LEVI KASTER

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EDUCATION

Washington University School of Medicine in St. Louis — **St. Louis, MO**
PhD in Biomedical Informatics and Data Science — *August 2024 - Present*

- **Cumulative GPA:** 4.00/4.00
- **Advisors:** Philip R. O. Payne and Aditi Gupta

Washington University in St. Louis - McKelvey School of Engineering — **St. Louis, MO**
Bachelor of Science in Data Science — *August 2020 - December 2023*

- **Cumulative GPA:** 4.00/4.00 **| Valedictorian | Engineering Class Rank:** 1/452

JOURNAL MANUSCRIPTS

Published/Accepted/Pre-Prints

Morris, S.M.*. **Kaster, L.***, Amagai, S., Raski, C.R., Regan-Fendt, R., et al. Harmonizing Multi-Institutional Clinical Documentation Using Natural Language Processing in Neurofibromatosis Type 1 (NF1). Neurology® Clinical Practice (2026). *Accepted with Pending Publication*
** Shared first-authorship*

Edmunds, M., Gupta, A., Oh, I., **Kaster, L.**, et al. Multi-modal pediatric critical care datamart for extracorporeal support prediction and decision support. JAMIA open 9, 1 (2026). https://doi.org/10.1093/jamiaopen/ooag011

Granadillo, J.L.*, **Kaster, L.***, Grewal, D., Schreiber, A., Abbacchi, A.M., Lanzotti, V. et al. Neurobehavioral Profiles and Clinical Consequences of MYT1L-Related Neurodevelopmental Disorder: Insights from the Brain Gene Registry. medRxiv, 2025-12. (2025). https://doi.org/10.64898/2025.12.01.25340510
** Shared first-authorship*

Kaster, L.*, Hillis, E.*, Oh, I.Y. et al. Comparison of Rule- and Large Language Model-based Phenotype Extraction from Clinical Notes for Neurofibromatosis type 1 (NF1). Journal of The American Medical Informatics Association (2025). https://doi.org/10.1093/jamia/ocaf155
** Shared first-authorship*

Kaster, L., Hillis, E., Oh, I.Y. et al. Automated extraction of functional biomarkers of verbal and ambulatory ability from multi-institutional clinical notes using large language models. J Neurodevelop Disord 17, 24 (2025). https://doi.org/10.1186/s11689-025-09612-w

Zhang, H., Xu, T., Cao, D. et al including **Kaster, L**. OmniCellTOSG: The First Cell Text-Omic Signaling Graphs Dataset for Joint LLM and GNN Modeling. arXiv preprint arXiv:2504.02148 (2025). https://doi.org/10.48550/arXiv.2504.02148

Baldridge, D.*, **Kaster, L.***, Sancimino, C. et al. The Brain Gene Registry: a data snapshot. J Neurodevelop Disord 16, 17 (2024). https://doi.org/10.1186/s11689-024-09530-3
** Shared first-authorship*

Under Review

Kaster, L., Lewis, A.E., Gupta, A., Payne, P.R.O. Large Language Models for Multimodal Clinical Predictive Modeling: A Systematic Review. (2026). Under review at NPJ Digital Medicine.

POSTERS/ORAL PRESENTATIONS

Oral Presentations

Levi Kaster, Ethan Hillis, Inez Oh, Stephanie M. Morris, David H. Gutmann, et al. (2026) Multimodal Early Warning Prediction of Optic Pathway Glioma in NF1 Utilizing Large Language Models (LLMs). Platform Presentation at the Children's Tumor Foundation NF Conference 2026; June 2026, Denver, CO

Levi Kaster, Inez Oh, Casey Vickstrom, Virginia Lanzotti, Philip Payne, Christina Gurnett, Aditi Gupta (2024). Utilizing Large-Language Models to Extract Patient Verbal and Ambulatory Status from Multi-Institutional and Multi-Specialty Clinical Notes. Platform Presentation at 2024 Child Neurology Society Conference; November 2024, San Diego, CA

Levi Kaster, Rui Mu, Ethan Hillis, Inez Oh, Stephanie M. Morris, David H. Gutmann, Randi E. Foraker, Philip R. O. Payne, Aditi Gupta. (2023). A Text-Mining Model for Extracting Phenotypes from NF1 Clinical Notes. Lightning talk at I2DB Symposium; April 2024, St. Louis, MO

Levi Kaster, Rui Mu, Ethan Hillis, Inez Oh, Stephanie M. Morris, David H. Gutmann, Randi E. Foraker, Philip R. O. Payne, Aditi Gupta. (2023). A Text-Mining Model for Extracting Phenotypes from NF1 Clinical Notes. Midstates Consortium for Math and Science Undergraduate Research Symposium; November 2023, St. Louis, MO

Posters

Levi Kaster, Ethan Hillis, Inez Oh, Stephanie M. Morris, David H. Gutmann, et al. (2026). Multimodal Early Warning Prediction of Optic Pathway Glioma in NF1 Utilizing Large Language Models (LLMs). Poster to be presented at the the 2026 AMIA Annual Symposium; November 2026; Dallas, TX

Naeimeh Tayebi, Virginia Lanzotti, Judith Weisenberg, et al including **Levi Kaster**. (2026). The Brain Gene Registry as a Powerful Tool for Rare Genetic Epilepsy Research. Presented at the NIH The Curing the Epilepsies 2026: New Horizons Conference; June 2026; Bethesda, MD

Levi Kaster, Aditi Gupta, Philip R.O. Payne, Andrew P. Michelson. (2025). Comparing Prompting Methods for Entity Extraction from Clinical Notes with RAG and Divide-and-Conquer Novel Methods Development. Presented at the American Medical Informatics Association (AMIA) 2025 Annual Symposium; November 2025; Atlanta, GA

