Kyle Seelman

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(571) 969-8729

EDUCATION

University of Maryland, College Park, MD — Aug. 2020 - Present
Ph.D. Candidate, Computer Science
Advisor: Jordan Boyd-Graber and Hal Daumé III
Expected Graduation: June 2025

Clemson University, Clemson, SC
B.S. Applied and Computational Mathematical Sciences — Aug. 2016 - Dec. 2019
Magna Cum Laude
Undergraduate thesis: Multilevel Support Vector Machines

RESEARCH EXPERIENCE

University of Maryland CLIP Lab
Research Advisor: Jordan Boyd-Graber and Hal Daumé III — Jan. 2022 - Present
- Fine-tuning, prompt engineering, and training of large language models (LLMs)
- Interactive and human-in-the-loop neural topic modeling
- Bilingual language modeling
- Multi-modal model training and fine-tuning
- Visual question answering for accessibility

University of Maryland CML Lab
Research Advisor: Soheil Feizi — Aug. 2020 - Jan. 2022
- Adversarial meta-learning

WORK EXPERIENCE

Consulting — 2022-Present
AI Consultant
- Built and fine-tuned personalized generative AI agents for daily use, leveraging user questionnaires to tailor model behavior and outputs
- Built end-to-end generative AI pipelines for governmental partners, transitioning from interactive topic modeling to RAG-based knowledge extraction systems

Applied Research Laboratory for Intelligence and Security
Researcher — Aug. 2023 - Dec. 2024
- Developed methods for predicting psychological dispositions from text using LLMs, combining prompt-based approaches with fine-tuning via LoRA and reinforcement learning from human feedback (RLHF).

Lawrence Berkeley National Lab, Berkeley, CA
SULI Researcher — Jan. 2020 - May 2020
- Automated classification for scanning transmission electron microscopy

Amazon Web Services, Seattle, WA — May 2019 - Aug. 2019
Software Development Engineer Intern

Amazon Web Services, Herndon, VA — May 2018 - Aug. 2018
System Development Engineer Intern

PUBLICATIONS

Archivist: Incorporating the World Knowledge of Neural Language Models into Topic Models as a Bayesian Prior
Kyle Seelman, Jordan Boyd-Graber
Submitted EMNLP 2025

From Text to Traits: Zero-shot Personality Facet Prediction with Open-source Language Models
Kyle Seelman, Anton Rytting, Triet Lee, Jordan Boyd-Graber
Submitted CoNLL 2025

Labeled Interactive Neural Topic Models: No Longer Take It or Leave It
Kyle Seelman, Mozhi Zhang, Jordan Boyd-Graber
Submitted ACL 2025

Decoding Digital Discourse: An Observational Study using Multimodal Text and Image Machine Learning Models to Classify Sentiment, Hate, and Anti-Hate
Thu T. Nguyen, Xiaohe Yue, Heran Mane, **Kyle Seelman**, Penchala Sai Priya Mullaputi, Elizabeth Dennard, Amrutha Alibilli, Junaid S. Merchant, Shaniece Criss, Yulin Hswen, Quynh C. Nguyen
JIMR 2025

What's Different between Visual Question Answering for Machine "Understanding" Versus for Accessibility?
Yang Trista Cao*, **Kyle Seelman***, Kyungjun Lee*, Hal Daumé III
Best Theme Paper Award, AACL-IJCNLP 2022

Towards Automated Classification of Complex 4D-STEM Datasets.
B. Savitzky, S. Zeltmann, L. Hughes, **K. Seelman**, M. Janish, M. Schneider, C. Gopal, P. Herring, A. Minor, C. Ophus.
Microscopy and Microanalysis 2020 Proceedings

Second order time discretization for a coupled quasi-Newtonian fluid-poroelastic system
H. Lee, H. Kunwat, and **K. Seelman.**
International Journal for Numerical Methods in Fluids. 2020.

TEACHING EXPERIENCE

TA, CMSC828U: Algorithms in Machine Learning Guarantees and Analyses
TA, CMSC828W: Foundations of Deep Learning
TA, CMSSC723: Computational Linguistics

AWARDS AND HONORS

John Charles Harden Award- Top undergraduate junior in mathematical sciences
President's List- Five consecutive semesters of receiving a 4.0 GPA
Phi Beta Kappa- Top 5% of class

TECHNICAL SKILLS

Languages: Python, R, Java, C++, SQL, Ruby
Frameworks: PyTorch, HuggingFace, LangChain, Tensorflow
ML Skills LLM fine-tuning, Prompt engineering, Topic modeling, Machine Translation, Retrieval-Augmented Generation (RAG)
Web Tools: HTML, CSS, Flask

GRADUATE COURSES

• Ethical Machine Learning • Applied Mechanism Design for Social Good • Foundations of Deep Learning • Visual Learning and Recognition • Computational Geometry • Machine Learning • Scientific Computing • Advanced Numerical Optimization • Linear Models