

# DAVID HEINEMAN

davidheineman.com  
dheineman3@gatech.edu  
linkedin.com/in/david-heineman

## 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 simplification 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, PostgreSQL, 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 performance 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 anomalies 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 performance on a standardized dataset
- Deployed a web app through AWS allowing users to write, have essays graded, and compare performance between models
- Publically available at [davidheineman.com/comparison-aes.pdf](https://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](https://arxiv.org/abs/2212.09739)

## PUBLICATIONS

### 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