

David Oniani

Curriculum Vitae

+1 (646) 565 1224
✉ onianidavid@gmail.com
🌐 oniani.org
👤 oniani

Education

2017 – 2021 **BA, Computer Science, Mathematics**, *Luther College*, Decorah, IA
Aug May

Experience

- 2024 – Now **Applied Scientist II**, *Amazon Ads Science, Amazon*, Arlington, VA
Jun
○ Member of the Special Projects Group within *Amazon Ads Science (Amazon Science)*
○ Supervisor: Dr. Suju Rajan
- 2023 – Now **Research Collaborator**, *HealthUnity*, Palo Alto, CA
Apr
○ Advisors: Prof. Yanshan Wang, Prof. Ramesh Jain, and Dr. Jia Li
- 2023 – 2024 **Associate Director, PittNAIL Lab**, *University of Pittsburgh*, Pittsburgh, PA
Oct May
○ Principal Investigator: Prof. Yanshan Wang
- 2022 – 2024 **Machine Learning Research Scientist**, *University of Pittsburgh*, Pittsburgh, PA
Feb May
○ Principal Investigator: Prof. Yanshan Wang
- 2021 – 2022 **Research Engineer**, *DawnLight*, Palo Alto, CA
Jun Jan
○ Supervisors: Dr. Nathan Liu and Dr. Prakash S. R.
- 2021 – 2021 **Machine Learning Intern**, *DawnLight*, Palo Alto, CA
Apr May
○ Supervisor: Dr. Nathan Liu
- 2020 – 2020 **Research Intern**, *Mayo Clinic*, Rochester, MN
Feb Sept
○ Mentors: Prof. Feichen Shen and Prof. Yanshan Wang
- 2018 – 2019 **Undergraduate Researcher**, *Luther College*, Decorah, IA
May Sept
○ Research in programming languages and type theory with Prof. Alan K. Zaring (Fall 2019)
○ Research in machine learning and persuasion with Prof. Richard K. Merritt (Summer 2019)
○ Research in teaching and unit testing with Prof. Roman Yasinovskyy (Summer 2018)

Teaching

- 2022 – Now **Guest Lecturer**, *University of Pittsburgh*, Pittsburgh, PA
Feb
○ Guest lectures on applied statistics and programming languages (HI 2020, HI 2021)
○ Guest lectures on NLP and its applications in healthcare (HI 2250, HI 2453)
- 2018 – 2021 **Teaching Assistant**, *Luther College*, Decorah, IA
Aug Jan
○ TA for CS260 – Computational Models (Fall 2020)
○ TA for CS252 – Object-Oriented Programming With Java (Fall 2019)
○ TA for CS150 – Introduction to Computer Science (Fall 2018)

Service

- 2023 **Invited Co-Author**, *IMIA Yearbook 2023* *Chapter on LLMs for EHRs*
- 2023 **Program Committee Member**, *EBAIC 2023* *IEEE ICHI 2023 Workshop*
- 2023 **Reviewer**, *Journal of Healthcare Informatics Research*
- 2022 – Now **Educational Content Creator**, *YouTube*
- 2022 **Secondary Reviewer**, *LREC 2022*
- 2022 **Reviewer**, *Artificial Intelligence in Medicine (AAIM)*
- 2022 **Reviewer**, *IEEE ICHI 2022*
- 2022 **Reviewer**, *Big Data*

