



HOWARD
UNIVERSITY

AIM-AHEAD



MedStar Health
Research Institute

Data Science Training Core (DSTC) Resources



JOHNS HOPKINS
CAREY BUSINESS SCHOOL



SCHOOL OF
PUBLIC HEALTH
CENTER FOR HEALTH EQUITY

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Georgetown University
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BIOMEDICAL
GRADUATE EDUCATION
GEORGETOWN UNIVERSITY

DSTC Purpose

The Data Science Training Core (DSTC) will **identify training needs and gaps** as well as **identify or develop training and workforce development resources** to support AI/ML and health disparities research.

The DSTC will assess training requests for AIM-AHEAD participants and connect requestors with required training and training support via the [Help Desk](#).

DSTC Curriculum Development Program

Curriculum Development Mini-Grant Pilot Program

- » Awarded to 5 faculty from Departments of **Mathematics, Clinical and Administrative Pharmacy Sciences, Biology, Electrical and Computer Engineering** to adopt AI/ML principles into their new courses with hands on lab-based activities. More proposals are engaged with researchers across regional hubs.
- » **9-week Virtual Training Curriculum to Support Research/Leadership Fellows** – , HU VADSTI beginner-intermediate)
- » **Undergraduate Academic EHR(SimChart) Training**
Infusion of the academic EHR (SimChart) across Nursing Clinical Courses with the Creation of Perceptive and Usability Assessment tool



AIM-AHEAD Research Fellows Training Available

8-week virtual training opportunity – Recorded and posted to AIM-AHEAD CONNECT.

Training Objectives:

- Gain practical, hands-on experience with Python coding/programming
- Learn how to use Python and related libraries to access data from multiple sources
- Data Pre-Processing - Manage and manipulate large amounts of data using Python
- Learn how to use tableau for data exploration and visualization
- Use Python and relevant libraries for data analytics
- Use data mining software to solve real-world problems
- Perform analysis with real biomedical and/or clinical data using basic and advanced analytic methods
- Demonstrate knowledge of statistical analytic techniques utilized in biomedical and behavioral decision making.
- Demonstrate understanding of the underlying concepts of data science
- Understand the practice behind supervised and unsupervised learning
- Learn how to use Python to perform analysis based supervise and unsupervised learning
- Understand the concepts of data partitioning including training, test and validations datasets
- Gain familiarity with and perform and interpret results from analysis output

ASYC Learning in AIM-AHEAD Connect



Working with Northeastern Big Data Innovation Hub - National Student Data Corps (NSDC) to cross-pollinate Curated content into AIM-AHEAD CONNECT.

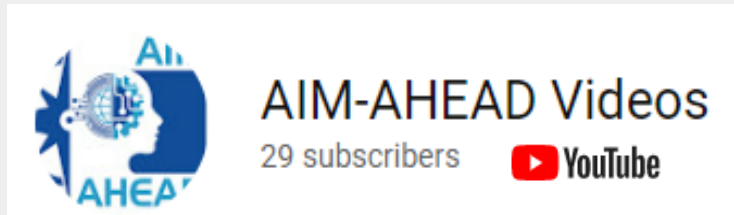
- Content to support AIM-AHEAD Programs across various pathways:
 - 1.CS programming** - This section will help you develop the computer science skills to analyze any dataset. (Pre-req: none),
 - 2.Beginner** - Get acquainted with the basics. Review the essential arithmetic and algebraic skills you'll need to begin working with data. (Pre-req: none),
 - 3.Intermediate** - Dive into data collection and analysis. Learn about statistical procedures, draw conclusions from data, and develop an intuition for common machine learning methods. (Pre-req: Arithmetic, Pre-Algebra)
 - 4.Advanced** - Learn about advanced statistical tools, state of the art machine learning methods, and mechanics of optimization. (Pre-req: Probability, Basic statistics),
 - 5.Ethics** - Learn about the most important ethical issues facing data scientists today and how you can obtain and use data responsibly
- Establish a repo of open-source courses
- “How To” Video library to augment the Helpdesk

PRIME Curriculum available to AIM-AHEAD

Open-Source Content
Available NOW

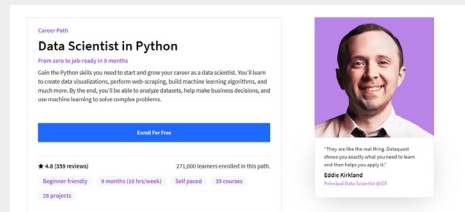
AI for Health Equity Symposium 4-week Workshop Virtual Workshop Series

<https://www.youtube.com/watch?v=Rm6fcziKGdg&list=PLMdVHrqRTn1XKzUnoRTMnkGxnFqgkeBNl>



Data Quest Hands-on Practice

<https://www.dataquest.io/path/data-scientist/>



Available for AIM-AHEAD awardees
(Fellows, Pilots, Trainees)

AIM-AHEAD
CONNECT

AI/ML/Data Science – Available in AIM-AHEAD Connect:

- The perspective of the materials largely comes from computer science, with an emphasis on data wrangling and engineering as well as machine learning and validation.
- Prior versions of the content have been used to teach students ranging from freshmen to PhD students, across a wide range of fields.
- The emphasis is largely on core concepts and algorithms with grounding in today's technologies and best practices.

