The Ohio State University Department of Biomedical Informatics Summer Internship Program

About the Program

The Department of Biomedical Informatics hosts an annual in-person internship program each summer, which provides opportunities for current undergraduate and graduate students to pursue research projects in the field of biomedical informatics under the guidance of research and operational staff and renowned faculty mentors. Participants learn useful tools and technologies used in biomedical and clinical research and attend weekly seminars to learn more about the various fields and interdisciplinary interactions biomedical informatics facilitates. Interns also gain experience in scientific presentation through regular lab and programmatic presentation opportunities, including an end-of-program poster session.

Many students who have participated in this program have gone on to pursue doctoral degrees in biomedicine, biomedical informatics, computer science, and electrical engineering, or to complete degrees in data, medicine, or the health sciences.

All student internship positions in the Department of Biomedical Informatics are paid, with the hourly wage depending on student experience levels. In some cases, students may have the opportunity to continue employment in the lab into the academic year.

This year the program will run from May 19, 2025 to August 8, 2025.

- Interns are expected to work in-person but will be able to work remotely on Fridays.
- There are weekly program sessions in which all interns are expected to attend and participate, prioritizing this time as a cohort.

- All interns will prepare a research poster and present their findings during a poster session in the last week of the internship.
- All interns will be able to work up to 38 hours a week, this includes times at the weekly program sessions. Interns may work less than 38 hours if they are registered for courses at OSU (28 hours/week limit) or choose to work fewer hours due to other commitments.
- *Undergraduate students will be paid $13.50/hour and graduate students will be paid $15/hour*

Please contact internship coordinator, Gabrielle Kokanos, gabrielle.kokanos@osumc.edu, with questions.

2025 Lab and Project Descriptions

A

Courtney Hebert, MD, MS

seeking 1-2 interns

The Hebert lab focuses on the secondary use of electronic health record data to improve care and help with clinical decision making, specifically in the area of infectious diseases. Interns will be involved in projects which include cleaning data, analyzing data, and working within interdisciplinary teams. Targeted Skills: Familiarity with basic statistics and programming and an interest in clinical research or health sciences is recommended.

B

Naleef Fareed, PhD

seeking 1 intern

Naleef Fareed, PhD, is an associate professor in the Department of Biomedical Informatics and an internationally recognized expert in clinical and public health informatics research focused on health decision making. He has examined design, use, and implementation of informatics tools such as electronic health record systems, dashboards, patient portals, and smartphone applications. His

research – disseminated and used by researchers, clinical care teams, health informatic firms, and policymakers – identifies and investigates transformational informatics-based solutions that overcome obstacles to high quality health outcomes.

C. John Bridges, PhD

seeking multiple interns

The Patient-centered Outcome Research Lab is headed by Dr. John F P Bridges and is predominantly focused on the measurement of the priorities and preferences of patients and other stakeholders in medicine. We are world leaders in several theory-driven methods used to measure patient preferences including discrete-choice experiments and best-worst scaling. Our group has been a leader in the development and dissemination of best practices for using these methods and we have worked with decision makers around the world to advance and apply these methods. We are seeking summer interns to work on a variety of projects that we are leading in our lab and/or collaborating with other on a wide array of topics including HIV, cancer, mental health, pediatrics, organ donation, medical devices, artificial intelligence, and other therapies. Dr. Bridges has mentored over 100 undergraduate/postgraduate students and junior researchers/clinicians and his former mentees have gone on to graduate studies or positions at many top universities, which many other have been successful in industry, government, and non-governmental agencies. A surprising number of his mentees still work in measuring preferences or have incorporated these skills into their research. Finally, some of summer scholars have stayed on to work or study with us, and we are always looking for bright students to join our lab.

D. Qin Ma, PhD

seeking 1 intern

Potential students should expect to be developing a bioinformatics software package that utilizes in-house algorithms, methods, or deep learning models related to the single-cell data analysis field. Rather than developing a novel algorithm for a particular biological question, the focus of the project would be implementing modern software development practices to an application and extension of one of the Ma lab's published methods. The final product could be either an R or Python package, followed by maintainable code, well-documented tutorials, user-friendly APIs, and intuitive visualization functions.

