UNIVERSITY SYSTEM of MARYLAND

3300 METZEROTT ROAD // ADELPHI, MD 20783
WWW.USMD.EDU // 301.445.2740

OFFICE OF THE VICE CHANCELLOR FOR RESEARCH AND ECONOMIC DEVELOPMENT

USM Board of Regents
Committee on Economic Development & Technology Commercialization
November 30, 2023
Zoom

AGENDA FOR OPEN SESSION **1:00 p.m.**

Call to Order **Isiah Legget**

1. Renewing Committee Charge

2. Research and Economic Development Roundup -- Vice Chancellor of Research and Economic Development Michele Masucci
   - Carnegie Classification Changes
   - EDA Tech Hub Designation
   - National Academy of Inventors Rankings

3. Update on University of Maryland-Institute for Health Computing – Co-Director Sujal Bista PhD, Co-Director Bradley Maron PhD, and Vice President for Research Gregory Ball

4. Momentum Fund Update – Mike Ravenscroft
   - Venture Fellows Update

5. Launch Fund Update – Executive Director of Economic Development Lindsay Ryan

Renewing Committee Charge

UNIVERSITY SYSTEM of MARYLAND

Board of Regents
Committee on Economic Development and Technology Commercialization
November 30, 2023

Charge:

The Committee on Economic Development and Technology Commercialization shall provide strategic leadership for the USM's research, economic development, technology commercialization, innovation, and entrepreneurial initiatives, programs, and policies.

Role and Responsibilities:

The Committee on Economic Development and Technology Commercialization shall consider and report or recommend to the Board of Regents on matters concerning economic development and technology commercialization, innovation and entrepreneurial initiatives, and research, including translational research and technology transfer.

Members of the Committee on Economic Development and Technology Commercialization are appointed annually by the Chairperson of the Board. The Committee shall meet as needed, but no fewer than four times during the fiscal year.

Created in July 2011 in recognition of the increasing importance of translational research, entrepreneurship and innovation, and the supply of skilled workers in STEM fields for the State of Maryland, the Committee, working with the Vice Chancellor for Research and Economic Development, may expect to receive information for review in order to consider, and/or act on any of the following matters:

A. Aligning resources with market demand

B. Leveraging USM resources through collaborations

C. Enhancing partnerships with industry, state, and federal entities

D. Strengthening the USM Research and Innovation ecosystem, including engaging with research funding and commercialization partners, enhancing research administration and compliance infrastructure, and fostering excellence in scholarship, research, creative, and innovation

E. Strengthening the USM entrepreneurial ecosystem, including engaging the investment community and enhance access to capital for USM affiliated startups and innovators

2. Research and Economic Development Roundup -- Vice Chancellor of Research and Economic Development Michele Masucci

Office of the Vice Chancellor for Research and Economic Development

Board of Regents Committee on Economic Development and Technology Commercialization

Update

University System of Maryland

November 30, 2023

Agenda

1. Renewing Committee Charge
2. Research and Economic Development Roundup
    - Carnegie Classification Changes
    - EDA Tech Hub Designation
    - National Academy of Inventors Rankings
3. Update on Maryland Institute for Health Computing
4. Momentum Fund Update – Venture Fellows Update
5. Launch Fund Update

Q and A

University System of Maryland

University System of Maryland

Committee on Economic Development and Technology Commercialization Charge update:

- Recommendation to continue use of current charge, updated in December 2022
- The December 2022 update reflected development of new Office of Vice Chancellor for Research and Economic Development, with new charge:

  "The Committee on Economic Development and Technology Commercialization shall provide strategic leadership for the USM's research, economic development, technology commercialization, innovation, and entrepreneurial initiatives, programs, and policies."

- The charge expanded focus to include research and related initiatives, programs, and policies and has led to refinement of charge for other committees that previously included research oversight

University System of Maryland

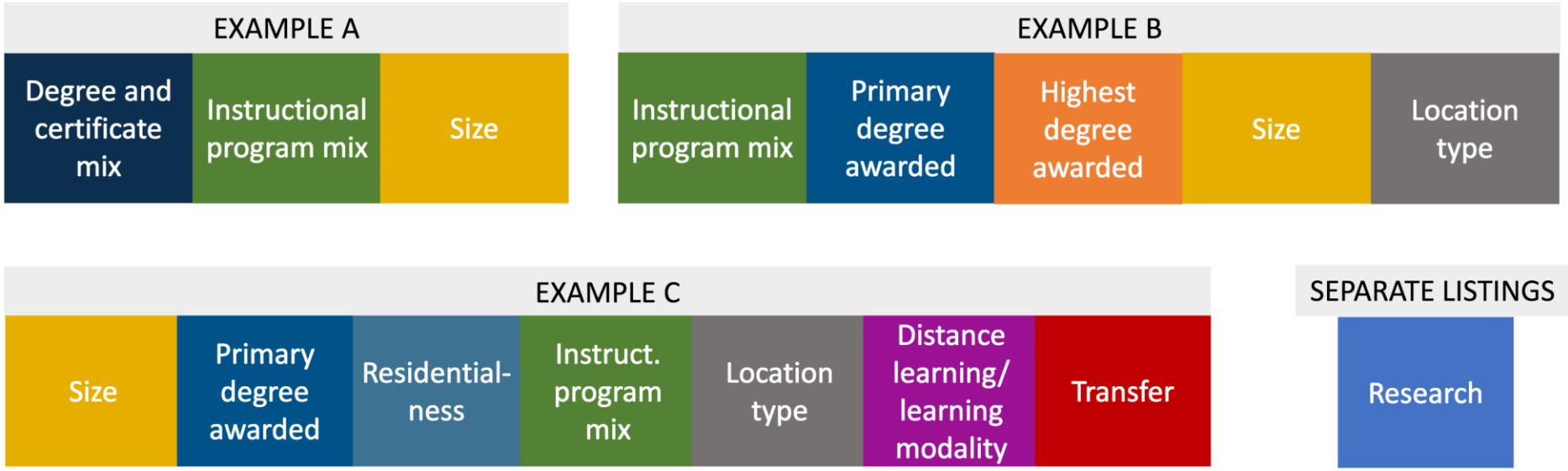
Carnegie Classification of Institutions of Higher Education Changes

- American Council on Education (ACE) has undertaken a comprehensive assessment of the classification system
- Introduced a revision to the rankings in November 2023 that will go into effect in 2025
- These include two basic changes and one proposed change:
  - Shift of Basic Classification to multidimensional characterization
  - Changes to research designation methodology – including new research designation and more transparent criteria for research characterization
  - Proposed new Social and Economic Mobility Characterization to advance equitable, learner centric outcomes – More here:

https://carnegieclassifications.acenet.edu/wp-content/uploads/2023/02/22-0711-Carnegie-Fact-Sheet-update.pdf

University System of Maryland

Potential application of multi-dimensional basic classification in 2025



Source: https://carnegieclassifications.acenet.edu/wp-content/uploads/2023/11/Carnegie-Classifications-Updates-Slide-Deck.pdf

University System of Maryland

New Research Classification Categories

Research 1: Very High Research Spending and Doctorate Production	Research 2: High Research Spending and Doctorate Production	Research Colleges and Universities
• Spent at least **$50 million** in total R&D in a year, as reported to the NSF HERD Survey AND • Awarded at least **70 research/scholarship doctorates** in a year, as reported to IPEDS	• Spent at least **$5 million** in total R&D in a year, as reported to the NSF HERD Survey AND • Awarded at least **20 research/scholarship doctorates** in a year, as reported to IPEDS	• Spent at least **$2.5 million** in total R&D in a year, as reported to the NSF HERD Survey • *Does not include institutions designated R1 or R2*

For the 2025 classifications, institutions will receive the higher of either:

- Three-year average (2021, 2022, 2023)
- Most recent single year (2023)

Source: https://carnegieclassifications.acenet.edu/wp-content/uploads/2023/11/Carnegie-Classifications-Updates-Slide-Deck.pdf

University System of Maryland

Potential Impacts for USM:

- More nuanced characterization of institutions based on mix of programs, students served, locational setting, and impacts
- More streamlined research categories to reflect doctoral degrees granted, research funding, and scale
  - Decoupling of research productivity from range and breadth of graduate degrees offered
  - Research designation applicable to all institutions with more than $2.5 Million in research expenditures
  - Research 1 designation decoupled from “Comprehensive institution” characterization, leading to potential for new R1 institutions in the system
  - Research 2 designation within reach of multiple USM institutions that meet at least one of current criteria
- Potential recognition for social and economic mobility based on student outcomes

University System of Maryland

EDA Regional Technology and Innovation Hub Designation for Greater Baltimore in AI and Biotechnology – October 23, 2023

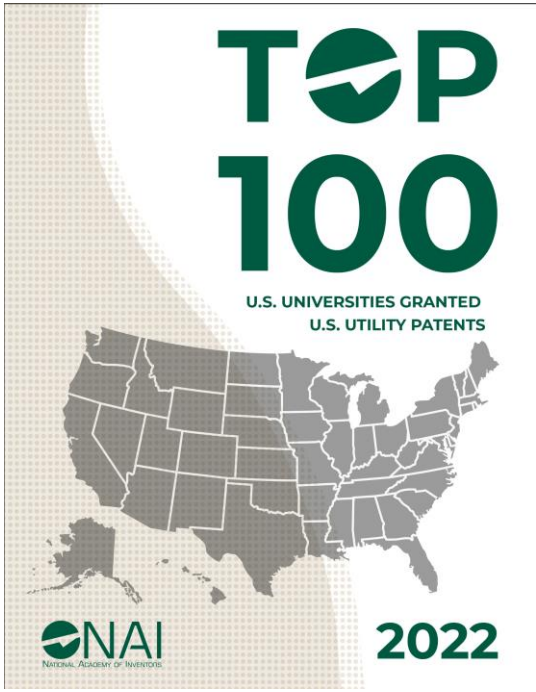
- Greater Baltimore Committee led effort to be designated as an EDA Tech Hub, creating eligibility for funding to support intersection of AI and biotechnology aimed at improving health outcomes by developing new medicines and therapies.
- Hubs are meant to catalyze the advancement of critical technology ecosystems through job creation and retention, leveraging capital investments, and stimulating the growth and development of businesses.
- Phase 1 - Designation as a Hub
- Phase 2 - Propose program concept and funding requests for component projects aimed at removing barriers for regional ascent to global competitiveness in core technology focus area; due Feb 29, 2024

More here: https://www.cbsnews.com/baltimore/news/baltimore-federal-tech-hub-program-funding-artificial-intelligence-biotech/

University System of Maryland

National Academy of Inventors

- In August 2023, the **University System of Maryland was designated 25th** in the U.S. based on the number of patents filed in 2022



