

nick mckenna

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Summary

- Postdoc at Microsoft Research.
Ex-Applied Science at Amazon Alexa.
- Publications in *ACL venues, including the *Best Paper Award* at AACL 2023.
- Research Interests:
Reasoning and question answering from free text and Knowledge Graphs;
factual hallucination in Generative LLMs;
LLMs for code generation.

Education

The University of Edinburgh

Ph.D. Informatics 2023

Thesis: *Inference of Natural Language Predicates in the Open Domain*

Advisor: Mark Steedman

M.Sc. Artificial Intelligence, *Distinction* 2019

Brown University

B.Sc. Computer Science 2017

Professional Experience

AI Research Resident, Microsoft Research *Cambridge, UK* Feb 2024 – Present

- Researching the use of Generative Large Language Models to synthesize programs from human instructions, within the Collaborative Intelligence team (MS Excel).

Applied Scientist II Intern, Amazon, Alexa AI *Cambridge, UK* Jun – Oct 2022

- Developed a neuro-symbolic model for question answering which mitigates factual hallucination in LLMs. An LLM and Differentiable Knowledge Graph are combined which supports answering natural language questions using only information found in the KG. Our new architecture critically enables updating the KG with new facts without requiring the model to be retrained.
- Published in ACL 2023: SustaiNLP workshop as *KGQA Without Retraining*. ↔ [Paper Link](#)

Product Manager, TapToBook (Startup) *Miami, USA* Jun 2017 – Aug 2018

- Identified business needs, researched and designed solutions, and prioritized the product roadmap for the 10-person development team (spanning web, iOS, and Android).
- Transformed the core business model with innovative technologies and user experiences to find product-market fit, with focus on scalable AI solutions.
- Scaled the platform to power national brands including Planet Fitness, leading to profitability.

Product Management Intern, Yelp *San Francisco, USA* Jun – Aug 2016

- Grew CTR by 13% on business review highlights by intelligently surfacing user-relevant info.

Skills

- **Modeling:** Machine Learning for automated decision-making; extracting structured knowledge from text; answering user questions; generative modeling of tasks using large models, etc.
- **Languages:** Python, Java, Swift/iOS, C, SQL+Splunk
- **Tools:** PyTorch, Huggingface Transformers, LLMs like LLaMA & GPT-4, AWS, Git, Numpy, Scipy

Publications

Conference Papers

- EMNLP Findings 2023 **Nick McKenna*** and Tianyi Li*; Liang Cheng, Mohammad Javad Hosseini, Mark Johnson, and Mark Steedman. *Sources of Hallucination by Large Language Models on Inference Tasks.* ↪ [Paper Link](#)
- AACL 2023 **Nick McKenna**, Tianyi Li, Mark Johnson, and Mark Steedman. *Smoothing Entailment Graphs with Language Models.* ***Best Paper Award*** ↪ [Paper Link](#)
- EMNLP 2021 **Nick McKenna**, Liane Guillou, Mohammad Javad Hosseini, Sander Bijl de Vroe, Mark Johnson, and Mark Steedman. *Multivalent Entailment Graphs for Question Answering.* ↪ [Paper Link](#)
- *SEM 2020 **Nick McKenna** and Mark Steedman. *Learning Negation Scope from Syntactic Structure.* ↪ [Paper Link](#)

Workshop Papers

- SustainNLP 2023 **Nick McKenna** and Priyanka Sen. *KGQA Without Retraining.* Workshop at ACL. ↪ [Paper Link](#)
- CASE 2021 Sander Bijl de Vroe* and Liane Guillou*; Miloš Stanojević, **Nick McKenna**, and Mark Steedman. *Modality and Negation in Event Extraction.* Workshop at ACL. ↪ [Paper Link](#)

Teaching

Graduate TA at the University of Edinburgh

Accelerated Natural Language Processing (M.Sc. course)	2019 – 2021
Natural Language Understanding and Machine Translation (M.Sc. course)	2020 – 2022

Undergraduate TA at Brown University

Computational Linguistics	2017
Computer Graphics	2016
Computer Architecture	2015

Scientific Service

Talk Panelist

“Starting in NLP Research” at NAACL	2021
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Conference Reviewer

ACL	2023
EACL	2023
EMNLP	2021, 2023
COLING	2020
STARSEM	2020, 2021

Large Software Projects

- *2048: Two to Infinity (iOS)*: 16,000 downloads; ranked top 100 strategy games in USA and Canada.
- *Movie Review Summarizer (Python, PyTorch)*: Hierarchical sentiment analysis model usable for extractive summarization of reviews by selecting the most sentimental sentences.
- *StingRay Renderer (OpenGL, C++)*: Real-time GPU raytracing of 3D scenes using shader caching.

Awards & Honors

Best Paper Award at AACL 2023: <i>Smoothing Entailment Graphs with Language Models</i>	2023
Huawei Ph.D. Scholarship Award	2019
Outstanding M.Sc. Dissertation: <i>Learning Negation Scope Semantics with Structure</i> ↪ Link	2019