2025 Internship Opportunities

E. Maciej Pietrzak, PhD

seeking 1 intern

Project Title: Development of Standardized Bioinformatics Pipelines for High-Performance and Cloud Computing.

Project Description: This project offers a hands-on opportunity for a student to design and develop standardized bioinformatics pipelines for analyzing large-scale datasets. The pipelines will be implemented using the Nextflow framework and optimized for deployment on the Ohio Supercomputing Center infrastructure, with transferability to cloud computing platforms such as AWS or Google Cloud. The project also includes building an interactive R Shiny-based user interface to visualize the results of bioinformatics data analyses. The student will gain experience in workflow automation, high-performance computing, and best practices for reproducible research in bioinformatics. They will acquire valuable skills in modern bioinformatics workflow design, implementation, and interface development. The automated workflows and tools developed during this internship will be integrated into BISR's daily operations to enhance its bioinformatics capabilities.

F. AI Challenge under the supervision of Ping Zhang, PhD

seeking 4 interns

Potential Projects: Attend PhysioNet Challenge 2025. We usually develop large language models (LLM) and large multimodal models (LMM) to tackle real-world healthcare problems.

Targeted Skills: Ideal candidates should be self-motivated and passionate about conducting original research. Students from related disciplines such as computer science, software engineering, informatics, statistics, mathematics, automation, and electrical engineering are strongly encouraged to apply. Programming experience in either Python, R, MATLAB, Java, or C/C++ is required. Prior knowledge of and research experience in either data mining, machine learning, or biomedical informatics is preferred.

2025 Internship Opportunities

G. Lai Wei, PhD

seeking 2 interns

Randomization is crucial in clinical trials to ensure unbiased treatment allocation and preserve the integrity of results. With the increasing complexity of clinical trial designs, there is a growing need for robust and adaptable randomization methods. Our team is conducting a systematic review of the randomization methods used in randomized clinical trials and evaluating how well variables in Table 1 (demographics and baseline clinical characteristics) are balanced. This work aims to identify the circumstances under which minimal sufficient balance or other novel randomization methods might perform better. The summer intern will have a unique opportunity to gain hands-on experience with novel randomization methods used in clinical trials. They will learn about various approaches to randomization, including minimal sufficient balance, covariate-adaptive methods, and other advanced techniques, and understand their applications in modern clinical trial designs. As part of their responsibilities, the intern will review a collection of identified papers on randomized clinical trials. They will extract and organize key data, such as the specific randomization methods employed, the balance of baseline variables (e.g., demographics and clinical characteristics), and any reported outcomes. This systematic review process will provide the intern with valuable exposure to research methodologies, critical evaluation of clinical trial literature, and data management techniques.

H. Xiaokui Mo, PhD

seeking 1 intern

The potential project will focus on investigating the sex-based disparities in the impacts of smoking on diseases.

I. Rejuan Haque, PhD

seeking 1 intern

The summer project will focus on the use of steroids in reducing death as well as time of mechanical ventilation at PICU using a composite outcome setup.

2025 Internship Opportunities

J. Fode Tounkara, PhD

seeking 1 intern

Examining the Role of Online Medical Record Use in Breast Cancer Screening: Insights from a National Survey

Project Description: This project will investigate the association between accessing online medical records (OMRs) and breast cancer screening (e.g., mammography) among U.S. adults. The study will use secondary data from the Health Information National Trends Survey (HINTS) to analyze how sociodemographic factors, health conditions, and OMR usage influence screening behaviors. The student will apply statistical methods, such as logistic regression, to identify key predictors of mammography utilization, focusing on addressing disparities in screening rates across racial/ethnic groups, educational levels, and insurance status. The findings will provide insights into how digital health tools like OMRs can be leveraged to promote equitable breast cancer screening. This research aims to inform future interventions that enhance access to preventive health services, particularly among underserved populations. The project will also offer the student hands-on experience in survey data analysis, public health research, and digital health equity.