

Focused Advanced Specialty Track

DIGITAL HEALTH

Director: Jeremiah Hinson, MD, PhD
Associate Professor and Assistant Director of Research
Department of Emergency Medicine
hinson@jhmi.edu

Co-Director: Paul Nagy, PhD
Deputy Director, Johns Hopkins Medicine Technology Innovation Center
Assistant Professor of Radiology and Radiological Science
pnagy2@jhmi.edu

Available faculty mentors:

Eili Klein, PhD
Kemi Badaki, MD, PhD
Danielle Boyce, PhD
Therese Canares, MD, MBA

Are you willing to have your track combined with another one?

Yes, assuming objectives overlap, and training programs are complimentary. The course of training required for Digital Health is rigorous and it may make more sense to collaborate with another FAST team on the scholarly project component of the FAST. Combinations that are most likely include Administration and Leadership and Emergency Care Research.

Sponsoring Institution and Collaborators:

Johns Hopkins University
Johns Hopkins Center for Data Science in Emergency Medicine (cdem.jh.edu)
Johns Hopkins Technology Innovation Center (TIC)
Johns Hopkins Technology Ventures FastForwardU

Goal

To gain expertise in the fundamentals of digital medicine creation and implementation for advancing clinical and patient care.

Objectives

The Digital Medicine FAST is a specialized track with multiple programs for sub-specialization and will have varied objectives specific to each niche. The FAST track itself is designed to address the following core objectives:

1. To learn the role of software and technology in health care delivery
2. To understand the basics of healthcare information technology and data science
3. To develop real world skills in the creation and implementation of new technologies in healthcare systems
4. To gain experience working with multi-disciplinary teams across a large health system
5. To acquire a solid foundation in communication skills required as digital medicine specialist

Program Curriculum

The specifics of the Digital Medicine Curriculum vary and are subject to change pending discussion with your Faculty Mentors.

Three paths for concentration within the Digital Medicine FAST track include the following:

1. Health Informatics and Data Science Research

Residents who choose this concentration will focus on the acquisition and development of skills required to perform health informatics research and/or large-scale data analysis. Training will include didactic and applied learning of informatics concepts and analysis of health informatics data (including EHR data) using common programming languages (eg, SQL, Python, R). The scholarly project for this track must be well-designed and culminate in a manuscript suitable for publication in a leading academic journal. This concentration is executed as a combined *Data Science* and *Emergency Care Research FAST*.

2. Chief Medical Information Officer (CMIO) Boot Camp

Residents who choose this concentration will focus on acquisition and development of skills required to serve in an informatics leadership role within an emergency department or medical institution. Training will be rigorous and will include didactic and applied learning of health informatics technology (HIT) concepts important for oversight and leadership within the clinical arena. The scholarly project for this track may be a focused HIT-related implementation project or a clinically-oriented HIT research study. This concentration could be combined with the *Administration & Leadership FAST*.

3. Digital Health Entrepreneurship

Residents who choose this concentration will focus on the design, creation, and implementation of new software and technology for improving patient care – with a focus on commercial strategies for healthcare improvement. Training will include an introduction to design thinking methodology, agile software development, and the fundamentals of creating a technology startup. The scholarly project will provide an opportunity to apply your knowledge and create the foundations for your own healthcare technology venture through various support programs at the institution. The time demands of this concentration would make it very difficult to combine.

Example Curriculum*

- Johns Hopkins School of Medicine Biomedical Informatics and Data Science Program
 - ME 250.750.0 Health Information Systems: Design to Deployment
 - ME 250.901.0 Health Sciences Informatics: Knowledge Engineering and Decision Support
 - ME 250.781.0 Data Driven Digital Health Entrepreneurship
 - <http://dhsi.med.jhmi.edu/content/health-informatics-courses>
- Johns Hopkins Technology Ventures
 - Fast ForwardU Spark Accelerator Program
 - <https://ventures.jhu.edu/programs-services/fastforward-u/accelerator/>
- Johns Hopkins Carey School of Business
 - Part-time Flexible MBA Experiential Coursework
 - Healthcare Consulting Strategy Practicum
 - Community Consulting Lab - Student Consultant
 - <https://carey.jhu.edu/student-experience/experiential-learning/experiential-co-curriculars/community-consulting-lab>
- Johns Hopkins Technology Innovation Center
 - HEXCITE Software Pre-Accelerator <https://tic.jh.edu/programs/hexcite/>
- Johns Hopkins Whiting School of Engineering – Center for leadership education
 - HopStone Capital – Private Equity Venture Capital Fund <https://engineering.jhu.edu/cle/>
- Y Combinator
 - Startup school <https://www.startupschool.org/>

**Example shown was used for the Digital Health Entrepreneurship concentration. Specific courses and experiences will vary by concentration.*

Past Projects

- Digital Doctor - improving patient updating and acute care education in the ER by an EMR integrated software program created through design thinking and lean methodology