Artificial Intelligence/ Machine Learning Consortium to Advance Health Equity and Researcher Diversity

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Team

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*DSTC LEAD MPI

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Assist. Professor of Mathematics

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Asst. Professor of Nursing & Allied Health

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Professor of Medicine

Karl Thompson, PhD
Assoc. Professor of Microbiology

Computer Science & Engineering

Medicine & Dentistry +
Nursing, Allied Health & Pharmacy

Arts & Sciences

DSTC Team Contd.

MedStar Health Research Institute

GU · HU · MHRI · ORNL · DC VAMC

GHUCCTS
Georgetown-Howard Universities
Center for Clinical and Translational Science

UNIVERSITY OF MARYLAND 1856 · SCHOOL OF PUBLIC HEALTH · CENTER FOR HEALTH EQUITY

UNIVERSITY OF MARYLAND · ROBERT H. SMITH SCHOOL OF BUSINESS · CHIDS · CENTER FOR HEALTH INFORMATION AND DECISION SYSTEMS

ICBI · Georgetown University Innovation Center for Biomedical Informatics

Nawar Shara, PhD (MPI)
Dir of Center of Biostatistics, Informatics and Data Science (CBIDS); Associate Professor of Medicine; Dir of BERD-GHUCCTS; Co-Dir of BI-GHUCCTS

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Founding Editor, Coping with Pandemic & Infodemic Stress, Multimedia Education, & Psychosocial Research Program; Scientific Dir, Biostatistics & Research Design Core, GHUCCTS

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Professor of Public Health, Dir of Univ. Maryland Center for Health Equity

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Distinguished University Professor, Dean's Chair of IS, Co-Dir of CHIDS

Gordon Gao, PhD
Professor of IS, Co-Dir of CHIDS, Dir of Health Insights AI Lab

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Michelle Dugas, PhD
Senior Research Scientist, CHIDS, Assoc. Research Scholar, DOIT

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Peter McGarvey, PhD (MPI)
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Adil Alaoui, MS
Dir of Health IT and Operation, ICBI

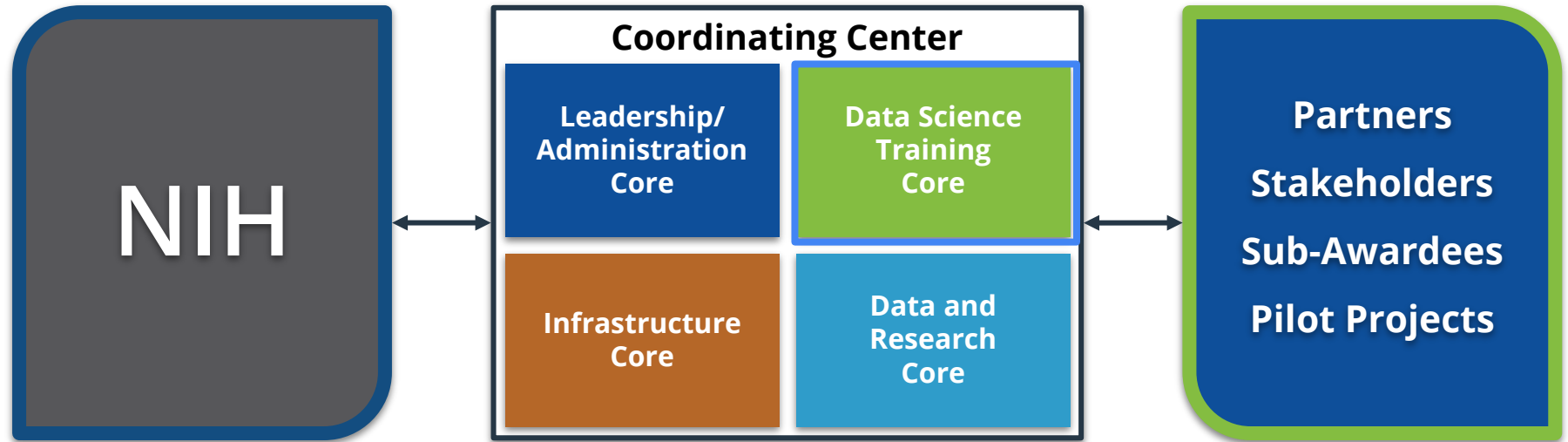**Yuriy Gusev, PhD**
Dir Health Informatics and Data Science MS Program

