

# Athiya Deviyani

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## RESEARCH INTERESTS

Trustworthy machine learning and natural language processing; societal and cultural impacts of recommender systems

## EDUCATION

**Carnegie Mellon University**, Pittsburgh, PA, United States August 2023 - May 2027 (*expected*)

*Ph.D. Language and Information Technologies, School of Computer Science*

- Advisor(s): Dr. Fernando Diaz

**Carnegie Mellon University**, Pittsburgh, PA, United States August 2021 - May 2023

*MS in Artificial Intelligence and Innovation, GPA: 4.02 ([transcript](#))*

- Advisor(s): Dr. Michael Shamos, Dr. Alan W. Black, Dr. Maarten Sap
- Relevant courses: Advanced Deep Learning (Ph.D.), Advanced NLP (Ph.D.), Deep Reinforcement Learning (Ph.D.), Multimodal Machine Learning (Ph.D.), Computational Ethics for NLP, Machine Learning with Large Datasets

**The University of Edinburgh**, Edinburgh, Scotland, United Kingdom September 2017 - May 2021

*BSc (Hons) in Artificial Intelligence and Computer Science, GPA: 4.00 (First Class Honors; [transcript](#))*

- Honors thesis: Assessing Dataset Bias in Computer Vision (received outstanding classification)
- Research advisor(s): Dr. Ajitha Rajan, Dr. Hakan Bilen, Dr. Steven R. Wilson

## PUBLICATIONS

**Men Have Feelings Too: Debiasing Sentiment Analyzers using Sequence GANs ([paper](#))**

Athiya Deviyani\*, Haris Widjaja\*, Mehak Malik\*, Daniel Hoskins\*

Accepted to the *AI for Social Good Workshop* at AAAI 2023 as an *oral presentation*

**Text Normalization for Speech Systems for All Languages ([paper](#), [oral presentation](#))**

Athiya Deviyani\*, Alan W. Black\*

Published in the *Speech for Social Good Workshop* at INTERSPEECH 2022

**Assessing Dataset Bias in Computer Vision ([paper](#))**

Athiya Deviyani\*

Published in *Outstanding Informatics Undergraduate Dissertations* at The University of Edinburgh 2021

## ACADEMIC RESEARCH EXPERIENCE

**Carnegie Mellon University**, Pittsburgh, PA, United States December 2021 - present

*Graduate Research Assistant*

- Conducted research under Dr. Alan W. Black to build a tool for generalizable text normalization for speech synthesis using Flite and a Python backend, published in the *Speech for Social Good workshop* at INTERSPEECH 2022
- Audited text-to-image diffusion models (DALLE2, StableDiffusion) for gender, race, and age-related social biases under Dr. Maarten Sap via controlled prompt generation and qualitative and quantitative analysis of generated images using a zero-shot classification method using CLIP; this work is part of a collaboration with AI2 to document the LAION-5B dataset used to train StableDiffusion

**SMASH Lab**, The University of Edinburgh, Edinburgh, United Kingdom June 2020 - March 2021

*Research Assistant*

- Worked with the Social Media Analysis and Support for Humanity (SMASH) research group under the supervision of Dr. Steven Wilson on a project using NLP tools (GenSim, FastText, SpaCy) and a variety of ML classification techniques to expand the LIWC psycholinguistic lexicons for improved coverage of online slang in social media using UrbanDictionary corpus

## PROFESSIONAL EXPERIENCE

**Apple**, Seattle, WA, United States May 2022 - August 2022

*Machine Learning Intern*

- Implemented and evaluated the benefits and drawbacks of data augmentation, parameter-efficient large language model (LLM) fine-tuning techniques such as LoRA, prefix-tuning, prompt-tuning, and SentenceBERT fine-tuning, for neural query deduplication for applications such as Siri search and web answers on the Query Resolution team at Siri and Information Intelligence

Apple, Seattle, WA, United States

May 2022 - August 2022

Machine Learning Intern

- Implemented and evaluated a GraphSAGE Graph Neural Network (GNN) with a recall-at-3 rate (R@3) of 0.147 using the Deep Graph Library (DGL) framework and PyTorch to suggest related questions for search applications
- Conducted experiments on the effect of implementing diversity penalties on the beam search algorithm used in a Hugging Face encoder-decoder Transformer architecture to the diversity of query suggestions and model perplexity

Goldman Sachs, London, United Kingdom

June 2021 - August 2021

Summer Analyst

- Designed and implemented a data processing pipeline for capital reporting and analysis

Google, London, United Kingdom

June 2020 - September 2020

Software Engineering Intern

- Implemented an algorithm that selects a user's most interesting visits within a specified timeframe for the Timeline feature on Google Maps

Google, Zurich, Switzerland

July 2019 - September 2019

Software Engineering Intern

- Worked on an end-to-end project with the YouTube Creator Commerce team to create Channel Shop Tab for creators

## HONORS and AWARDS

Class Prize for Artificial Intelligence and Computer Science (highest overall GPA) ([pdf](#)) 2021

Outstanding Informatics Undergraduate Thesis 2021

Best Health Hack at Big Red Hacks 2021, Cornell University 2021

1st place Transferwise challenge at HackCambridge4D 2019

2nd place overall and 3rd place Amazon AWS challenge at OxfordHack 2018

## TEACHING EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA, United States

August 2021 - present

Graduate Teaching Assistant

- Provided office hours, delivered lectures and recitations ([video](#)), and designed and graded assignments for the following graduate courses: 11-631 Data Science Seminar (Prof. Eric Nyberg), 11-737 Multilingual Natural Language Processing (Prof. Graham Neubig), 10-617 Intermediate Deep Learning (Prof. Ruslan Salakhutdinov), 11-830 Computational Ethics for NLP (Prof. Maarten Sap), 10-707 Advanced Deep Learning (Prof. Ruslan Salakhutdinov), 10-703 Deep Reinforcement Learning (Prof. Katerina Fragkiadaki)

The University of Edinburgh, Edinburgh, United Kingdom

September 2020 - June 2021

Teaching Assistant

- Lab demonstrator for Foundations of Data Science (INFR08030), Introductory Applied Machine Learning (INFR10069, INFR11152), and Cognitive Science (INFR08020) at the University of Edinburgh, and tutor and marker for Introductory Applied Machine Learning (INFR10069, INFR11152), Software Testing (INFR10057)

## NOTABLE RESEARCH PROJECTS

Understanding Causality through Conceptual Explanation Generation ([paper](#), [poster](#))

Athiya Deviyani\*, Mehak Malik\*, Prasoon Varshney\*

In preparation for submission to the *Association of Computational Linguistics Conference 2024*

Multimodal Emotion Recognition in Conversation ([paper](#), [poster](#))

Athiya Deviyani\*, Abuzar Khan\*, Njall Skarphedinsson\*, Prasoon Varshney\*

In preparation for submission to *International Conference on Machine Learning 2024*

## VOLUNTEERING and SERVICE

Grace Hopper Celebration representative from Carnegie Mellon SCS 2022

Machine Learning Instructor at Bangkit Academy 2020-2021

Data Science Instructor and Curriculum Organizer at Generation Girl 2020-2021

Python and Web Development Instructor at CodeFirstGirls 2020-2021

Co-director at Hack the Burgh ([link](#)) 2019-2020

## SKILLS and INTERESTS

**Technical** Python (Tensorflow, PyTorch), Java, Haskell, SQL, JavaScript, C++, Isabelle, MATLAB

**Languages** Indonesian, English, Malay, Mandarin

**Interests** Piano and Violin (ABRSM Grade 5), Singing, Dance, Guitar, Muay Thai, Kickboxing