Publications

- [1] **David Oniani** and Amjad Jbara. "Generative LLMs for Query-Product Relevance: Findings and Observations". In: *AMLC Workshop on Gen AI, Personalization Algorithms and Recommender Systems*. 2024.
- [2] **David Oniani***, Jordan Hilsman*, Chengxi Zang, Junmei Wang, et al. "Emerging Opportunities of Using Large Language Models for Translation Between Drug Molecules and Indications". In: *Scientific Reports* (2024). URL: <https://www.nature.com/articles/s41598-024-61124-0>.
- [3] Mahyar Abbasian, Elahe Khatibi, Iman Azimi, **David Oniani**, et al. "Foundation Metrics: Quantifying Effectiveness of Healthcare Conversations powered by Generative AI". In: *npj Digital Medicine* (2024). URL: <https://www.nature.com/articles/s41746-024-01074-z>.
- [4] **David Oniani***, Xizhi Wu*, Shyam Visweswaran, Sumit Kapoor, et al. "Enhancing Large Language Models for Clinical Decision Support by Incorporating Clinical Practice Guidelines". In: *IEEE ICHI 2024 Workshop: Human-Centred XAI: Enhancing AI Acceptability for Healthcare*. 2024. URL: [10.1109/ICHI61247.2024.00111](https://doi.org/10.1109/ICHI61247.2024.00111).
- [5] Yanshan Wang, Xizhi Wu, Luke Carlson, and **David Oniani**. "Generative AI enhanced with NCCN clinical practice guidelines for clinical decision support: A case study on bone cancer". In: *2024 ASCO Annual Meeting*. 2024. DOI: [10.1200/JCO.2024.42.16_suppl.e13623](https://doi.org/10.1200/JCO.2024.42.16_suppl.e13623).
- [6] Sonish Sivarajkumar, Thomas Yu CHow Tam, Haneef Ahamed Mohammad, Samuel Viggiano, **David Oniani**, Shyam Visweswaran, et al. "Extraction of Sleep Information from Clinical Notes of Alzheimer's Disease Patients Using Natural Language Processing". In: *JAMIA* (2024). DOI: [10.1093/jamia/ocae177](https://doi.org/10.1093/jamia/ocae177).
- [7] Daniel R. Harris, Sunyang Fu, Andrew Wen, Alexandria Corbeau, Darren Henderson, Jordan Hilsman, **David Oniani**, and Yanshan Wang. "The ENACT Network is Acting on Housing Instability and the Unhoused". In: *Journal of Clinical and Translational Science (JCTS)* (2024). DOI: [10.1017/cts.2024.543](https://doi.org/10.1017/cts.2024.543).
- [8] Sonish Sivarajkumar, Haneef Ahamed Mohammad, **David Oniani**, Kirk Roberts, et al. "Clinical Information Retrieval: A scoping review". In: *Journal of Healthcare Informatics Research* (2024). DOI: [10.1007/s41666-024-00159-4](https://doi.org/10.1007/s41666-024-00159-4).
- [9] **David Oniani**, Jordan Hilsman, Yifan Peng, Ronald K. Poropatich, et al. "Adopting and expanding ethical principles for generative artificial intelligence from military to healthcare". In: *npj Digital Medicine* (2023). URL: <https://www.nature.com/articles/s41746-023-00965-x>.
- [10] **David Oniani**, Premkumar Chandrasekar, Sonish Sivarajkumar, and Yanshan Wang. "Few-Shot Learning for Clinical Natural Language Processing Using Siamese Neural Networks: Algorithm Development and Validation Study". In: *JMIR AI* (2023). DOI: [10.2196/44293](https://doi.org/10.2196/44293).
- [11] **David Oniani**, Sreekanth Sreekumar, Renuk DeAlmeida, Dinuk DeAlmeida, et al. "Toward Improving Health Literacy in Patient Education Materials with Neural Machine Translation Models". In: *AMIA Jt Summits Transl Sci Proc*. PMID: [37350905](https://pubmed.ncbi.nlm.nih.gov/37350905/). 2023.
- [12] **David Oniani**, Bambang Parmanto, Andi Saptono, Allyn Bove, et al. "ReDWINE: A Clinical Datamart with Text Analytical Capabilities to Facilitate Rehabilitation Research". In: *International Journal of Medical Informatics* (2023). DOI: [10.1016/j.ijmedinf.2023.105144](https://doi.org/10.1016/j.ijmedinf.2023.105144).
- [13] Anusha Bompelli, Yanshan Wang, Ruyuan Wan, Esha Singh, Yuqi Zhou, Lin Xu, **David Oniani**, et al. "Social and Behavioral Determinants of Health in the Era of Artificial Intelligence with Electronic Health Records: A Scoping Review". In: *Health Data Science* (2021). DOI: [10.34133/2021/9759016](https://doi.org/10.34133/2021/9759016).
- [14] **David Oniani** and Yanshan Wang. "A Qualitative Evaluation of Language Models on Automatic Question-Answering for COVID-19". In: *Proceedings of the 11th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics (ACM-BCB)*. 2020. DOI: [10.1145/3388440.3412413](https://doi.org/10.1145/3388440.3412413).
- [15] **David Oniani**, Guoqian Jiang, Hongfang Liu, and Feichen Shen. "Constructing co-occurrence network embeddings to assist association extraction for COVID-19 and other coronavirus infectious diseases". In: *Journal of the American Medical Informatics Association (JAMIA)* (2020). DOI: [10.1093/jamia/ocaa117](https://doi.org/10.1093/jamia/ocaa117).
- [16] Roman Yasinovskyy, Karina Hoff, and **David Oniani**. "Setting Up Python Development Environment for Use in a Small Classroom". In: *Midwest Instruction and Computing Symposium*. 2020. URL: https://www.micsymposium.org/mics_2020_Proceedings/MICS2020_paper_61.pdf.