EHR & Diverse Data Pipelines, Clinical Informatics Research & Infrastructure

Health Equity, AI, Decision Sciences, Implementation Science & Management

Biomedical Informatics, Precision Med, Data Sci & Translation

AIM-AHEAD Consortium

NIH

Coordinating Center

Leadership/ Administration Core

Data Science Training Core

Infrastructure Core

Data and Research Core

Partners

Stakeholders

Sub-Awardees

Pilot Projects

Underrepresented communities have untapped potential to contribute new expertise, data, recruitment strategies, and cutting-edge science to the AI/ML field. This program seeks to increase the participation and engagement of the researchers and communities that are currently underrepresented in AI/ML modeling and applications. Initial focus is to identify **priority research aims in health equity and AI/ML,** as well as **develop training pathways and infrastructure** needed to support these.
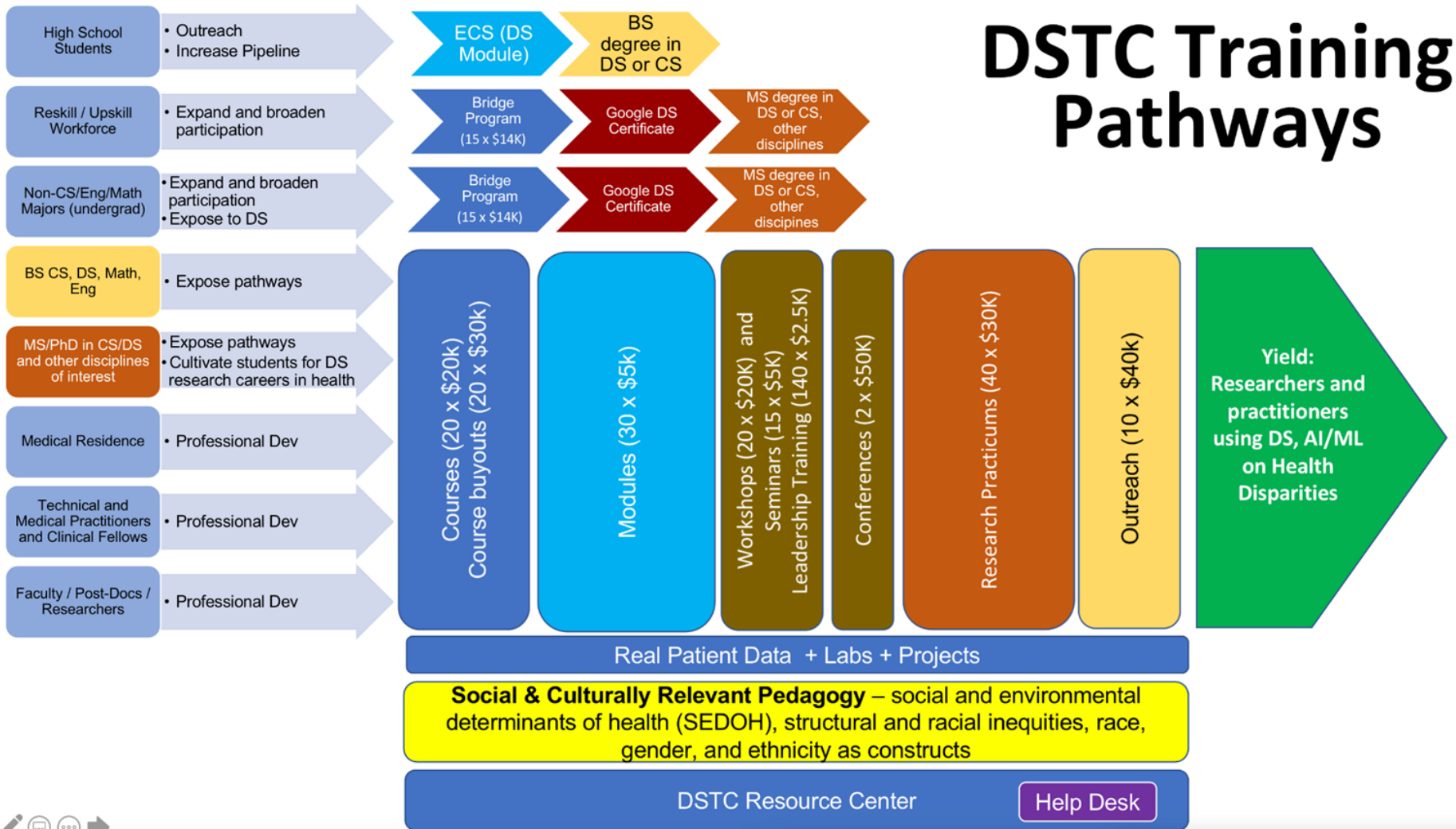
Purpose