- The National Academy of Inventors is a member organization comprising U.S. and international universities; governmental agencies; and non-profit research institutes with over 4,600 individual members, including Fellows, Senior Members, and Chapter Members, affiliated with more than 300 institutions worldwide

- The Top 100 Worldwide Universities Granted U.S. Utility Patents in 2022 report was released in August by the National Academy of Inventors (NAI) and the Intellectual Property Owners Association (IPO) using data obtained from the US Patent and Trademark Office (USPTO)

More here: https://academyofinventors.org/wp-content/uploads/2023/08/8.30.23-Top-100-U.S.pdf

3. MARYLAND INSTITUTE FOR HEALTH COMPUTING

Greg Ball, PhD, Vice President for Research UMCP, UMB

Sujal Bista, PhD, Co-Director UM-IHC, UMD

Bradley Maron, MD, Senior Associate Dean for Precision Medicine and Co-Director UM-IHC, UMSOM

Warren D'Souza, PhD, VP Enterprise Data and Analytics, UMMS

11-30-2023

4. MOMENTUM FUND

Mike Ravenscroft
Managing Director
University System of Maryland

11-30-2023

5. LAUNCH FUND

Lindsay Ryan
Executive Director for Economic Development
University System of Maryland

11-30-2023

4. Q and A

Contact OVCRED

Michele Masucci, Ph.D.
Vice Chancellor for Research and Economic Development
mmasucci@usmd.edu
215-704-2739

Matthew Jenkins
Administrative Assistant II
OVCRED - USM
mjenkins@usm.edu

Lindsay Ryan (she/her)
Interim Executive Director of Economic Development
lryan@usmd.edu
410-409-2236

Mike Ravenscroft
Managing Director, Momentum Fund
mravenscroft@usmd.edu
410.706.3361

University System of Maryland

3. Update on University of Maryland-Institute for Health Computing – Co-Director Sujal Bista PhD, Co-Director Bradley Maron PhD, and Vice President for Research Gregory Ball

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

Sujal Bista, PhD
UMD

Bradley A. Maron, MD
UMSOM

MOU SIGNED IN NOVEMBER 2022

UNIVERSITY OF MARYLAND

UNIVERSITY of MARYLAND BALTIMORE

UNIVERSITY of MARYLAND MEDICAL SYSTEM

UNIVERSITY OF MARYLAND MPOWERING THE STATE

UNIVERSITY OF MARYLAND INSTITUTE FOR HEALTH COMPUTING MPOWERING THE STATE

MONTGOMERY COUNTY LOCATION

Federal Agencies

NIH, FDA, NIST, NCI, etc.

Industry

300+ Biotech companies

Talent

40K+ Biotech workers in Maryland

Academia

Montgomery College and
The Universities at Shady Grove

INSTITUTIONAL CONTRIBUTIONS

UNIVERSITY OF MARYLAND

UNIVERSITY of MARYLAND BALTIMORE

UNIVERSITY of MARYLAND MEDICAL SYSTEM

Computing and Data Science
Computational Infrastructure

School of Medicine
Learning Health System

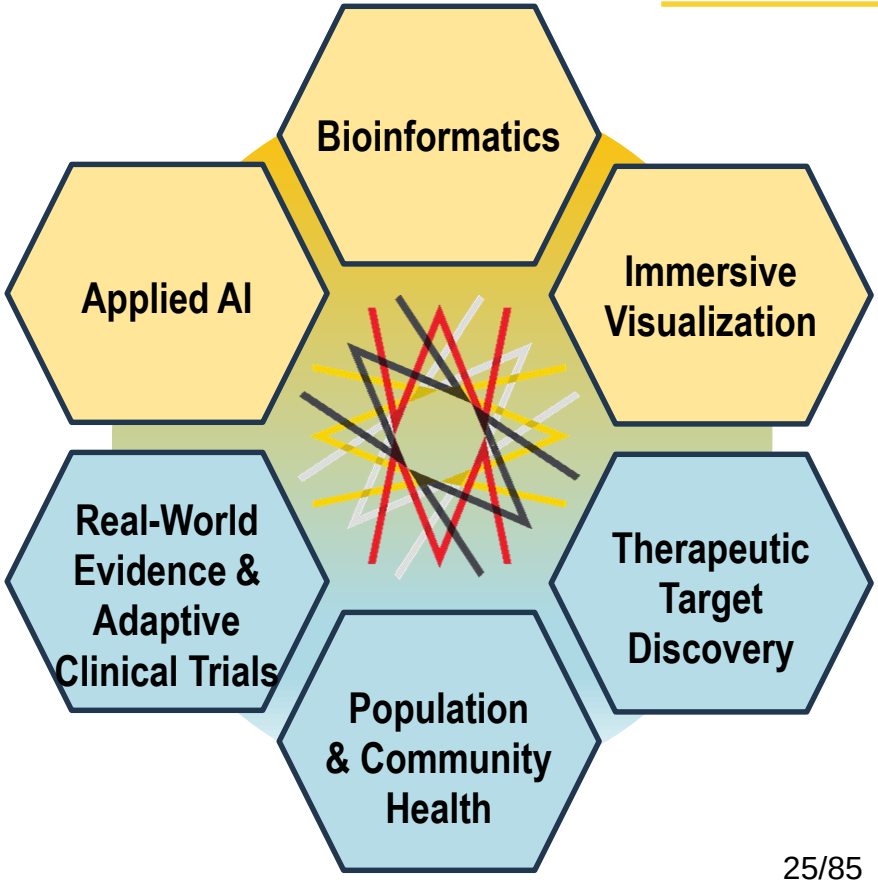
16 Medical Centers
2M Patients 17M patient encounters

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

GOALS

- Economic development and placemaking in Montgomery County
- Be an asset to the biotech industry in Montgomery County
- Develop and deploy computational tools that improve human health
- Bring together academia, industry, and federal agencies to collaborate and innovate

RESEARCH AREAS



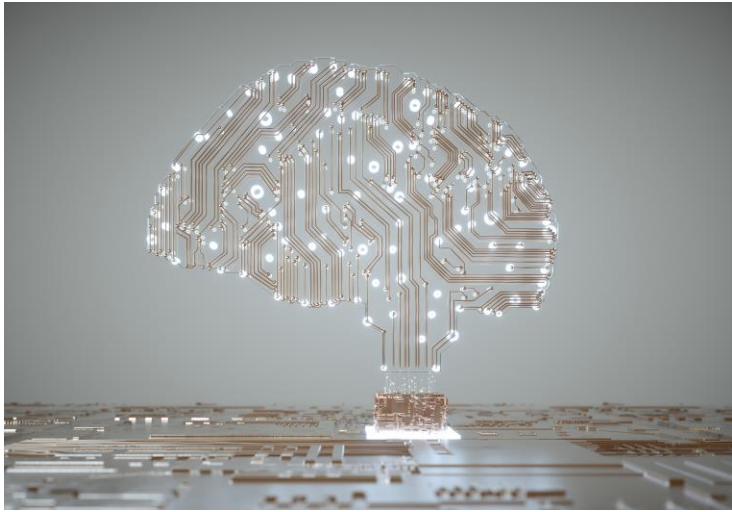
UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

APPLIED AI

Develop AI tools to mitigate bias, promote fairness and explainability in decision-making

Use machine learning to identify hidden patterns and relations in data

- Patient health records
- Medical device data
- Bio-monitoring wearable data



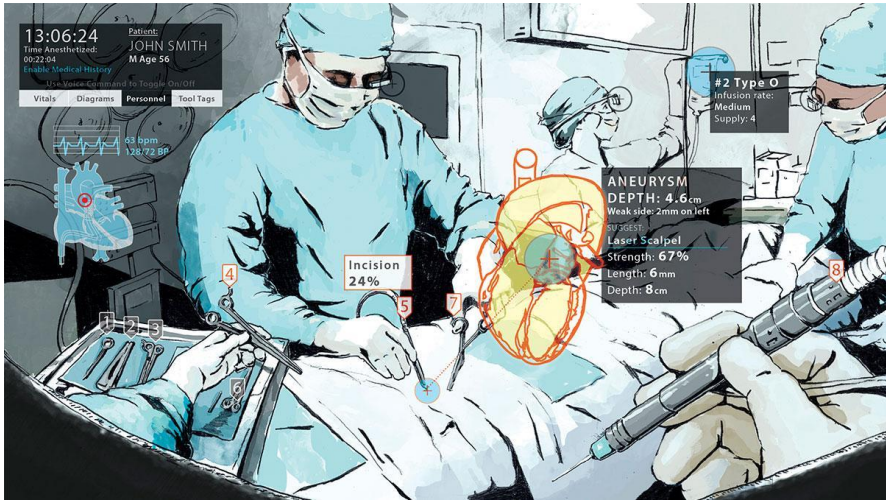
BIOINFORMATICS

- Harmonize and analyze data to create multi-omics data sets to advance systems biology and clinical analytics
- UMD already has a very strong bioinformatics research program and software used in the industry

IMMERSIVE VISUALIZATION

Develop augmented and virtual reality tools for health care scenarios

- Scientific, medical, information visualization
- Visual knowledge discovery
- Remote medical assessment
- Training tools



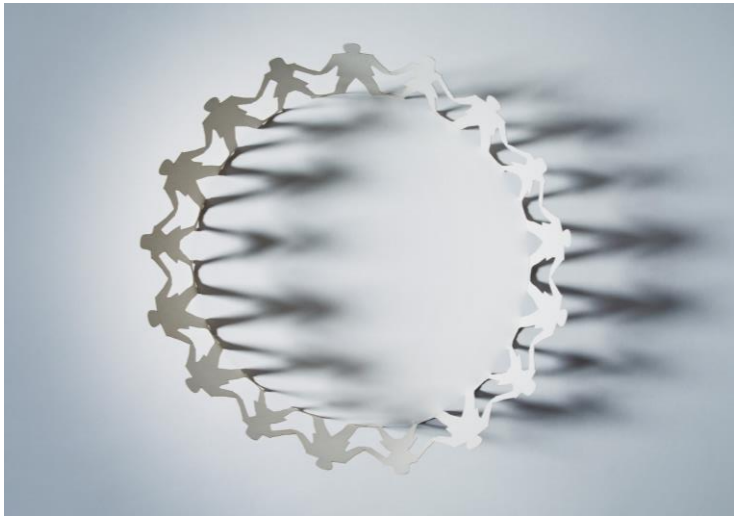
UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

REAL-WORLD EVIDENCE AND ADAPTIVE CLINICAL TRIALS

- Develop and deploy an adaptive platform that identifies patients that can benefit and limits the risk of a patient receiving a treatment that does not work
- Leverage the electronic health records to conduct community-based studies that broaden access to participation