Reach out to Sara.L.Stienecker@MedStar.net to request access

Machine Learning in Healthcare Available in AIM-AHEAD Connect:

- Introduces students to machine learning in healthcare, including the nature of clinical data and the use of machine learning for risk stratification, disease progression modeling, precision medicine, diagnosis, subtype discovery, and improving clinical workflows.
- Topics include causality, interpretability, algorithmic fairness, time-series analysis, graphical models, deep learning and transfer learning.

Reach out to Sara.L.Stienecker@MedStar.net to request access

AI for Health Equity Symposium 2022



AIM-AHEAD Videos
29 subscribers  YouTube

AIHES2022 Workshop Series Modules

- The Basics pt I and pt II
- Ethics in AI/ML
- All of Us Data Browser
- Implementing AI/ML in health equity applications in low-resources settings
- Conducting a project in AI/ML for health equity from start to finish in low-resource institutions
- AI/ML Knowledge and Communication for Leadership in Healthcare
- ML Methods with Healthcare Data
- Tools for Deep Learning Exploring and Understanding DL Use Cases in Biomedicine & Beyond
- Cutting-Edge AI/ML Applications
- Cutting-Edge AI/ML Applications
- Career Development

 AI FOR HEALTH EQUITY 2022 SYMPOSIUM					JULY 2022	
MON	TUES	WED	THURS	FRI		
4 INDEPENDENCE DAY	5 The Basics: • Equity/disparities • SEDoH • What is AI/ML/data science/epi/statistics/computer science/data mining/automation • AI use cases • Successes, challenges, and opportunities	6 The Basics pt II: • AI/ML - two camps • AI/ML examples • What to know about AI/ML & Health - complexity of health, large data/big data, common myths, prescription, prescription, association, causation • Software, Hardware & Infrastructure (including Cloud)	7	8 Ethics in AI/ML • What is ethics in AI/ML • Data ethics • Algorithm bias • Community participation		
11 All of Us Data & Data Browser	12 Implementing AI/ML for health equity applications in low-resource settings: • Health equity disparities & inequities - definition and common terms • Operating systems/platforms (open source & proprietary) • What does an ideal AI/ML environment look like? • Working around for low-resource settings • How can I create my own low-cost infrastructure? • Players (systems architect, data scientist, statistician, content expert) • Software	13	14 Conducting a project in AI/ML for health equity: from start to finish for low-resource institutions • Research question • Data - challenges & troubleshooting • Model Building 101 • Execution in R or Python • Interpretation • Reporting	15		
18 AI/ML Knowledge and Communication for Leadership in Healthcare	19 ML Methods with Healthcare Data • Supervised Learning (classification, regression) • Unsupervised Learning • Interpretable AI/ML (SHAP Values)	20 Tools for Deep Learning Exploring and Understanding DL use cases in Biomedicine & Beyond • Use cases (music, images, voice, healthcare, and more) • Classification models - build and train	21	22		
25 Cutting-Edge AI/ML Applications • SageMaker Clarifai	26	27 Cutting-Edge AI/ML Applications • Voice-assisted technology, NLP, visual/optical technology	28	29 Career Development • How to build a competitive resume in AI/ML and healthcare • How to make your LinkedIn profile work for you • Interview advice - how to answer content questions and come off as a professional in AI • How to network like a Rockstar		
www.AIM-AHEAD.net					#AIHES2022	WORKSHOP SCHEDULE

CHITA

CONFERENCE ON HEALTH IT AND ANALYTICS

March 4th-5th 2022 | Washington, DC

Presented by the Center for Health Information & Decision Systems

SSRN



Proceedings of the 12th Conference on Health IT & Analytics

35 Pages • Posted:

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Date Written: June 27, 2022

Abstract

The Conference on Health IT and Analytics (CHITA) is an annual health information technology and analytics research summit, including a doctoral consortium that each year gathers prominent scholars from more than 60 research institutes, and leading policy and practitioner attendees in a vibrant setting to discuss opportunities and challenges in the design, implementation and management of health information technologies and advanced analytics including artificial intelligence and machine learning systems. CHITA's goal is to formulate a health IT and analytics research agenda, deepen our understanding of strategy, policy and systems fostering health IT and analytics effective use, to stimulate new ideas with both policy and business implications. These Proceedings of the 12th Conference on Health IT & Analytics (CHITA 2022) represent the work of 31 papers and 70 authors working on the digitally-enabled future of healthcare.