The Data Science Training Core (DSTC) will **identify training needs and gaps** as well as **identify or develop training and workforce development resources** to address AI/ML and health disparities research.
Stakeholder engagement will involve **training around AI / ML and health disparities research** as well as **related competencies** in: cloud computing, distributed computing, data preparation, data science, biostatistics, modelling, epidemiology, clinical / biomedical informatics, data science policy, ethics, and health disparities and community engaged research methods.
It is expected that all training engagements involve **application-based learning** and utilize **large scale data**.

DSTC Training Pathways

Audience	Activity
High School Students	• Outreach • Increase Pipeline
Reskill / Upskill Workforce	• Expand and broaden participation
Non-CS/Eng/Math Majors (undergrad)	• Expand and broaden participation • Expose to DS
BS CS, DS, Math, Eng	• Expose pathways
MS/PhD in CS/DS and other disciplines of interest	• Expose pathways • Cultivate students for DS research careers in health
Medical Residence	• Professional Dev
Technical and Medical Practitioners and Clinical Fellows	• Professional Dev
Faculty / Post-Docs / Researchers	• Professional Dev

Pathway boxes:
- ECS (DS Module) → BS degree in DS or CS
- Bridge Program (15 x $14K) → Google DS Certificate → MS degree in DS or CS, other disciplines
- Bridge Program (15 x $14K) → Google DS Certificate → MS degree in DS or CS, other discipines

Program components:
- Courses (20 x $20k) / Course buyouts (20 x $30k)
- Modules (30 x $5k)
- Workshops (20 x $20K) and Seminars (15 x $5K) / Leadership Training (140 x $2.5K)
- Conferences (2 x $50K)
- Research Practicums (40 x $30K)
- Outreach (10 x $40K)

Yield: Researchers and practitioners using DS, AI/ML on Health Disparities

Real Patient Data + Labs + Projects

Social & Culturally Relevant Pedagogy – social and environmental determinants of health (SEDOH), structural and racial inequities, race, gender, and ethnicity as constructs

DSTC Resource Center — Help Desk

Interaction with External Partners

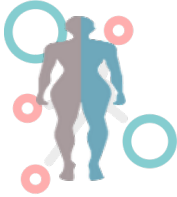| Partners	DATA SCIENCE TRAINING CORE (DSTC)						
	Course/ Modules	Conferences, Workshops, Seminars	Practicum Experiences	BRIDGE Fellowship	Help Desk (T-CSD)	Course Buyout - Teaching Sabbaticals	Outreach
Industry	Licenses, credits, curriculum and content	Licenses, credits, sponsor, speakers	Identify Reviewers	Identify working professionals wanting to retool	Provide Technical Support in CoP	Guest Lectures	Volunteer as mentors, guest speakers
Data Science Organizations	Provide Computational Resources, Curriculum Content	Apply to Grants	Disseminate FOAs, Identify Reviewers	Identify non-STEM undergrads wanting PhDs and M.S. in Data Science and CS	Provide Feedback in CoP to to Data, Algorithms, Prog Language, and Visualization Related Problems and Questions	Guest Lecturers	Volunteer as mentors, guest speakers
Medical/Health Organizations/ Labs	Data / Compute Provider	Apply to Grants	Volunteer as mentors	Identify physicians and health professionals wanting to retool	Provide Feedback in CoP on Use Cases / Course Projects and Labs	Guest Lecturers	Volunteer as mentors, guest speakers

