ADAM NIK

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EDUCATION

Carleton College
Bachelor of Arts, Computer Science — September 2018-November 2022
3.75 GPA (4.0 scale), 3.77 Major GPA

Relevant Courses Taken

- CS321: Making Decisions with Artificial Intelligence
  - Grade Received: A
  - Notable Topics/Skills: Adversarial Game algorithms, Genetic algorithms, Reinforcement Learning
- CS322: Natural Language Processing
  - Grade Received: A
  - Notable Topics/Skills: Markov Decision Processes, Dialogue Systems/Chatbots, Word Vectors
- CS232: Art, Interactivity, & Robotics
  - Grade Received: A
  - Notable Topics/Skills: Arduino Programming, Circuit Boarding, Work with electronic components
- MATH232: Linear Algebra
  - Grade Received: A

PUBLICATIONS

Adam Nik, Ge Zhang, Xingran Chen, Mingyu Li, and Jie Fu. 2022. 1Cademy @ Causal News Corpus 2022: Leveraging self-training in causality classification of socio-political event data. In *Proceedings of the 5th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE 2022)*, Online. Association for Computational Linguistics

EMNLP 2022 | Paper

Xingran Chen, Ge Zhang, **Adam Nik**, Mingyu Li, and Jie Fu. 2022. 1Cademy @ Causal News Corpus 2022: Enhance causal span detection via Beam-Search-based position selector. In *Proceedings of the 5th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE 2022)*, Online. Association for Computational Linguistics.

EMNLP 2022 | Paper

PRESENTATIONS

Oral Presentations

- 1Cademy @ Causal News Corpus 2022: Enhance causal span detection via beam search-based position selector, presented at EMNLP 2022

Poster Presentations

- 1Cademy @ Causal News Corpus 2022: Leveraging self-training in causality classification of socio-political event data, presented at EMNLP 2022

  Poster

- 1Cademy @ Causal News Corpus 2022: Enhance causal span detection via beam search-based position selector, presented at EMNLP 2022, to be presented at EMNLP 2022

  Poster

CURRENT RESEARCH PROJECTS

Cross Task Description Generation September 2022-Present

Project explores ways to generate instructions for datasets with few input-output pairs. We formulate this new task as an NLG task. This can also be seen as a meta-learning task, where, instead of relying on updating the meta-model with meta-gradients (or other meta-level training signals), we train a meta-model to generate high-level instructions about a wide range of tasks.

Fine-grain Emotion Detection Survey September 2022-Present

Survey paper regarding state-of-the-art techniques, datasets, and benchmarks surrounding fine-grain emotion detection in NLP.

Bio-task Data Augmentation Benchmark August 2022-Present

The focus of this project is to use data from the Therapeutic Data Commons, which provides datasets and tasks for drug discovery and development, to create a benchmark on bio data augmentation techniques. The tasks pertaining to the project include implementing and creating the benchmark for established data augmentation techniques on molecular and protein sequence data, along with formulating original data augmentation techniques to further improve model evaluation.

RESEARCH EXPERIENCE

1Cademy, University of Michigan April 2022-Present
Junior Researcher and Leader of Computer Vision Community

- Research platform focused on doing work in various topics in Deep Learning and Natural Language Processing

NOTABLE SCHOOL PROJECTS

Senior Comps Project: Intelligent User Interface-Scenic Route Generation
Fall 2022-Winter 2022 | https://cs.carleton.edu/cs_comps/2122/iui/final-results/index.html

- Project focused on path generation algorithm for optimizing scenic value of landmarks along route
- Used a convolutional neural network to classify images along route queried from Flickr
- Worked with Postgres Database to store image & map information and output from CNN
- Completed all front-end development (HTML & CSS) for project

Snake Game AI with Reinforcement Learning, CS321
Fall 2022 | Code: https://github.com/adamnik/Snake-Game-AI
Demo: https://youtu.be/NDdxViC-zsg

- Built a self-learning computer agent that displays human levels of game performance within 50 iterations of the game
- Developed by implementing Approximate Q-Learning with Bellman Equation

Ping Pong LED Snake Game Board, CS232
Winter 2022 | Code: https://github.com/adamnik/Snake-Game-for-Arduino
Demo: https://youtube.com/shorts/xMD4Rlx15m0?feature=share

- Built an 8x8 LED board with ping pong balls as diffusers
- Coded a Snake game compatible with Arduino board
- Completed all soldering, wiring, and circuit board work necessary for project

Scheme Interpreter, CS251: Programming Languages
Spring 2021 | https://github.com/adamnik/Tic-tac-toe-w-Minimax

- Created an interpreter for Scheme language, written in C, as part of course final project

ACADEMIC HONORS, SCHOLARSHIPS, AND GRANTS

Charles & Ellora Alliss Educational Foundation Scholarship Sept. 2018-Nov. 2022

Carleton Grant and Scholarship Sept. 2018-Nov. 2022

Dr. A.E. and Ruth Simonson Scholarship Sept. 2020-Nov. 2022

Sam'75 & Meg Woodside Fund for Career Exploration Summer 2022

RELEVANT SKILLS

Machine Learning Libraries

- PyTorch
- Tensorflow
- HuggingFace Transformers
- NLTK
- spaCy
- NumPy
- Pandas
- OpenAI Gym

Languages

- Python
- C/C++
- Java
- HTML/CSS/JavaScript
- SQL
- Prolog
- RStudio

ATHLETIC CAREER AND AWARDS

Football

- 5-year letter winner (2018-2022)

Swimming*

- Team Captain for the 2021-2022 season
- All-MIAC Performer, 2022
- 4th all-time performer in 100 yard butterfly at Carleton, 9th all-time in 200 yard butterfly

Awards

- Mel Taube Award Recipient
  - The Mel Taube Memorial Award is given to a senior male athlete at Carleton College who has competed in at least two varsity-level sports, with emphasis on team sports in at least one. The athlete must have demonstrated exceptional loyalty, dedication, and achievement in varsity athletics.
- MIAC Academic All-Conference
  - 3x award winner in Football, 2019-2021
  - 1x award winner in Swimming, 2022

* Did not compete during 2019 & 2020 seasons due to injury, did not compete 2021 due to COVID-19