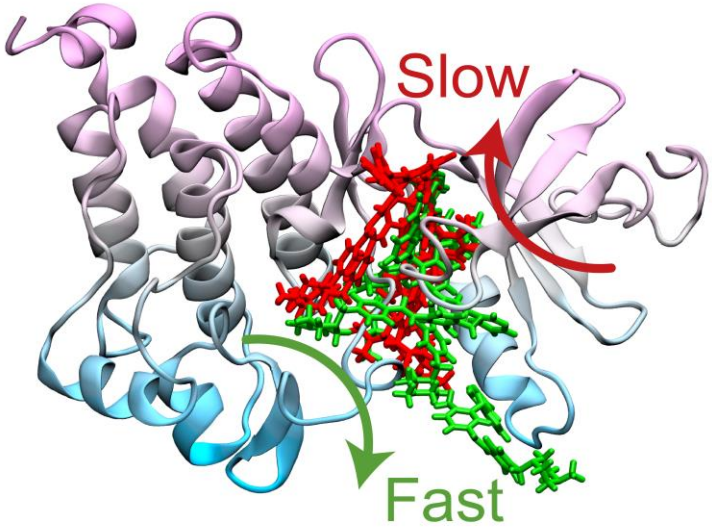
POPULATION AND COMMUNITY HEALTH

- Identify early signs of disease from electronic health records that enable early intervention
- Address fairness in training data and software tools to reduce disparities due to race, gender, and socioeconomic status



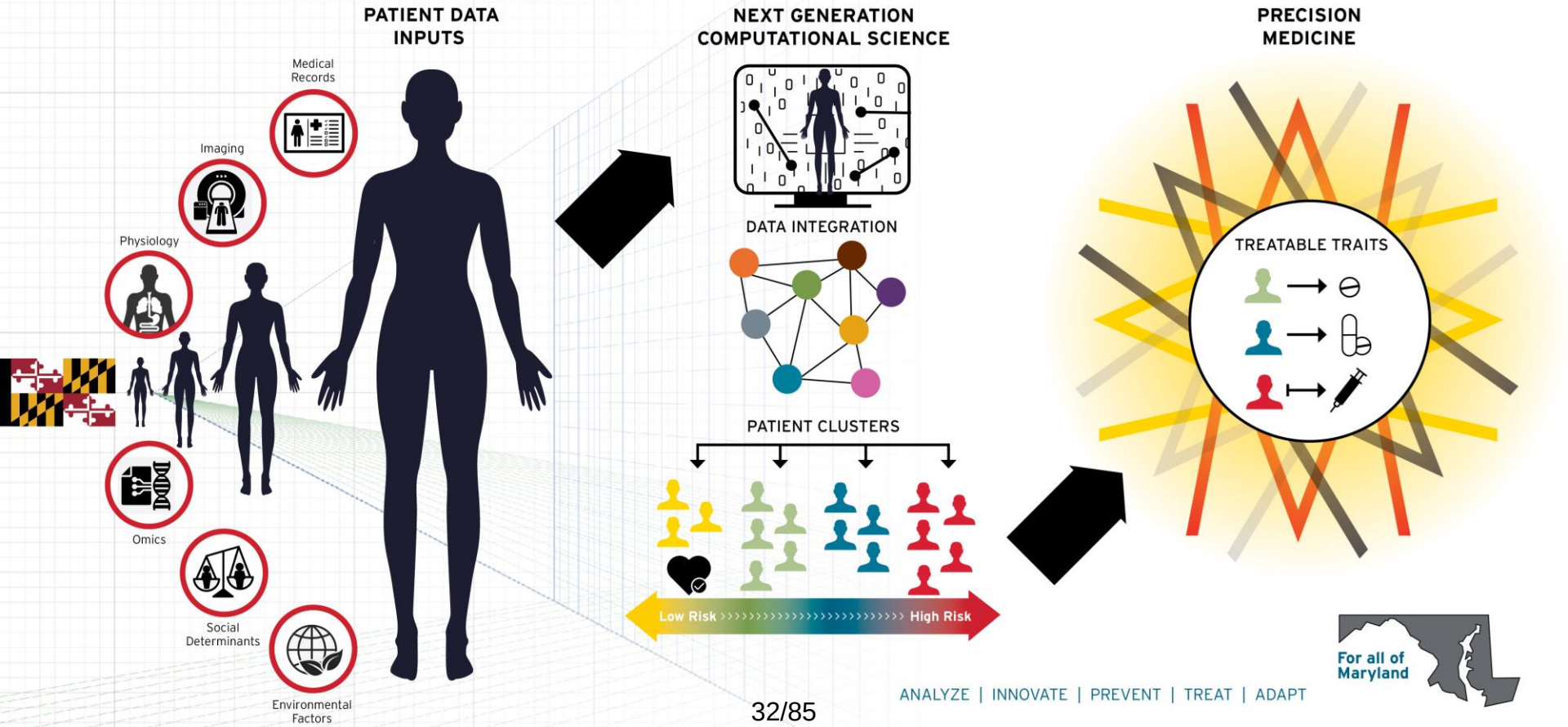
THERAPEUTIC TARGET DISCOVERY

- Identify novel therapeutic targets
- Apply data science to chemical assay results and biospecimen data
- Develop real-time algorithms, software systems and toolkits that ingest, filter, visualize, and analyze multiple interacting data streams



Using Data Science to Build a Learning Health System

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

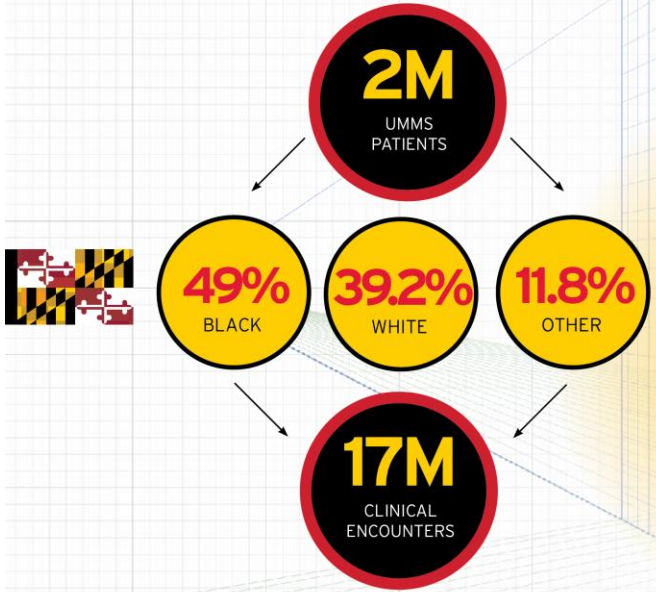


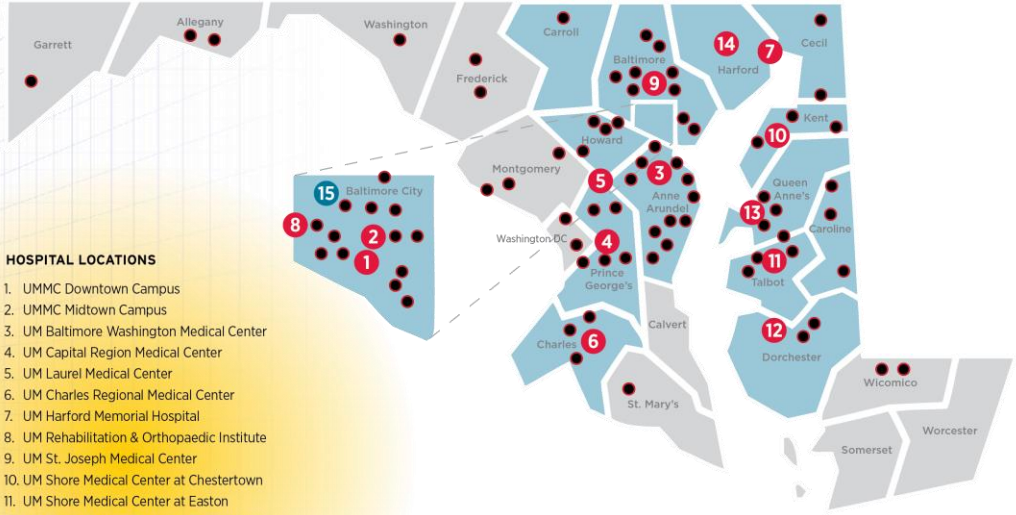
UMMS is Rare: A State-Wide and Diverse Health System

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

A Network Greater Than the Sum of Its Parts

UMMS provides care to 2 million unique and diverse patients across Maryland.





HOSPITAL LOCATIONS

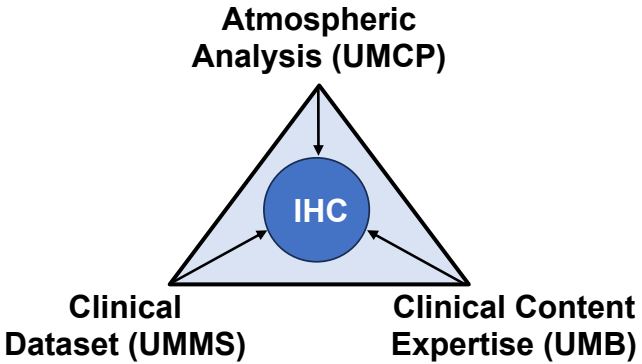
1. UMMC Downtown Campus
2. UMMC Midtown Campus
3. UM Baltimore Washington Medical Center
4. UM Capital Region Medical Center
5. UM Laurel Medical Center
6. UM Charles Regional Medical Center
7. UM Harford Memorial Hospital
8. UM Rehabilitation & Orthopaedic Institute
9. UM St. Joseph Medical Center
10. UM Shore Medical Center at Chestertown
11. UM Shore Medical Center at Easton
12. UM Shore Medical Center at Cambridge
13. UM Shore Emergency Center at Queenstown
14. UM Upper Chesapeake Medical Center
15. Mt. Washington Pediatric Hospital
    Joint Venture by UMMS and JHHS

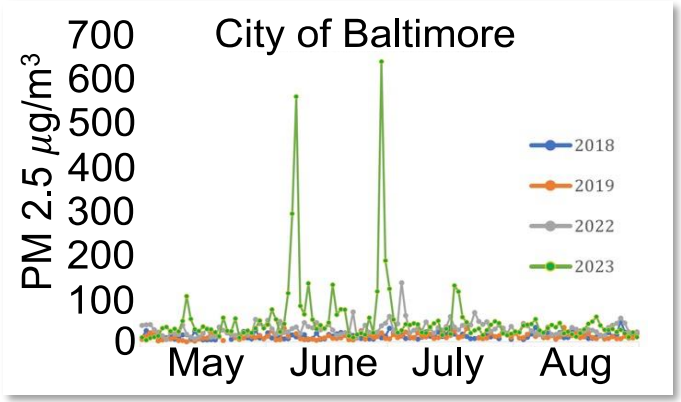
UMMS Primary Service Area
UMMS Secondary Service Area
UMMS Facility
Physician Faculty/Community Practices
Joint Venture

