2023 TESTIMONY
to the MARYLAND
GENERAL ASSEMBLY

FEARLESSLY FORWARD

Presented by
Darryll J. Pines
President

UNIVERSITY OF MARYLAND

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PRESIDENT'S LETTER

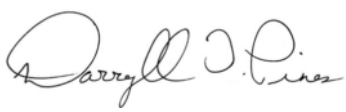
As a proud land-grant institution, the University of Maryland is building on its legacy of furthering the public good by preparing the next generation of leaders to solve society's most pressing issues.

We are proud of our efforts this past year to achieve excellence in all that we do and create an inclusive, multicultural campus environment where everyone can reach their full potential. Guided by our new strategic plan, *Fearlessly Forward*, we are reimagining learning; investing in people and communities; taking on humanity's grand challenges; and partnering to advance the public good.

I have great optimism that we will continue to do our part in improving public health, fighting for racial justice, curbing climate change and providing opportunities for everyone regardless of income or background. Through the discoveries of our faculty, the ingenuity of our students, and the partnerships that invigorate Greater College Park and beyond, the entire University of Maryland community is setting new standards in ambition and success.

Be it through new experiential learning opportunities in the classroom, cutting-edge facilities for instruction and collaboration, or the first steps toward creating a quantum internet, we are on the cusp of finding solutions that will make a better world.

Thank you for your continued support, and I look forward to all that we will accomplish together.



Darryll J. Pines
President, University of Maryland
Glenn L. Martin Professor of Aerospace Engineering

RISING IN RANKINGS

ACADEMIC SUCCESS

89%

SIX YEAR GRADUATION RATE FOR FIRST TIME, FULL TIME STUDENTS (FALL 2016 COHORT)

- Highest among public universities in the state of Maryland

11,597

DEGREES CONFERRED

8,423 bachelor's
2,542 master's
632 doctoral

STUDENT PROFILE (FALL 2022)

40,792

TOTAL ENROLLMENT

Undergraduate students:
30,353

Graduate students:
10,439

50.2% Undergraduate students of color

FRESHMAN CREDENTIALS (FALL 2022)

4.47 AVERAGE GPA

SAT SCORES
1380 25th percentile
1520 75th percentile
1445 midpoint

Out of **56,766** new freshman applications, **4,742** enrolled

TOP UNDERGRADUATE DEGREES AWARDED

1. Computer Science (943)
2. Biological Sciences (548)
3. Information Science (454)
4. Mechanical Engineering (360)
5. Public Health Science (353)
6. Communication (341)
7. Finance (339)
8. Criminology and Criminal Justice (339)
9. Economics (245)
10. Psychology (221)

SELECT RANKINGS

U.S. NEWS & WORLD REPORT

No. 19 among top public schools

No. 12 among public universities ranked as best global schools

FORBES TOP PUBLIC COLLEGES

No. 14 among public universities ranked as America's Top Colleges

THE CHRONICLE OF HIGHER EDUCATION

No. 6 graduation rate among primarily residential public universities

THE PRINCETON REVIEW/ *ENTREPRENEURSHIP* MAGAZINE

No. 10 overall and **No. 4** among public universities for undergraduate entrepreneurship

NATIONAL SCIENCE FOUNDATION

No. 1 non-HBCU nationally and **No. 8** overall for Black or African American undergraduates who later achieve doctoral degrees

STUDENT AND SCHOLARSHIP SUCCESS

115

major national and international awards

- **1** TRUMAN SCHOLARSHIP TO PREPARE FOR PUBLIC SERVICE
- **1** SCIENCE, MATHEMATICS, AND RESEARCH FOR TRANSFORMATION FELLOWSHIP
- **1** RANGEL FELLOWSHIP TO PREPARE FOR U.S. FOREIGN SERVICE
- **1** HERTZ FELLOWSHIP TO PURSUE INNOVATIVE RESEARCH AND ENTREPRENEURIAL IDEAS
- **2** PUBLIC POLICY AND INTERNATIONAL AFFAIRS PROGRAM FOREIGN POLICY SCHOLARSHIPS
- **2** CHURCHILL SCHOLARSHIPS FOR STUDY AT THE UNIVERSITY OF CAMBRIDGE
- **3** GOLDWATER SCHOLARSHIPS HONORING STEM EXCELLENCE
- **4** NATIONAL DEFENSE SCIENCE AND ENGINEERING GRADUATE FELLOWSHIPS
- **6** HOLLINGS NOAA SCHOLARSHIPS FOR STUDY OF ENVIRONMENTAL SCIENCE AND POLICY
- **8** FULBRIGHT GRANTS FOR INTERNATIONAL EXCHANGE
- **10** CRITICAL LANGUAGE SCHOLARSHIPS
- **10** BOREN SCHOLARSHIPS AND FELLOWSHIPS FOR CRITICAL LANGUAGE STUDY OVERSEAS
- **30** NATIONAL SCIENCE FOUNDATION GRADUATE FELLOWSHIPS
- **36** GILMAN INTERNATIONAL SCHOLARSHIPS FOR STUDY ABROAD

KEVIN TU '22, a biological sciences and economics double-degree student, is one of only 15 students nationwide to earn a 2023 Churchill Scholarship. He will pursue a Master of Philosophy in oncology at the University of Cambridge, focusing on using machine learning to inform tumor monitoring and therapy selection for breast cancer patients.

