Nick McKenna

Informatics Forum, Office 5.19
10 Crichton Street
Edinburgh, EH8 9AB

Email ↪ nick.mckenna@ed.ac.uk
Homepage ↪ www.nmckenna.me
GitHub ↪ www.github.com/nighttime

Summary

- **PhD in NLP** (Finishing Oct 2023)
- Seeking an AI / ML Scientist position starting autumn 2023.
- Ex-Applied Science at Amazon.
  Former Product Manager.
- 6 publications in NLP.
  5 years of experience in ML + NLP.
  2 years of professional experience.
- **Research Experience:** commonsense reasoning, QA, Knowledge Graphs, Generative LLMs and hallucination.

Education

THE UNIVERSITY OF EDINBURGH

Ph.D. Informatics — Expected Oct 2023

Institute for Language, Cognition, and Computation

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

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

- Researched a neuro-symbolic model for answering questions which is fully differentiable and explainable. The model leverages a Language Model and Differentiable Knowledge Graph to answer natural user questions using KG facts, which may be updated without model retraining.
- Published in ACL 2023: SustaiNLP workshop as *KGQA Without Retraining*. ↪ Paper Link

Product Manager, TapToBook (Startup) *Miami, USA* 2017 – 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 national brands including Planet Fitness, leading to profitability.

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

- Grew engagement by 13% on business review highlights by surfacing user-relevant information.

Engineering Intern, Yelp *San Francisco, USA* May – Aug 2015

- Developed a new tool for restaurant hosts to create guest reservations, reducing time spent on this task by 88% (for *Yelp Reservations* on iPad, an OpenTable competitor).

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

Preprints

ArXiv 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

Conference Papers

AACL 2023 **Nick McKenna**, Tianyi Li, Mark Johnson, and Mark Steedman. *Smoothing Entailment Graphs with Language Models*. In Preparation. **Nominated for Best Paper Award.** ↪ Preprint 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

SustaiNLP 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

"Getting into NLP Research" at NAACL	2021

Conference Referee

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

Huawei Ph.D. Scholarship Award	2019
Outstanding M.Sc. Dissertation: *Learning Negation Scope Semantics with Structure* ↪ Link	2019