Manuscripts Under Review

- [17] **David Oniani** and Yanshan Wang. *In-Context Learning Functions with Varying Number of Minima*. Under Review at IEEE Transactions on Neural Networks and Learning Systems. Preprint at <https://arxiv.org/abs/2311.12538>.
- [18] **David Oniani**, Jordan Hilsman, Hang Dong, Fengyi Gao, et al. *Large Language Models Vote: Prompting for Rare Disease Identification*. Under Review. Preprint at <https://arxiv.org/abs/2308.12890>.

Manuscripts in Preparation

- [19] Xizhi Wu*, **David Oniani***, Zejia Shao, Sonish Sivarajkumar, et al. *Artificial Intelligence for Precision Nutrition: A Literature Review*. In Preparation.
- [20] Jordan Hilsman*, **David Oniani***, and Yanshan Wang. *Topic: ML System for Patient Recommendations*. In Preparation.
- [21] Jordan Hilsman, Thomas Tam, Sonish Sivarajkumar, **David Oniani**, et al. *Topic: Custom LLM*. In Preparation.

Honors and Awards

- 2024 Inducted as a Full Member into [Sigma Xi Scientific Research Honor Society](#)
- 2023 Green Card Approval for [Exceptional Ability \(NIW\)](#), USCIS
- 2020 Inductee, [Pi Mu Epsilon](#) Honorary National Mathematics Society
- 2017 – 2020 Dean’s List Recipient, [Luther College](#)
- 2018 – 2019 Recipient of Two Dean’s Office Summer Research Awards, [Luther College](#)
- 2017 – 2021 Founders Scholarship, [Luther College](#)
- 2017 – 2021 Recipient of Multiple Highly Competitive Scholarships, [Luther College](#)
- 2016 Gold Medal for Academic Excellence, [Ministry of Education and Science of Georgia](#)
- 2011 – 2016 Four-Time Finalist (\approx TOP 20 – 30), [National Mathematics Olympiad of Georgia](#)
- 2014 7th Place (TOP 10), [National Mathematics Olympiad of Georgia](#)
- 2014 IMO Candidate for National Team, [Ministry of Education and Science of Georgia](#)
- 2014 IPhO Candidate for National Team, [Ministry of Education and Science of Georgia](#)
- 2014 Winner, Second Stage, [National Mathematics Olympiad of Georgia](#)

Technical Skills

- Languages Python, Rust, Shell Script, C++, C, SQL, Lua, Haskell, R, JavaScript, \LaTeX
- Tools Linux, Neovim, Git, Docker, Flask, Zola, Google Cloud Platform (GCP)
- Libraries PyTorch, Transformers, NumPy, Matplotlib, pandas, scikit-learn

Natural Languages

- English Native Proficiency
- Georgian Native Proficiency
- Russian Native Proficiency
- Mingrelian Native Proficiency *Mingrelian is a [Kartvelian \(Colchian\)](#) language of Western Georgia*

Professional Memberships

- 2022 – Now **Member**, [Association for Computing Machinery \(ACM\)](#)