

# 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/Pre-Prints*

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 Neurodevelopmental 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>

Baldrige, D.\*, **Kaster, L.\***, Sancimino, C. et al. The Brain Gene Registry: a data snapshot. *J Neurodevelopmental Disord* 16, 17 (2024). <https://doi.org/10.1186/s11689-024-09530-3>

\* *Shared first-authorship*

## POSTERS/ORAL PRESENTATIONS

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### *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 to be presented at 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**, et al. (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**, 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 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

## RESEARCH HONORS

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Top Prize in Predictive Analytics at the [\(CAIDF\) 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 through 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)
- Provide a greater description

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

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**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**

*Research Assistant*

**St. Louis, MO**

*Sept. 2021 - May. 2022*

**Subaru of Indiana**

*Data Analyst Intern*

**Lafayette, IN**

*June 2021 - Aug. 2021*

## TEACHING EXPERIENCE

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**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

## **ACADEMIC HONORS & SCHOLARSHIPS**

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- 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**

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**Technical Skills:** Python, R, SQL

**Softwares/Tools:** PyTorch, Transformers, Langchain, Ollama, OpenAI API, LSF job scheduler, Azure/Databricks Environment, AWS, Github, R-Markdown

**Activities:** 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**