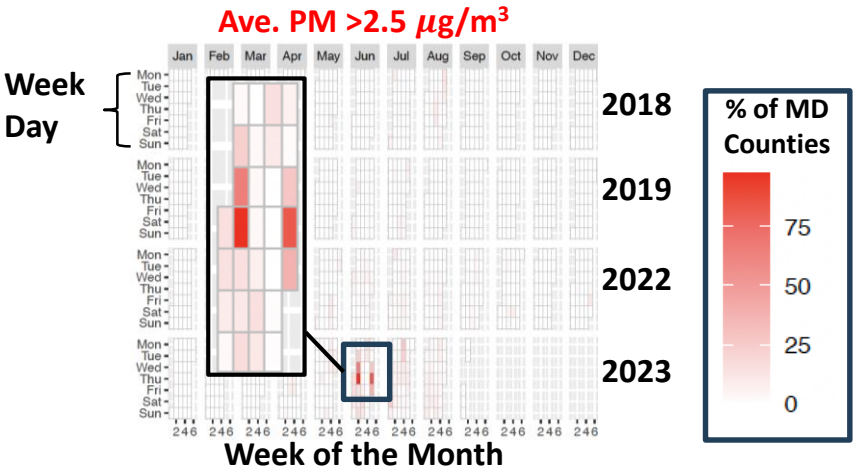
For all of Maryland

ANALYZE | INNOVATE | PREVENT | TREAT | ADAPT

MODEL OF SUCCESS: EARLY EXAMPLE







>1 Million Individual Data Points

Age	Sex and Race
Date Discharge	Length of Stay
Hospital	Date admission
Geolocalization	Chest X-ray Use

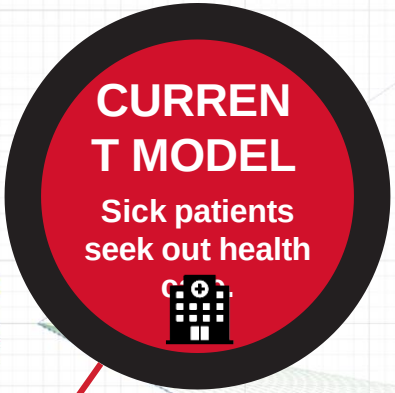
Heart-Lung Clinical Encounters: Hotspots vs.	
June 2023	+32%
2018+19	+38%

MODEL OF SUCCESS: EARLY EXAMPLE

- **Current Goals:**
  - -Optimizing analyses
  - -Geolocalize affected patients, assess for health equity trends
  - -Build models to quantitate economic impact for future planning
- **Next-Step Goals:**
  - -Use data science to build predictive models (Abba Gumel, Ph.D.)
  - -Establish preventative strategies to deploy resources for future events
- **Intermediate-Range Goals:**
  - -Approach Dept. of Public Health to address policy opportunities
  - -Build business model for evidence-based 'AQI detection-deployment'
    - e.g., Target high-risk patients for 'mail-out inhaler' program

DECONSTRUCTING BARRIERS TO CARE

UM-IHC: Bringing Health Care *to* the People



-Limits Access to Care
-Favors Health Inequity
-Imprecise, ↓Outcomes
-Slow, stagnate, costly

healthcare to patients.

Enabled by data science:

- Artificial Intelligence
- Bioinformatics
- Immersive Reality
- Other Digital Health Technologies

ANALYZE | INNOVATE | PREVENT | TREAT | ADAPT

For all of Maryland

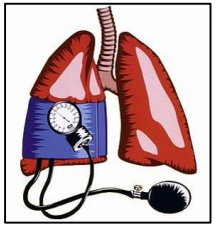
IARYLAND
HEALTH COMPUTING
MPOWERING THE STATE

AUTOMATING REFERRAL TO AN EXPERT

Yesterday

Today

Pulmonary Hypertension



- **Ultra-silent killer**
- **>81,000 publications**
- **Evolved expertise**

Internist

Lung doctor

Lung vascular doctor

Pulmonary hypertension expert

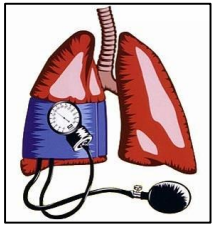
AUTOMATING REFERRAL TO AN EXPERT

Yesterday

Today

Pulmonary Hypertension

- Ultra-silent killer
- >81,000 publications
- Evolved expertise



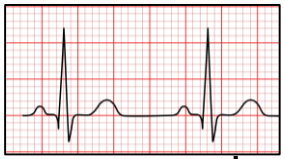
- Internist
- Lung doctor
- Lung vascular doctor
- Pulmonary hypertension expert

"No physician can diagnose a condition [she or] he never thinks about."

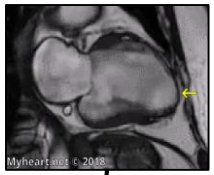
-Michael DeBakey, American Cardiac Surgeon

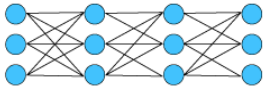
-Common Medical Tests
-Diverse Indications

12-Lead ECG



Cardiac Imaging





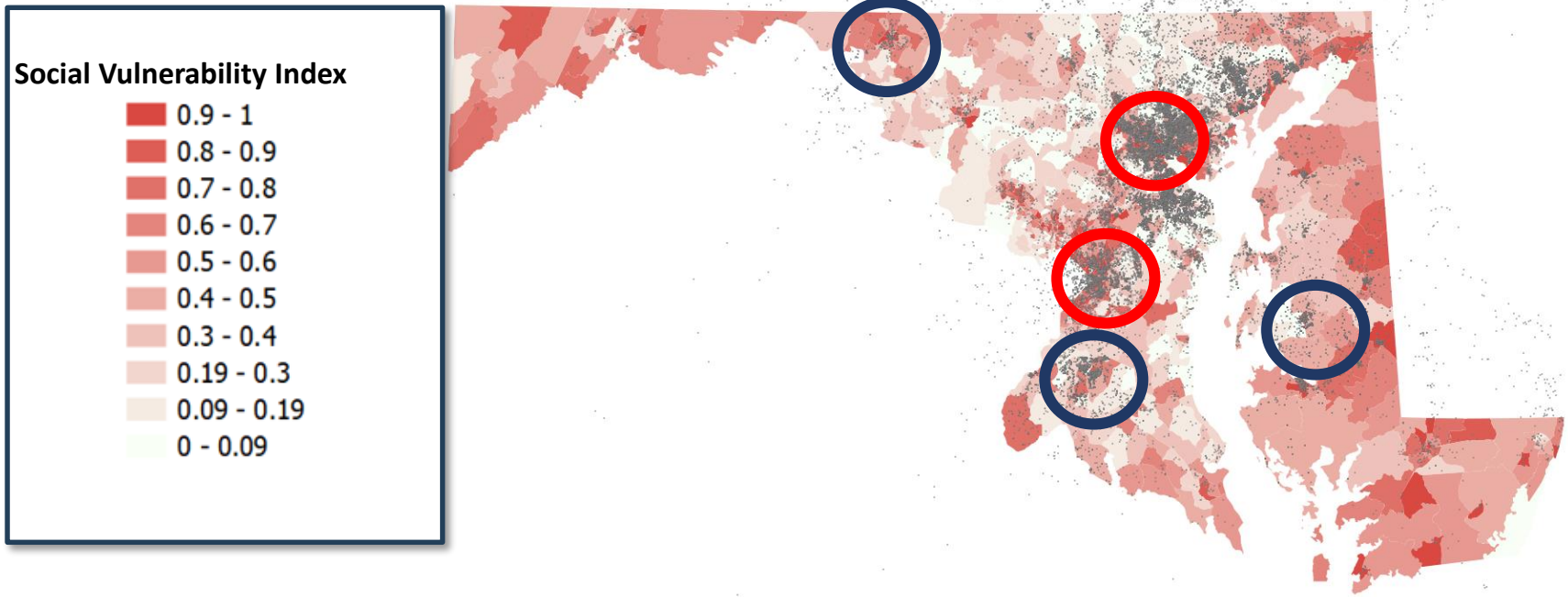
Deep Learning

Identify **Hidden** Patterns that Diagnose Patients at ↑Clinical Risk

Automated Referral to a Specialist

FIXING PROBLEMS AT SCALE AT IHC

Geolocalization of Patients At-Risk for Pulmonary Hypertension



ADVANCING REAL-WORLD DATA

Current Clinical Trials

Medicine

Site Selection

Hunt for Patient

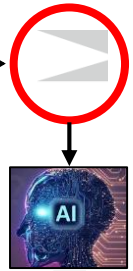
Restrictive
Disruptive
Costly

Centralized
Controlled
Artificial

Pragmatic Trials

UMMS Clinical Data

Biologics
Environmental Drivers



Set Enrollment Criteria

Enroll at >15 Hospitals at Point-of-Care

Scalable
Effective
Personalized

Accessible
Rapid
Dynamic

Impact

FDA Advances Program for Real-World Evidence

The NEW ENGLAND JOURNAL of MEDICINE
Perspective
Why Diverse Clinical Trial Participation Matters
Aaron L. Schwartz, M.D., Ph.D., Marcella Alsan, M.D., Ph.D., Alanna A. Morris, M.D., and Scott D. Halpern, M.D., Ph.D.

