019, 2020, 2021
- Supervised UCL Machine Learning Masters' Degree summer research project theses 2019, 2020.
- Invited talks at University of Cambridge Language and Translation Lab (2019), University of Glasgow IR and ML LAB (2020), NY-NLP (2020), Amazon Alexa (2021)
- Organised UCL NLP reading group 2019-2020, regular presenter at Facebook London NLP and UCL NLP Reading groups.
- Contributor to HuggingFace Transformers codebase and community, including open-sourcing of Retrieval-Augmented Generation (RAG). Open-sourced data and code for 5 recent research projects.

Other Teamwork, Leadership and Interests

- **Research Team Leadership:** Regularly lead complex research projects with large teams across different experience levels, institutions & locations, such as the UCL-FAIR EfficientQA (PAQ) and the Retrieval-Augmented Generation (RAG) projects.
- **College:** President of Milner Society (2014-15): Society for all science students at Queens' College (130 students). Managed tutoring workshops, social events & worked closely with college staff. President of Queens' Rugby Club (2014-15): Managed budget, training, social events, safety, kit & administrative duties.
- **School:** Head of House (2011-12): Responsible for welfare of 70 pupils, efficient running of house & managing prefect team. Epsom College YC President (2010-11): Led team running charity schemes including social events & selling calendars.
- Vietnam & Europe Backpacking (2015), Interrail (2012), Rafting & hiking Grand Canyon (2011), Zambia Expedition (2010)
- Play classical & electric guitar. Performed main parts in 4 plays. Enjoy Trivia Competitions and Pub Quizzes.