Upcoming AIM-AHEAD Opportunities

- Join the Community http://www.aim-ahead.net

- Looking for suggestions on potential courses that cover topics on AI tools and methods for Research, Clinical Practice, Teaching/administrators of those courses https://bit.ly/HU_CoM_AI_LEARN

- Research, Training, and Infrastructure Grants -
  - Due June 20th
  - https://www.aim-ahead.net/call-for-proposals-year-2/

Institute for Human-Centered Artificial Intelligence@ Howard University

HOWARD UNIVERSITY
1867

Specialized Content specialized content based on user preferences and performance metrics related to facial expressions, stress, anxiety, and engagement

Optimized Learning Networks Group learners based off of personalities and behavior for increased performance, networking, and effective communication

HCAI & Healthcare

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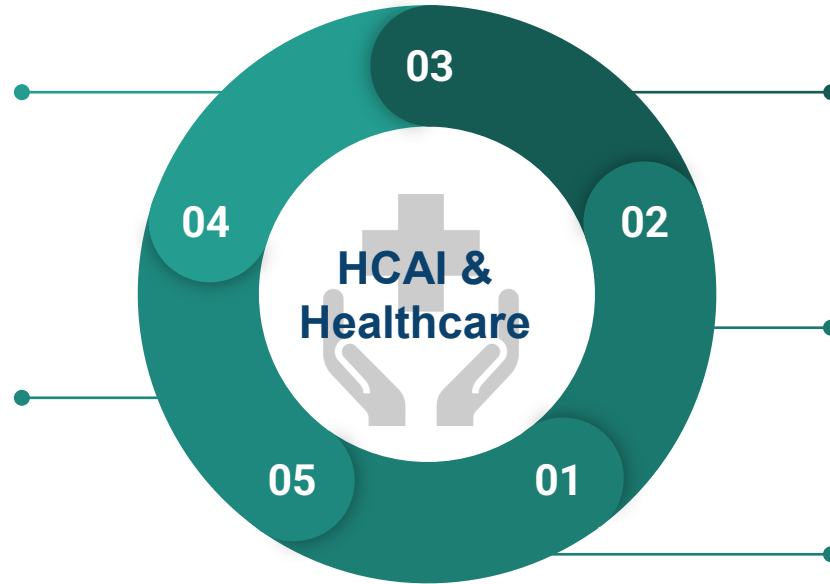
Positive Friction Nudging students and optimized learning networks toward positive communications and improved learning outcomes

Empathetic Communication Through generative AI approaches (ChatGPT) and using like mixed reality we can teach correct diagnoses with empathetic healthcare

Human-in-the-Loop Learning Scenario-based learning for mastery of important skills outside of memorization, but real world applications