NIH National Institute on Minority Health and Health Disparities

Medical System

Data Science — **Diverse Populations**

Geometric Impact

Cancer
Heart Disease
Trauma
Mental/Neuro Health
Maternal/Fetal

HIGH TECH ECONOMIC HUB

- Advance research in computing and life sciences as a driving force for economic development
- Develop skilled talent
- Strong collaboration with industry and federal agencies
- Community building events, classes, and workshops
- Support for start-ups
- Attract companies
- Grow supercluster

PARTNERSHIP EXAMPLES

First founding partner

PI: Sujal Bista

Grant: $750K for one year

Location: IHC, North Bethesda

Research Area

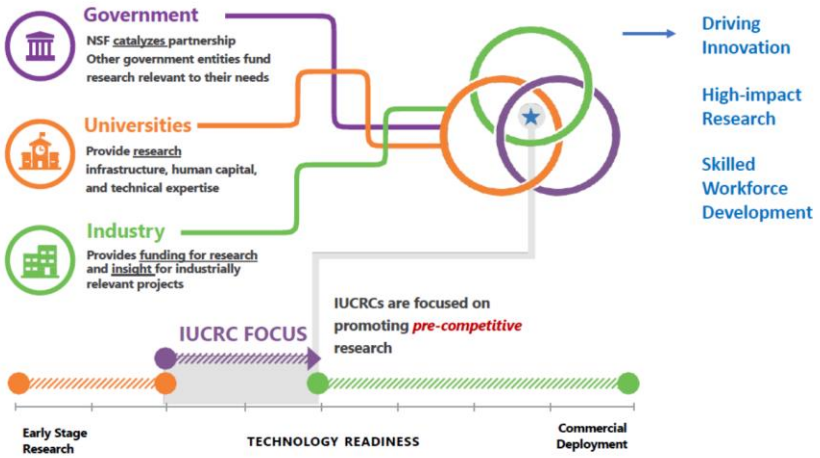
- AI-enabled data analytics
- Medical Visualization
- Immersive medic to treat pain and addiction

UNIVERSITY OF MARYLAND
INSTITUTE FOR
HEALTH COMPUTING
MPOWERING THE STATE

PARTNERSHIP EXAMPLES

MIXR
CENTER FOR MEDICAL INNOVATIONS IN EXTENDED REALITY

Industry-University Cooperative Research Center (IUCRC)



U.S. FOOD & DRUG ADMINISTRATION

Microsoft

MediView

SONY

COOK ADVANCED TECHNOLOGIES

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

PARTNERSHIP EXAMPLES

Funded

Prevalence and Burden of Pulmonary Hypertension

— ***Cardiovascular Medical Research and Education Foundation***

Developing InnoVative Equity-focused Regulatory SciencE (DIVERSE)

— *Food and Drug Administration* (Partnership with PATIENTS Program

Likely Funded

Pharmacological Management of Diabetes with Chronic Kidney Disease

— National Institutes of Health (Partnership with University of Miami)

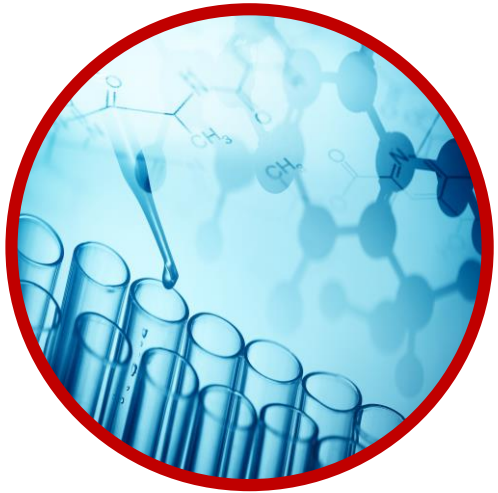
Pragmatic Trials to Treat Pregnancy-Induced Hypertension

— *Philanthropic Donor*

Submitted or in Preparation

Individualizing the Management of Obesity

—Pharma



PARTNERSHIP EXAMPLES

The NEW ENGLAND JOURNAL of MEDICINE

Preparing Physicians for the Clinical Algorithm Era

Katherine E. Goodman, J.D., Ph.D., Adam M. Rodman, M.D., M.P.H., and Daniel J. Morgan, M.D.

BMJ Journals

bmjmedicine

Advances in in the Management of Type 2 Diabetes

Galindo RJ, Trujillo J, Low Wang CC, McCoy R. 2023, In press.

American Journal of Respiratory and Critical Care Medicine

Pulmonary Hypertension: A Contemporary Review

Shelsey Johnson[1,2*], Natascha Sommer[4*], Katherine Cox-Flaherty[5*], Norbert Weissmann[4], Corey E. Ventetuolo[5] and Bradley A. Maron[3,7]

Circulation

Bleeding and Myocardial Infarction in Acquired Factor VIII Deficiency

Kim J, Stern R, Maron BA. 2023 In press.

CHEST JOURNAL

Automated CT-Based Quantification of Pulmonary Veins

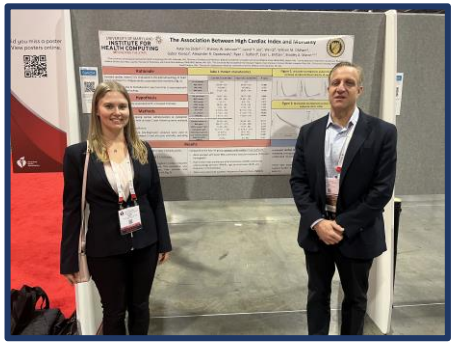
Synn A…Maron BA…Rahaghi F. In press 2023

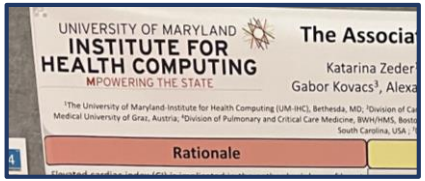
Manuscript in Preparation

Building A Statewide Learning Health System: Advancing Health Equity at Scale

Authors: ***from the UM-IHC***

American Heart Association





UNIVERSITY OF MARYLAND INSTITUTE FOR HEALTH COMPUTING MPOWERING THE STATE

CURRENT STATUS

- **Lease Signed**: 27,000 sq. ft. space, adjacent to NIH, FDA, NCI
- **Recruits:** 21 Faculty and staff members, 3 Students and trainees, 3 Extramural collaborator groups
- **Partners**: Cardiovascular Medical Foundation, NIH, FDA, WiPro
- **Active Projects**: 10
- **Research Grants**
  - $15 million to the CDC (submitted)
  - $750K from WiPro (funded)
  - $500K to a Top-15 Pharma company (submitted)
  - $400K to a Philanthropic donor (submitted)
  - $300K to the Cardiovascular Medical Research and Education Foundation (funded)
  - $250K to the FDA (submitted)
  - $100K to the NIH (submitted)

6116 Executive Boulevard, North Bethesda, MD

Return on Investment

The First Five Years

		Generates	Multipliers
Recruits	**1 FACULTY MEMBER**	• $1M/year in grants and contracts • $19K/year in state and local tax revenue	• Hires research staff and programmers • Founds a new company • Generates licensing revenue for novel intellectual property
Innovation	**1** Montgomery County **(BIO)TECH COMPANY**	• $19M in venture capital funding • 45 new jobs	• Attracts established firms to an area rich with startup energy • Provides internship and employment opportunities for students and alumni
Education	**1 STUDENT**	• $11,000/year in tuition • $22,000/year in rent and local spending	• Enhances hiring pool for local companies • Remains in Maryland and builds the tax base
Research Infra-structure	**1 CLINICAL TRIAL**	• $1M in pharmaceutical funding • Supports the employment of 20+ people	• Early access to novel therapeutics for historically underrepresented populations • FDA drug approvals for Maryland-based pharmaceutical companies

For all of Maryland

ANALYZE | INNOVATE | PREVENT | TREAT | ADAPT

POTENTIAL PARTNERSHIPS

UMD ALUMNI EVENT IN MONTGOMERY COUNTY – JUNE 2023

SUMMARY AND CONCLUSIONS

Key to success: Unified Collaboration

Avoid over-programming a vertical hierarchy: Stunts creativity and slows progress

Build projects that leverage UMD-UMB-UMMS

Be highly productive:

Academics, Innovation, Entrepreneurship

Try to have fun ☺ while doing it…!