Levi Kaster, Ethan Hillis, Inez Oh, et al. (2024). Identifying NF1 Phenotypes from Unstructured Clinical Notes Using a Text-Mining Based Phenotype Extraction Model. Presented at the American Medical Informatics Association (AMIA) 2024 Informatics Summit; March 2024; Boston, MA

Levi Kaster, Inez Oh, Zachary Abrams, Phillip R. O. Payne, et al. (2023). A De-Identification Algorithm to Automatically Identify and Remove PHI from Structured Multi-Scale Data from the Brain Gene Registry. Presented at the American Medical Informatics Association (AMIA) 2023 Informatics Summit; March 2023; Seattle, WA

Levi Kaster, Rui Mu, Ethan Hillis, Inez Oh, Stephanie M. Morris, David H. Gutmann, Randi E. Foraker, Philip R. O. Payne, Aditi Gupta. (2023). A Text-Mining Model for Extracting Phenotypes from NF1 Clinical Notes. Washington University Fall 2023 Undergraduate Research Symposium; October 2023; St. Louis, MO

Virginia Lanzotti, et al including **Levi Kaster**. (2023) The Brain Gene Registry: An ongoing, collaborative resource of the Intellectual and Developmental Disabilities Research Centers (IDDRC). Presented by Virginia Lanzotti at 2023 American Society of Human Genetics Annual Meeting; November 2023; Washington D.C.

Maya Chopra, Virginia Lanzotti, Inez Oh, Aditi Gupta, **Levi Kaster**, et al. (2023) Clinical Variants for Brain Gene Curation: A Powerful and Under-Utilized Resource. Presented at 2023 Gatlinburg Conference; April 2023; Kansas City, MO

SYSTEM DEMONSTRATIONS / WORKSHOPS

Aditi Gupta, Inez Y. Oh, Marcelo Lopetegui, Sebastián Gutiérrez, Ian Lackey, **Levi Kaster**, et al. (2026) Privacy-Preserving Data Commons for Enhanced Collaborative Informatics. System Demonstration of CIELO to be presented at the the 2026 AMIA Annual Symposium; November 2026; Dallas, TX

RESEARCH HONORS

Third Place Prize at the 2026 (CAIDF) Hackathon *Chicago, IL; 2026*

- Awarded $5,000 Prize
- Created LLM-enabled dashboard providing a concise summary and timeline of NICU patient stays.

Top Prize in Predictive Analytics at the 2025 (CAIDF) Hackathon *Chicago, IL; 2025*

- Awarded $5,000 Prize
- Developed multi-institutional 30-day fall readmission risk models that incorporated LLM-extracted phenotypes from clinical notes
- Displayed re-admission risk though an interactive dashboard that incorporated patient level LLM-generated summaries, model determined re-admission risk, and the top risk factors.

3rd Place Prize in Risk Prediction Datathon at I2DB Annual Symposium *St. Louis, MO; 2025*

- Awarded Small Monetary Prize ($200)

Award for Best Computer Science Research Paper (Out of >500 students in Technical Writing) *2023*

- "Is your Health Information Safe? A Review of Current De-identification Protocols"

EXPERIENCE

Rezilient Health **St. Louis, MO**
Data Science / AI Intern *May 2026 - August 2026*

Biomedical Informatics & Data Science PhD Program in Division of Biology and Biomedical Sciences
Graduate Student Researcher *August 2024 - Present*

Institute for Informatics, Data Science and Biostatistics at Washington University School of Medicine
Bioinformatics Research Assistant (Full Time) *January 2024 - August 2024*
Research Assistant (Part-Time) *August 2022 - December 2023*
BIDS@I2DB Summer Research Internship *May 2022 - August 2022*

Hengen Lab at Washington University in St. Louis **St. Louis, MO**
Research Assistant *Sept. 2021 - May. 2022*

Subaru of Indiana **Lafayette, IN**
Data Analyst Intern *June 2021 - Aug. 2021*

TEACHING EXPERIENCE

Teaching Assistantships

Washington University School of Medicine in St. Louis

BMI 5201 Biomedical Data Science I — Fall 2025

Bridge2AI - Voice Summer School

Artificial Intelligence and Machine Learning from Voice Data Class — Summer 2024

Washington University in St. Louis - McKelvey School of Engineering

CSE 314 Data Manipulation and Management — Spring 2023, Fall 2023

CSE 240 Logic and Discrete Mathematics — Spring 2022, Fall 2022

SERVICE

Reviewing

- Journal of the American Medical Informatics Association (JAMIA)
- JAMIA Open
- AMIA Annual Symposium (2026)
- AMIA Amplifying Informatics Conference (2026)

ACADEMIC HONORS & SCHOLARSHIPS

- McKelvey School of Engineering Valedictorian — *2024*
- Dean's List Every Semester — *2020 - 2023*
- McKelvey Engineering Professional Development Stipend Award ($750) — *2023*
- Antoinette Frances Dames Engineering Award — *2022*
- Steven R. and Susan A. Lowy Scholarship — *2021*
- Forum Credit Union Scholarship — *2020*
- Robert J. Denari Science Scholarship — *2020*

TECHNICAL SKILLS

Technical Skills: Python, R, SQL

Softwares/Tools: PyTorch, Transformers, Langchain, Ollama, Secure LLM API Usage, LSF job scheduler, Azure/Databricks, Snowflake, Github, R-Markdown

Activities: Biomedical Informatics and Data Science Student Representative, Organizer for Genetics Student Run Seminar, Community Coordinator for Ultimate Frisbee Club, Member of Powerlifting Club, Varsity College Football (1 year)

REFERENCES AVAILABLE UPON REQUEST