Convened by the Center for Health Information & Decision Systems (CHIDS), support for CHITA is provided by the Robert H. Smith School of Business, the University of Michigan School of Public Health, and the U.S. Agency for Healthcare Research and Quality.

Keywords: Health Information Technology; Analytics; Artificial Intelligence, Value; Quality; Transparency; Healthcare Operations; Information Systems; Healthcare disparities

AIM-AHEAD Professional Development Program (AA-PDP)

2 Thematic: Healthcare Management & AI Management

9-week virtual training opportunity – Recorded and available on AIM-AHEAD Connect

Module 1: Healthcare Equity & Fairness

- Prioritizing treatment & care based on need
- Representative data
- Algorithmic approaches
- AI-Induced biases

Module 2: Healthcare Finance & Revenue Cycle

- The healthcare ecosystem
- Major data types & sources
- Google Colab and Python
- Fundamentals of AI projects

Module 3: Healthcare Operations & Patient Engagement

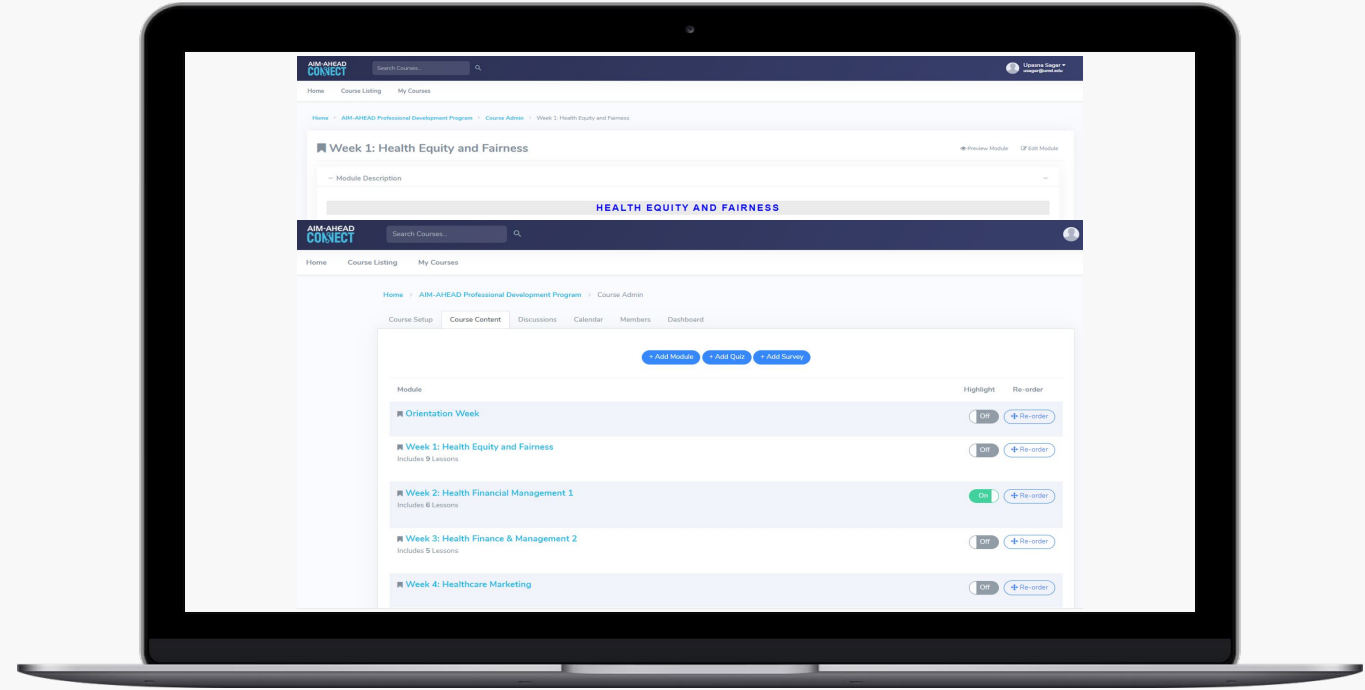
- Care delivery process
- Care quality & capacity
- Traditional machine learning
- Clinical decision support

Module 4: Health IT & Informatics

- Major health IT systems
- Interoperability & security
- Deep learning
- Cloud Computing

Module 5: Leading AI Transformation

- Leadership Essentials
- Manages Changes & Risks
- Nurture AI culture
- High performance AI teams





Healthcare Management

AI Management