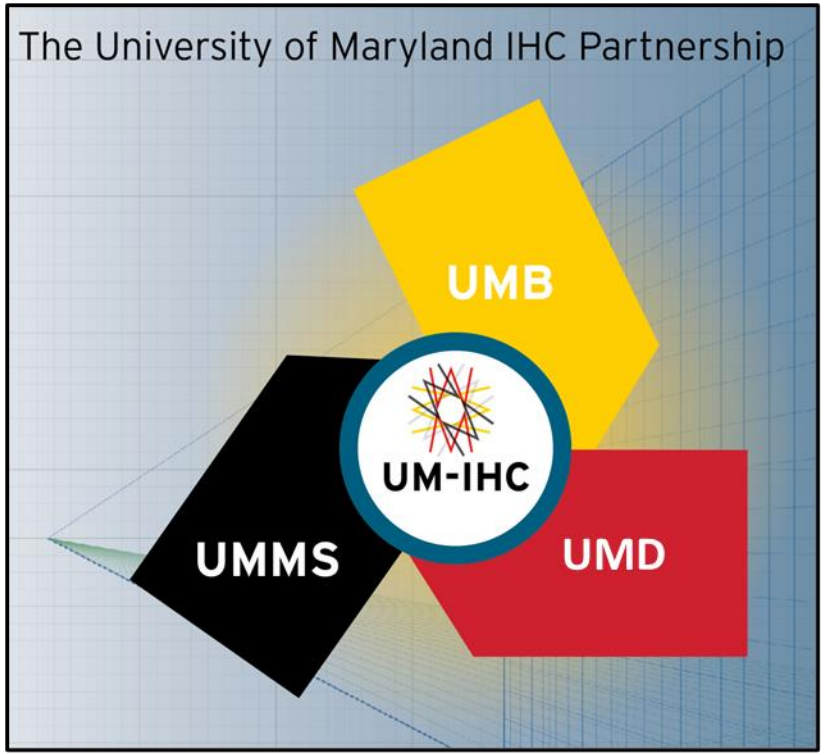

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

Sujal Bista, PhD
UMD

Bradley A. Maron, MD
UMSOM

EXTRA SLIDES

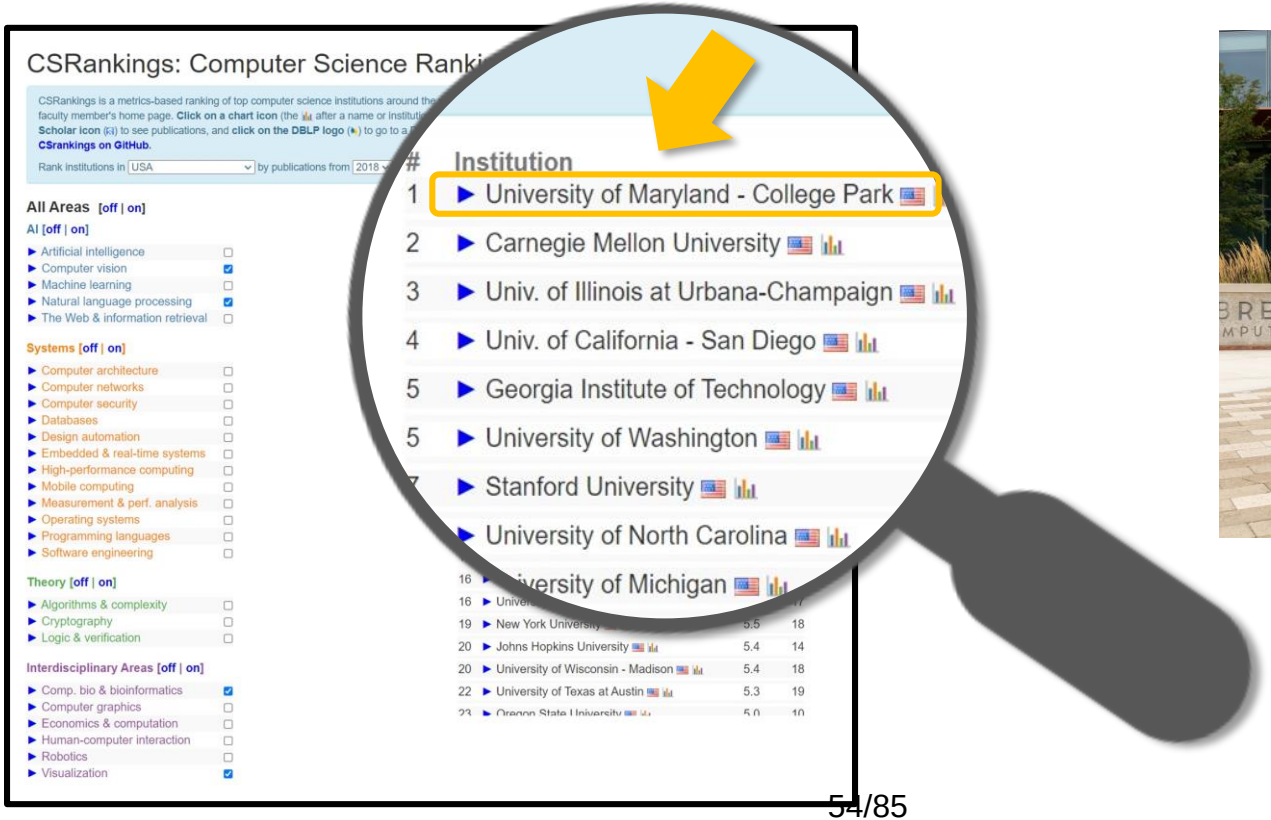
A NOVEL CONVERGENCE POINT

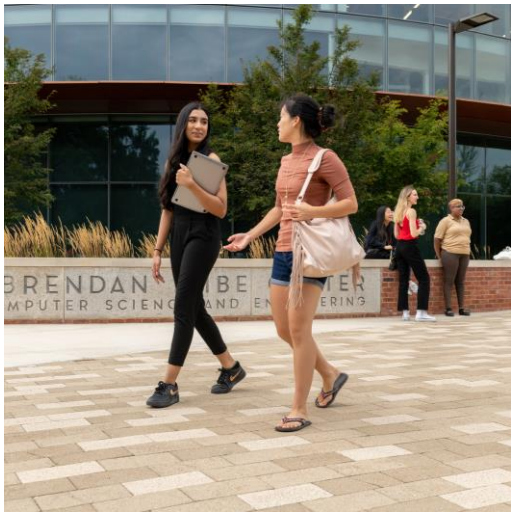


- Centralize collaboration
- Ethos: “Sum is greater than individual parts”
- Deconstruct Silos and Historical Barriers to Progress
- Build a Wall of Success

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

UMD IS #1 IN APPLIED AI, BIOINFORMATICS, VR/AR





UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

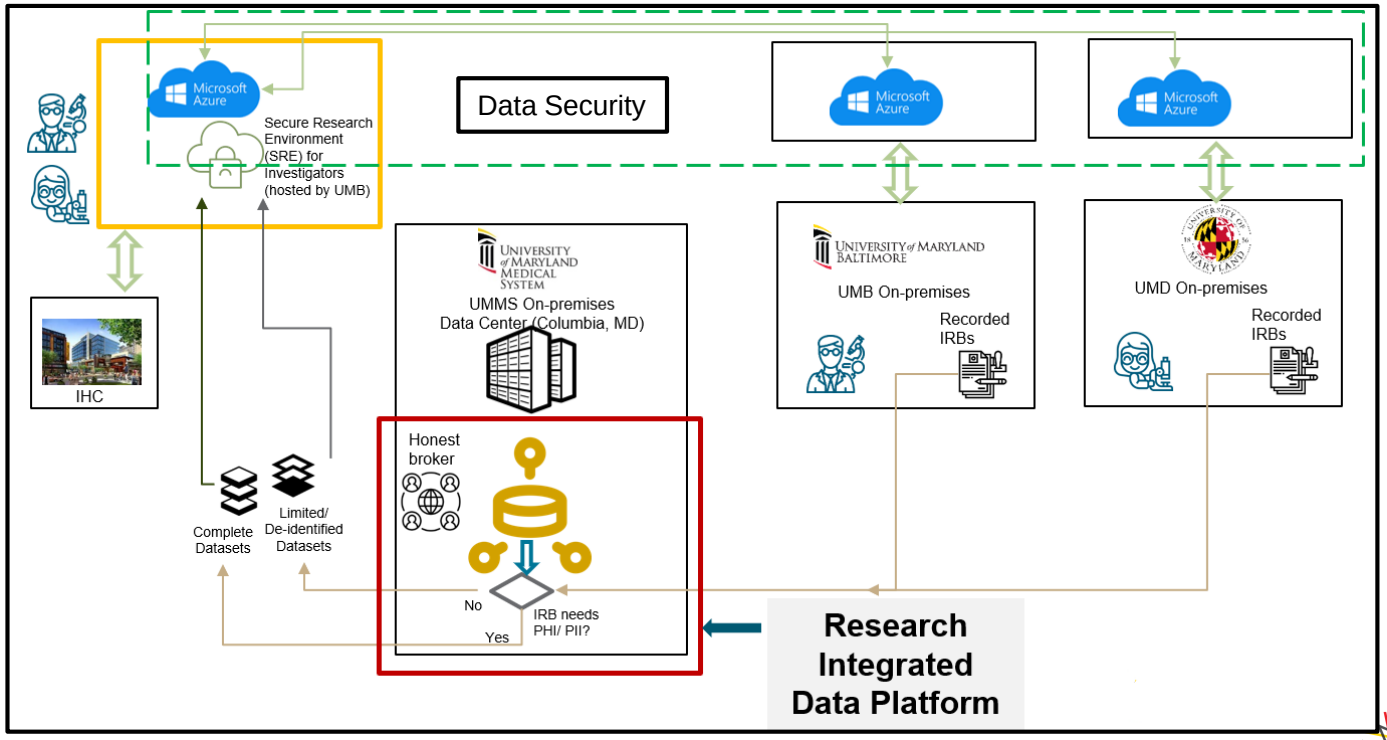
OFFICE LOCATION:
6116 EXECUTIVE BLVD, NORTH BETHESDA

MOVE-IN PLANNED FOR DECEMBER 2023

UNIVERSITY OF MARYLAND
INSTITUTE FOR
HEALTH COMPUTING
MPOWERING THE STATE

IHC: AMPLIFYING ANALYTICAL POWER

Build out



Benefits

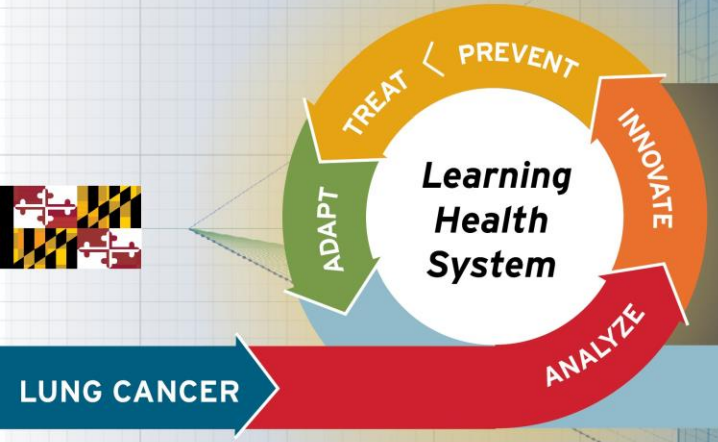
Function

- ↑↑ Project Capacity
- ↑↑ Project Complexity
- ↑↑ Productivity of IHC
- ↑↑ Innovation at IHC
- ↑↑ Personnel at IHC

Access Points

- IHC
  - ↑↑ Speed
  - ↑↑ Throughput
- UMB, campus wide
- UMCP, campus wide

USING THE LEARNING HEALTH SYSTEM TO IMPROVE OUTCOMES



- Integrate clinical and operational data to identify successes and quality improvement opportunities.
- Devise novel approaches to diagnosis, treatment, and delivery of care.
- Gather and observe data as practice trends rollout.
- Translate knowledge and evidence into practice improvements.

LUNG CANCER → More access to care. → Better quality of life. → Increased longevity.

Use Computational Sciences to:

Anticipate Disease > Detect Early > Proactive Screen > Save Lives

For all of Maryland

ON-SITE ENGAGEMENT AT IHC

- Workstations
  -Graphics
  -AI

Momentum Fund Update – Mike Ravenscroft

University System of Maryland

MARYLAND MOMENTUM FUND

Maryland Momentum Fund

USM Venture Fellows Program

Prepared for:
USM Board of Regents - Committee on Economic Development and Technology Commercialization

Presented By:
Mike Ravenscroft
Managing Director

Our North Star:

Equip USM students with the skills, connections, and professional experience they need to build careers in venture capital.

About me:

Managing Director, Maryland Momentum Fund
University of Maryland, College Park MBA ‘21
Consulting, accelerators, venture capital

INTRODUCTION

THE PROBLEM

There are few opportunities for USM students to gain exposure to venture capital. As a result, the industry remains insular and difficult to access.

THE SOLUTION

Create a robust regional talent pipeline using the Maryland Momentum Fund’s network of VCs and our access to the USM talent pool.

VENTURE FELLOWS

The University System of Maryland's Inaugural Venture Fellows Program will select talented undergraduated and graduate students, educate and train the fellows on the foundations of venture capital, and match them with top-tier funds for summer internships.

ABOUT THE FELLOWSHIP

OUR MISSION:

Empower students of all backgrounds to enter and explore the venture capital and early-stage finance industries confidently and fearlessly.

GOAL

Serve as a critical talent pipeline for venture funds in the Mid-Atlantic and beyond, providing USM students an on-ramp to enter the industry.

PROGRAMS

The Venture Fellows Program consists of three phases: Applications and Matching, Educating & Training, and mentorship through their Summer Internship.

