Taylor Sorensen

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EDUCATION

PhD Computer Science (In progress) — Apr 2027
University of Washington, advised by Yejin Choi — *Seattle, WA*

MS Computer Science; 4.00 (all but thesis, left to pursue PhD) — Aug 2022
Brigham Young University, advised by David Wingate — *Provo, UT*

BS Applied and Computational Mathematics, minor in Computer Science; 3.89 — Apr 2021
Brigham Young University — *Provo, UT*

GRE, 169 / 170 Quantitative (96th percentile), 165 / 170 Verbal (96th percentile)

EXPERIENCE

Xlab - Research Assistant — Sep 2022 - Present
- Researching common-sense reasoning, morality and AI, and NLP for social good.

Perception, Cognition, and Control Laboratory - Research Assistant — Apr 2020 - Sep 2022
- Using language models (GPT-3, T5), achieved human-level performance on difficult text tasks
- Explored effect of prompt engineering and finetuning on state of the art LMs
- Integrated modern ML techniques and mechanical engineering techniques for Soft Robotics manipulation
- Coordinated with other departments and universities to advance the technology of Soft Robotics
- Used Deep Learning/Reinforcement Learning to master difficult control environments

Enveda Biosciences - Data Science Intern — Aug 2022 - Sep 2022
- backtranslation

Double River Investments - Machine Learning Engineer — Jun 2020 - Aug 2021
- Developed novel models using state of the art Deep Learning techniques to inform trading algorithms
- Implemented and replicated results from research papers
- Validated models on historic, recent, and live trading data
- Created pipeline for production so model could be used in real time by multi-million dollar hedge fund

Gray Falkon - Deep Learning Consultant — Dec 2019 - Apr 2020
- Combined several state-of-the-art NLP techniques to tackle a language problem that saved thousands of man-hours
- Created a model that performed with 98% validation accuracy

Math Department, BYU - Competitive Coding Instructor — Jan 2020 - Apr 2020
- Developed and taught coursework from scratch
- Worked one-on-one to explain concepts and difficult algorithms

Computer Vision - Research Assistant — Feb 2019 - Dec 2019
- Worked on research projects to address Pose Correspondence (individually) and AI on the Edge (in group)
- Developed cutting edge algorithm to interpolate pose correspondence from video data

SELECT PUBLICATIONS

- **Sorensen**, Robinson, Rytting, Shaw, Rogers, Delorey, Khalil, Fulda, Wingate (2022) An Information Theoretic Approach to Prompt Engineering Without Ground Truth Labels. *Association for Computational Linguistics, 2022* https://aclanthology.org/2022.acl-long.60/

- Wingate, Shoeybi, **Sorensen** (2022) Prompt Compression and Contrastive Conditioning for Controllability and Toxicity Reduction in Language Models. *In review at EMNLP 2022.*

- Dhole, Gangal, ..., **Sorensen** (2021) NL-Augmenter: A Framework for Task-Sensitive Natural Language Augmentation https://arxiv.org/abs/2112.02721

- Johnson, Quackenbush, **Sorensen**, Wingate, and Killpack (2021) Using First Principles for Deep Learning and Model-Based Control of Soft Robots. *Front. Robot. AI* 8:654398. doi: 10.3389/frobt.2021.654398

Skills

Python, PyTorch, Huggingface, Numpy, Pandas, SQL, Unix/Bash, Git, LaTeX, Docker

Some proficiency in Tensorflow, Julia, Java, C++, data scraping, and web development

Relevant Projects

Solve Reinforcement Learning Environments: Used several DL/ML techniques to solve complex control environments from OpenAI's gym, including implementing Proximal Policy Optimization (PPO) from scratch

Deepfake Detector Facebook Competition: Implemented 3D-CNN and CNN/LSTM from scratch to classify video data as real or synthetic, achieving 83% validation accuracy *(link Kaggle competition)*

Video Pose Correspondence: Developed novel active learning approach for data augmentation to address the Pose Correspondence problem, including creating a website for data annotation to interact with SQL database and Amazon Mechanical Turk *← put this in your research bullets*

App Game Development: Indepemendently programmed and released a game on the App Store for iPhone called Flux Ball (10,000+ downloads) *Spelled wrong*