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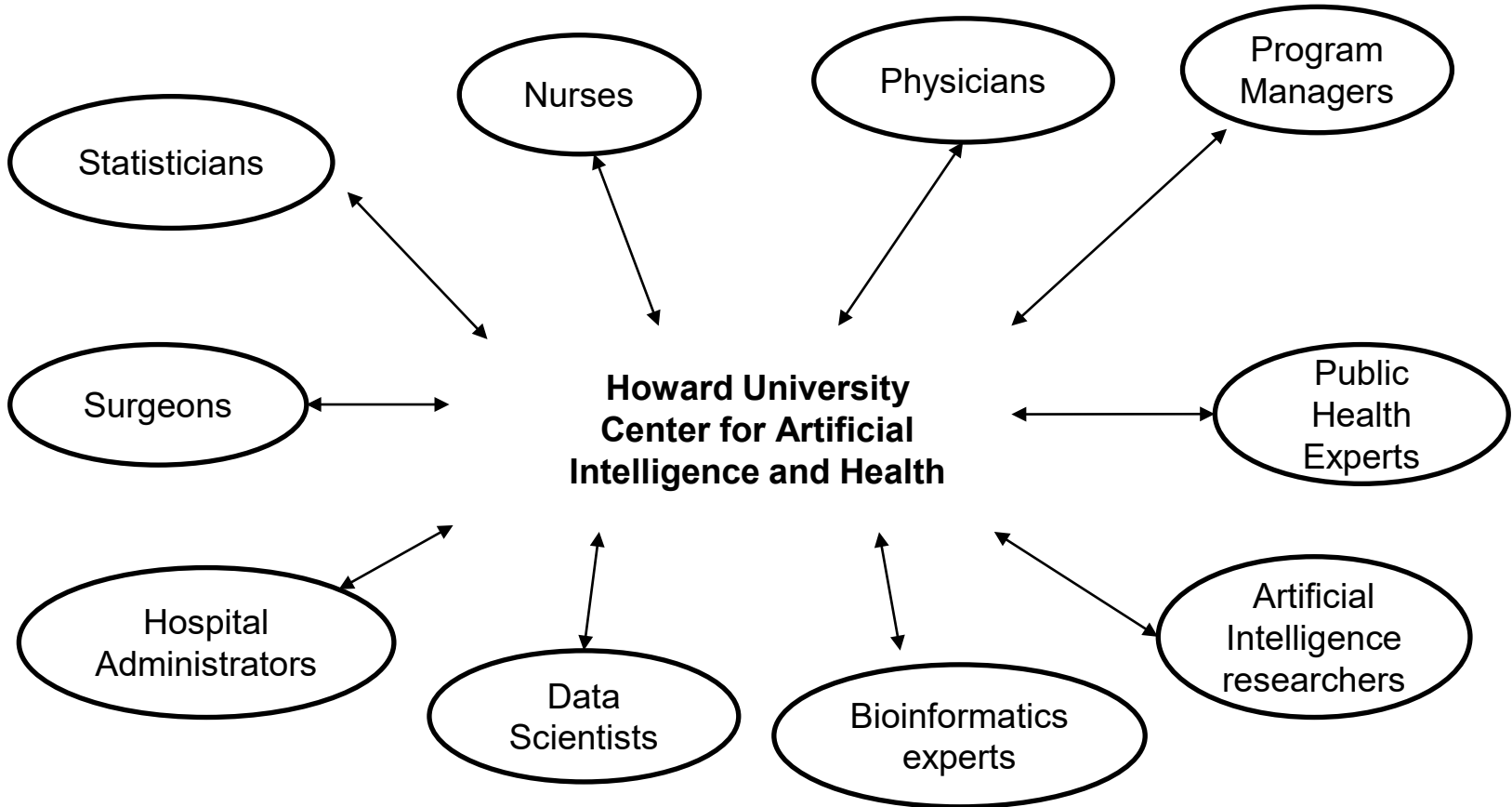
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Research

Example

- **Using artificial intelligence to predict patients risk for health conditions e.g. opioid use disorder**

Operations

Example

- **Identify patients that could benefit from a particular treatment**

- **Using artificial intelligence to predict patients risk for health conditions e.g. Sepsis or opioid use disorder**

POC List

Name	Contact	AI Interests
Legand (Lee) L. Burge III	lburge@howard.edu HUIRB 421a	Health Equity and Health Disparities, SDoH, Telehealth, Smart Health, Innovation and Entrepreneurship
Gloria Washington	gloria.washington@howard.edu	Human Centered AI, HCI, wearables
Anietie Andy	anietie.andy@howard.edu LKD Downing Room 2036	Natural Language Processing, Data Science, Applied AI/ML
Saurav K. Aryal	saurav.aryal@howard.edu	Multimodal & Applied AI/ML