The USM Venture Fellows Program
How it Works:

Recruit

Franklin Advisory

University System of Maryland

Maryland Momentum Fund

Connect

Upskill

VC UNIVERSITY

LEARN THE NUTS & BOLTS OF VC!

startup@BerkeleyLaw

nvca

Network

Maryland Tech Council

UpSurge Baltimore

techstars

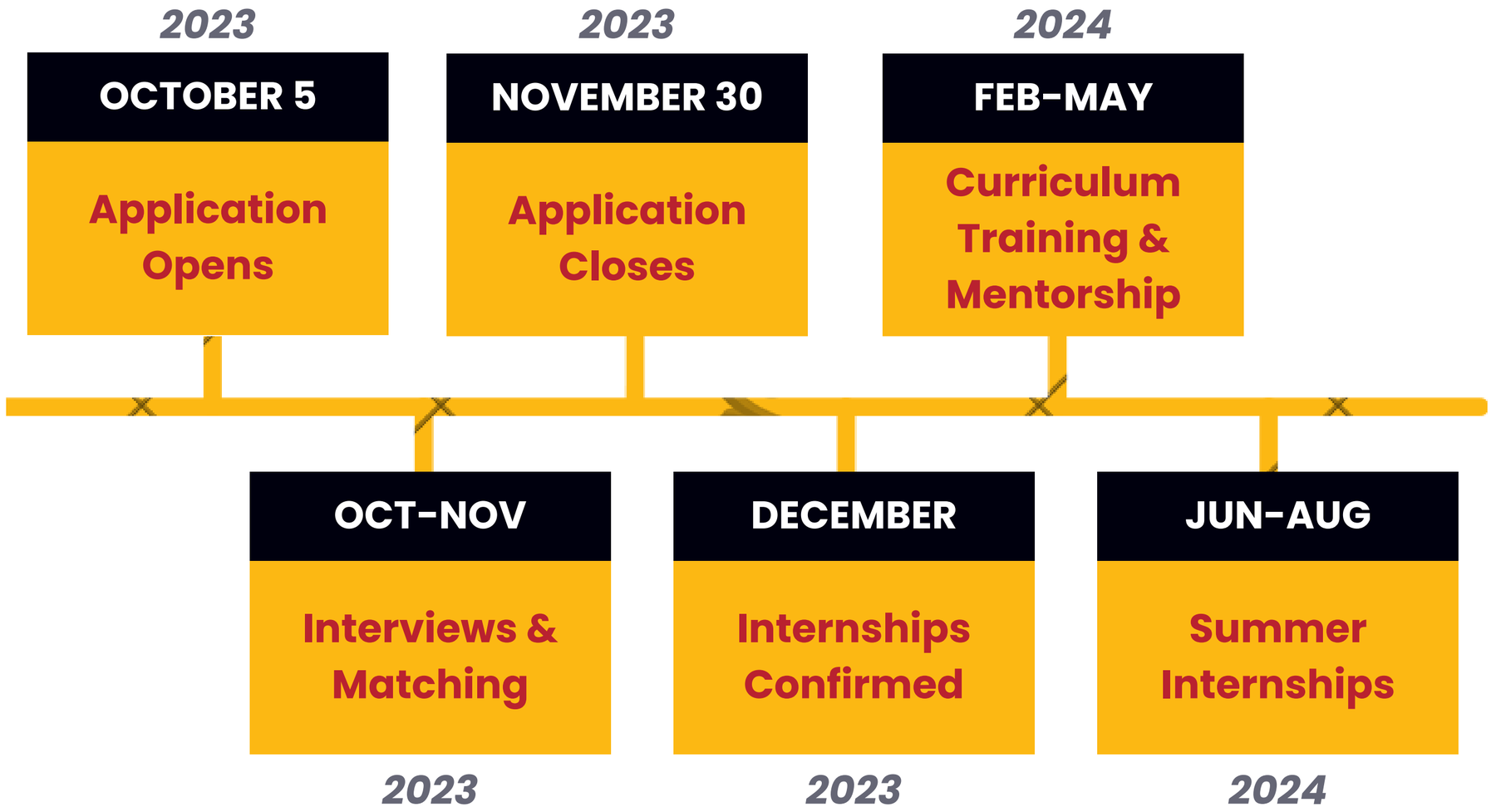
Mentor

University System of Maryland

Maryland Momentum Fund

Internships!

APPLICATION & PROGRAM TIMELINE



How are we doing so far?

20 venture funds, angel groups, and accelerators committed to interview our applicants

57 student applications from UMD, UMB, UMBC, Bowie State, Frostburg State, Towson, University of Baltimore

3 internship offers out, 1 accepted

VC fund manager feedback so far: “You made this process easy to manage and this is a high quality group of applicants.”

Our goals with the pilot:

Refine program design and build playbook for execution

Build and strengthen relationships with partner venture funds and angel groups

Market the program across the system

Deliver value-add interns to our partner venture funds via a seamless, curated hiring experience

Our goals with the program:

Build the nation’s leading Venture Fellows Program

Become an indispensable aspect of the regional talent pipeline for VC firms and angel groups

Foster knowledge sharing and collaboration across USM institutions

Create opportunities for alumni to give back, participate, and fund student scholarships / program participation

Where does this go next?

In talks with UMD to make a “Veterans in VC” track

Expanding out to cover national venture funds

Creating a similar fellows program for students seeking startup and/or growth tech company experience

Alumni sponsorship of fellows (i.e. scholarships or subsidized internships)

Launch Fund Update – Executive Director of Economic Development Lindsay Ryan

Office of the Vice Chancellor for Research and Economic Development

Board of Regents Committee on Economic Development and Technology Commercialization

Update

University System of Maryland

November 30, 2023

The University of Maryland climbed into the nation's top five colleges for cultivating student entrepreneurialism, according to rankings by The Princeton Review and *Entrepreneur* magazine. UMD placed No. 5 across all institutions, No. 4 among public universities and No. 1 in the Mid-Atlantic in the 2024 edition of the annual list of undergraduate entrepreneurship programs; this marks Maryland's ninth straight year in the top 10.

USM LAUNCH FUND UPDATE

Lindsay Ryan
Executive Director of Economic Development
University System of Maryland

November 30, 2023

University System of Maryland

LAUNCH FUND BACKGROUND AND COMPONENTS

Charge: "Enable relatively small amounts of capital (under $75,000) to be deployed to USM-affiliated entrepreneurs and ventures in order to demonstrate the generation of economic development activity…to enable flexible, non-prescriptive early capital to be deployed alongside resources and accountability"

Components:

1. Microgrants for students and employees **– launched!**
2. Grants and investments for ventures **– grants launched!**
3. Pre-entity funding, e.g. proof of concept **– in development**

EARLY IMPLEMENTATION SUCCESS AND CONTINUOUS IMPROVEMENT

Encouraging preliminary evaluation of **values** by Executive Committee and external reviewers (average rank of 4-5 out of 5):

- Diversity, equity, and inclusion
- Transparency
- Adding value to all applicants and institutions

"The fund is a lot more transparent than other opportunities I've seen, and I think the thoughtful, personalized feedback is well appreciated." – Launch Fund Reviewer

"An amazing service to the start up community in Maryland!" – Applicant

Future improvements identified (e.g., sustainability in adding value back).

VALUES SPOTLIGHT: DIVERSITY EQUITY & INCLUSION

Progress

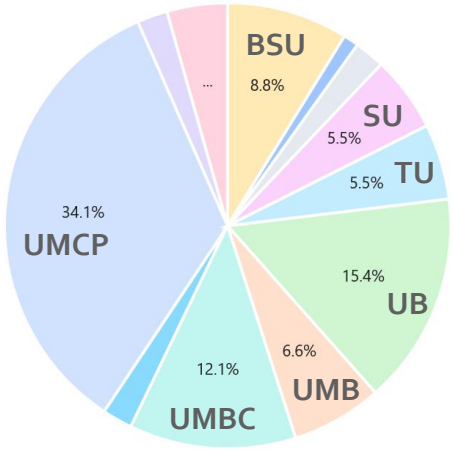
- Attracted a diversity of ventures and founders
- Sought and supported ventures with barriers to capital inclusion
- Ensured recipient pool reflected applicant pool
- Reporting on DEI in terms of representation

Future Work (*informed by applicants, reviewers, & Executive Committee)*

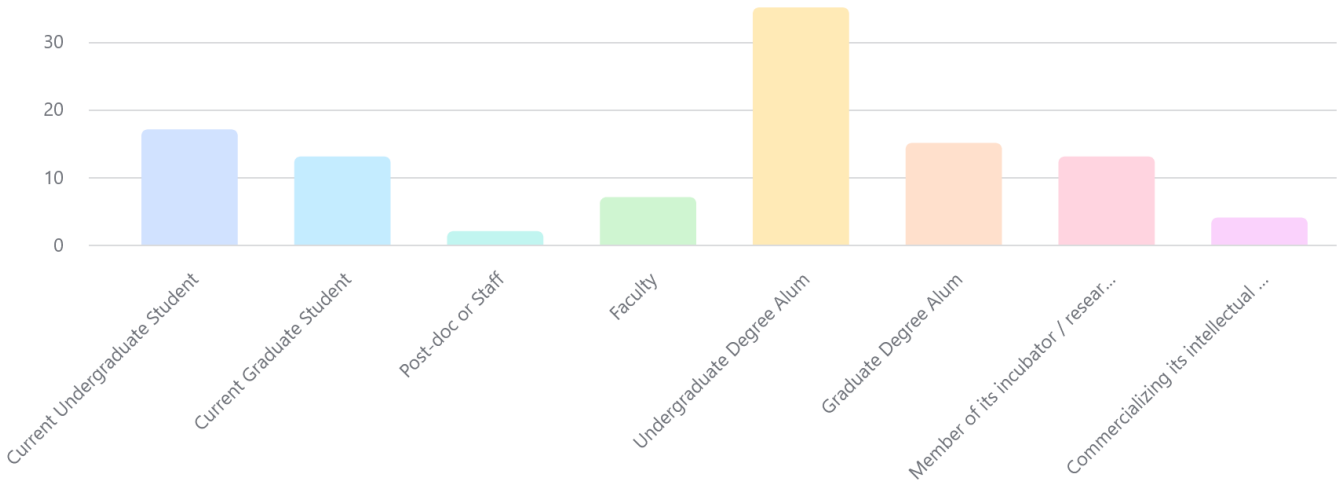
- Is the above enough; what is true equity? Any applicant/recipient goals?
- Consider total DEI effects, including DEI impacts of ventures.
- Continue assessment of inclusion through feedback.
- Keep DEI central when marketing the Fund (e.g., intentional outreach)

DIVERSITY EQUITY & INCLUSION: APPLICANTS AND RECIPIENTS

Institutional Affiliation



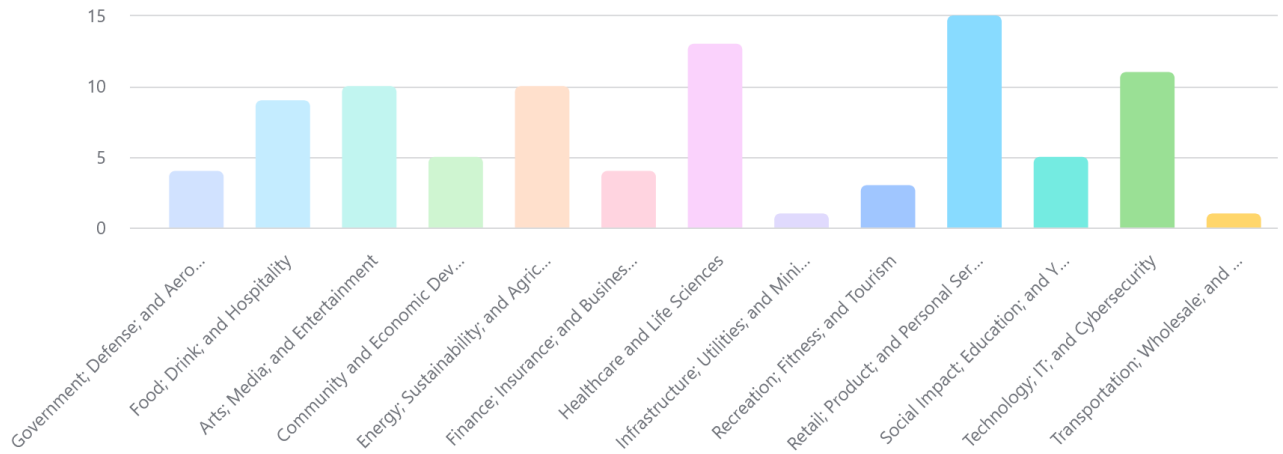
All 12 institutions represented!



