DAVID HEINEMAN

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EDUCATION

Georgia Institute of Technology   Expected Winter 2023
B.S. in Computer Science
GPA: *3.91,* **Department GPA:** *4.0,* Faculty Honors
Coursework: Low-level Computer Architecture, Information Security, Machine Learning, Database Implementation
Teaching Assistant for CS 3510 (Design & Analysis of Algorithms, Fall 2021 & 2022)

EXPERIENCE

Software Engineering Intern | Amazon Web Services   Summer 2022
- Developed a new feature for CloudWatch Application Insights to monitor processes running on EC2 instances
- Worked with EC2 Windows experts to identify breakpoints for customers' Microsoft SQL and .NET workloads, predict these common errors and display knowledgeable insights to reduce problem resolution time
- Onboarded existing AWS customers like Koch Industries, Moody's to monitor processes on critical Windows workloads
- **Tools:** *Java, TypeScript, React.js, Kubernetes, PowerShell, Step Functions, Lambda, EC2, DynamoDB, internal tools*

Research Assistant | Georgia Tech Natural Language Processing Lab   2021 - Present
- Leading team as first author on ongoing work for submission to **ACL 2023**, developed a human evaluation scheme for comparing and interpreting the efficacy of text simplificaiton models, helped develop new trained metrics and decoding methods
- Developed server and API for researchers to perform state-of-the-art hashtag segmentation without any setup
- Implemented efficient lookup algorithms for large n-gram datasets using KenLM allowing for real-time model inference
- **Tools:** *Flask, ProstgreSQL, PyTorch, Python, JavaScript, AWS Sagemaker, Chrome Developer Tools*

Software Engineering Intern | Patientco   Summer 2021
- Developed new approaches for predicting the likelihood of bill payments, achieved a higher performace compared to equivalent competitors' models
- Used AWS Sagemaker to productionalize models to re-train and label *500,000* unique bills daily (*5%* of U.S. healthcare bills)
- Prototyped a novel approach for predicting anomolies in insurance billing through modifying sequence algorithms to decrease errors in insurance adjudication for patient bills
- **Tools:** *Tensorflow, Keras, Python, AWS Sagemaker, Horvorod, Docker, SQL, Apache Airflow*

Independent Researcher | Lassiter AP Research Cohort   2019 - 2020
- Independently performed a meta-analysis on long-form text evaluation research, and implemented 12 novel essay grading models to measure their performace on a standarized dataset
- Deployed a web app through AWS allowing users to write, have esssays graded, and compare performance between models
- Publically avaliable at davidheineman.com/comparison-aes.pdf
- **Tools:** *PyTorch, Scikit-learn, Python, Django, TensorFlow*

PUBLICATIONS

LENS: A Learnable Evaluation Metric for Text Simplification

Mounica Maddela, Yao Dou, **David Heineman**, Wei Xu
preprint, arxiv.org/abs/2212.09739

PROJECTS

Hashtag Segmentation API
- Developed a Flask server to allow real-time batch hashtag segmentation
- Created front-end website to explain & demonstrate hashtag segmentation
- **Tools:** *JavaScript, Flask, Tensorflow, Python*

Face Alignment Tool
- Personal project, uses Python's PIL, OpenCV and open-source face recognition libraries to center a person's face in the middle of a frame and generate a timelapse of the person aging

AWARDS

- President's Undergraduate Research Award (PURA Research Grant)
- Top UserStyles.com Contributor (20,000 Installs)
- Eagle Scout

SKILLS

Languages: Python • C++ • TypeScript • JavaScript • C • Git • SQL • Java

Tools: Kubernetes • PyTorch • React • PostgreSQL • Pandas • NumPy • Horvorod • Flask • TensorFlow • Keras • Apache Airflow • Vue.js • Tailwind • AWS • Microsoft SQL • .NET • Ansible