Awardee mix: Generally similar

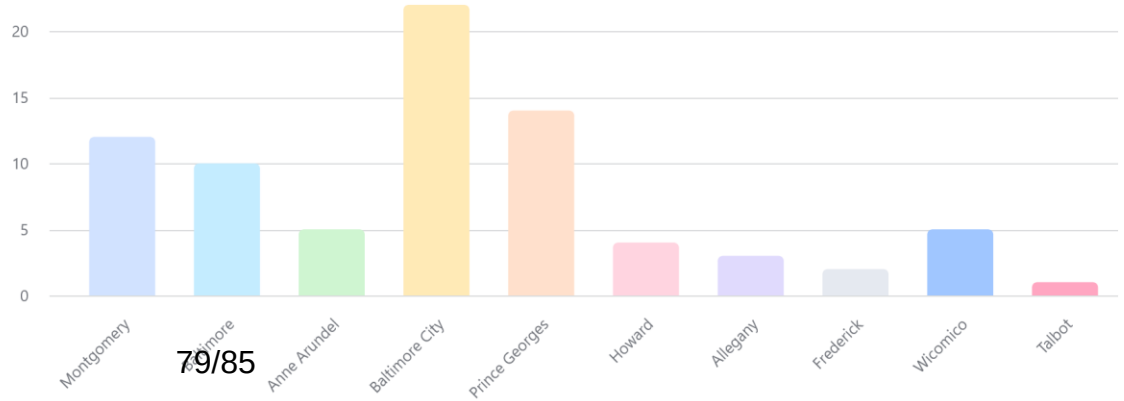
DIVERSITY EQUITY & INCLUSION: APPLICANTS AND RECIPIENTS

Industry



← Awardee mix: Generally similar, less IT/Cyber representation

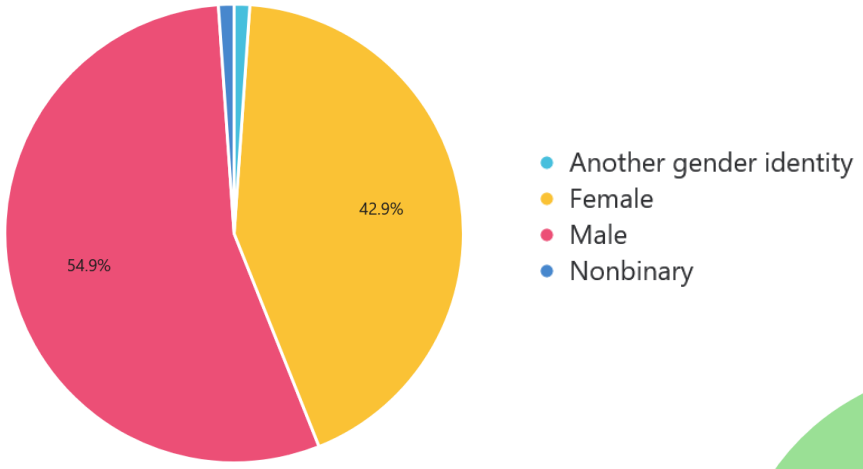
Entity County



Awardee mix: → Generally similar

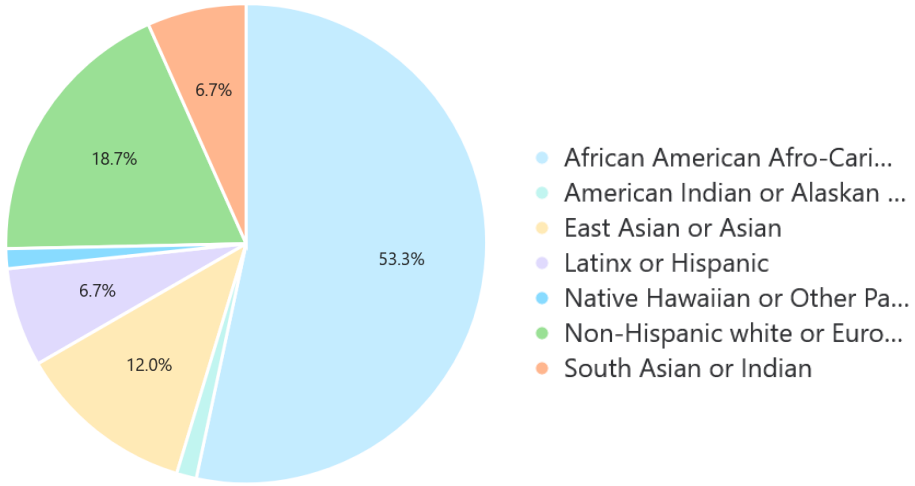
DIVERSITY EQUITY & INCLUSION: APPLICANTS AND RECIPIENTS

Founder Identities



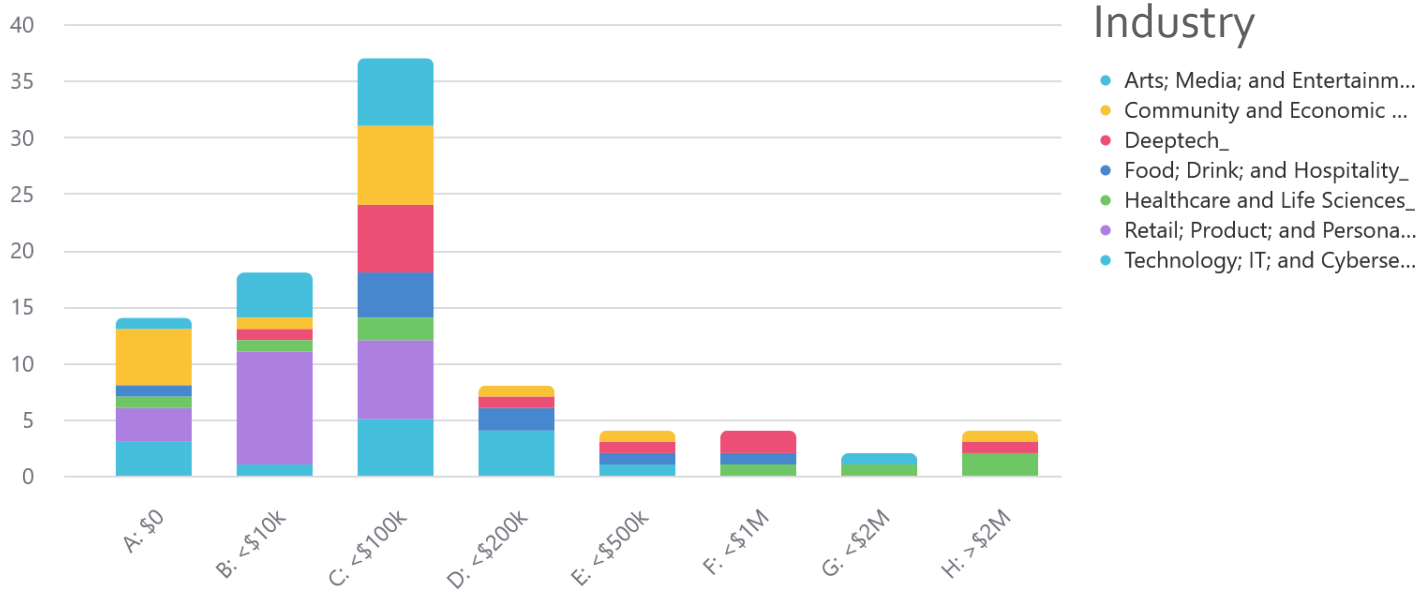
3 Veteran Founders
9 Founder with a Disability

Awardee mix:
Generally similar



DIVERSITY EQUITY & INCLUSION: APPLICANTS AND RECIPIENTS

Previous Funding



Awardee mix:
About half <$10k
Almost all <$100k

Former Entrepreneurial Experience:
– About 50-50 for applicants and awardees!

VENTURE GRANT AWARDEE IMPACTS

The Fund is **addressing a wide spectrum of early capital gaps, with early impacts and progress** in advance of structured reporting:

- Completing a critical milestone to get started
- Enabling a needed pivot
- Accomplishing critical milestones during the long process of raising dilutive venture funds (e.g., congrats to ReBokeh on recent investment!)
- Scaling/expanding

Takeways from awardee conversations:

- Funding has enabled more serious identification and consideration of non-financial resources that can move the needle
- Founders are values-driven and community-minded
- Funds have been critical but (as expected) are not enough

University System of Maryland

PLANNING FOR ENHANCED IMPACT

Potential and growth across USM is high. Pilot funding and implementation continues to focus on sustainability and expansion.

Demand Information	Scale-Minded Plan
Microgrant demand is high leads to more activity and ventures.	Complete 2nd round and articulate value
Venture grant need is already greater than pilot funds ($225k distributed for $3M in requests, at least $1.5M recommended to be funded!).	Tailor 2nd round with input from potential outside funders
Research translation is even more capital-intensive.	Develop with input from potential outside funders

University System of Maryland

PLANNING FOR ENHANCED IMPACT

Expand beyond the Launch Fund by convening other USM Funds and major resource center leaders:

1. Increase USM cohesion of USM ecosystem to benefit programs, applicants, recipients
2. Help articulate USM resources hopefully -- *$10M+ annual funds across 13+ sources!*
3. Strategize to collectively address gaps, enhance resources, and look ahead

Contact OVCRED

Michele Masucci, Ph.D.
Vice Chancellor for Research and Economic Development
mmasucci@usmd.edu
215-704-2739

Lindsay Ryan (she/her)
Executive Director of Economic Development
lryan@usmd.edu
410-409-2236

Mike Ravenscroft
Managing Director, Momentum Fund
mravenscroft@usmd.edu
410.706.3361

University System of Maryland