Bioengineering major **NEELESH "NEEL" MUPPARAPU** '22 was awarded a George J. Mitchell Scholarship, one of only 12 nationwide. He will pursue a master's degree in public health at University College Cork and later attend medical school with the goal of addressing global health challenges, particularly health inequity and disparities.

The UMD School of Music's Maryland Opera Studio was a first-place winner in the National Opera Association's 2021-22 Opera Production Competition. "Late the Same Evening" was co-commissioned by the school and The Clarice Smith Performing Arts Center, with designs by MFA students.

FACULTY AND STAFF HONORS AND AWARDS

65

Members of national academies—a record—with the additions of:

NATIONAL ACADEMY OF SCIENCES

KATHARINE ABRAHAM

EDWARD OTT

RICHARD WALKER

NATIONAL ACADEMY OF MEDICINE

RUTH ENID ZAMBRANA

NATIONAL ACADEMY OF INVENTORS

ERIC WACHSMAN

JI-CHENG 'JC' ZHAO

AMERICAN ACADEMY OF ARTS AND SCIENCES

PATRICIA HILL COLLINS

RICHARD WALKER

49

Members of the American Association for the Advancement of Science with the additions of:

SONALDE DESAI Social, Economic and Political Sciences
SAMUEL GRAHAM, JR. Engineering
ABBA B. GUMEL Mathematics
MOHAMMAD TAGHI HAJIAGHAYI Information, Computing and Communication
WOLFGANG LOSERT Physics
DANA S. NAU Information, Computing and Communication
JI-CHENG 'JC' ZHAO Industrial Science and Technology

1

2

Inderjit Chopra (1), the Alfred Gessow Professor in Aerospace Engineering and director of the Alfred Gessow Rotorcraft Center, won the 2023 Walter J. and Angeline H. Crichlow Trust Prize from the American Institute of Aeronautics and Astronautics.

Distinguished University Professor of mathematics **Eitan Tadmor** received the 2022 AMS-SIAM Norbert Wiener Prize in Applied Mathematics and delivered the 2022 Gibbs Lecture at the joint math meeting of the American Mathematical Society.

American studies Associate Professor **La Marr Jurelle Bruce** received the 29th annual Modern Language Association Prize for a First Book and the 2022 Nicolás Cristóbal Guillén Batista Outstanding Book Award from the Caribbean Philosophical Association for his 2021 book, "How to Go Mad Without Losing Your Mind: Madness and Black Radical Creativity."

Alexey Gorshkov (2), a fellow in the Joint Center for Quantum Information and Computer Science and physicist at the National Institute of Standards and Technology, was named a 2023 fellow of Optica, the organization formerly known as the Optical Society of America.

The American Psychological Association appointed **William Liu**, professor and chair of the Department of Counseling, Higher Education, and Special Education, to be editor of the *Journal of Counseling Psychology*. He also received the 2022 Janet E. Helms Award for Mentoring and Scholarship.

Catherine Nakalembe (3), an assistant professor in the Department of Geographical Sciences, was awarded the Golden Jubilee Medal, Uganda's highest civilian award, for her efforts to improve food security in Africa.

Distinguished University Professor of entomology **Margaret Palmer (4)** was awarded honorary membership in the British Ecological Society for contributions to the generation, communication and promotion of ecological knowledge and solutions.

5

Allynn Powell (5), director of the Career Center, was named the Mackes Leadership Awardee by the National Association of Colleges and Employers, recognizing exemplary leadership skills and initiative while promoting an environment of respect, ethical standards, diversity, equity, inclusivity and innovation.

A multinational team of journalists that included **Dana Priest**, the Knight Chair in Public Affairs Journalism, won a George Polk Award in Technology Reporting for "The Pegasus Project." Its investigation found that military-grade Israeli spyware intended for tracking terrorists and criminals was used by authoritarian governments to hack the smartphones of journalists, activists and business executives around the world.

Karen Rane, director of the Plant Diagnostic Laboratory, received a lifetime achievement award from the National Plant Diagnostic Network, which maintains a central database and network of laboratories for monitoring agricultural pests and pathogens in the U.S.

WE REIMAGINE LEARNING

EXPANDING EDUCATION EXPERIENCES

Nearly 300 courses across 86 academic programs received support for the 2022-23 academic year from the new $2.7 million Teaching and Learning Innovation Grant Initiative, which calls for inclusive, experiential and holistic education. Students in classes supported by the grants will:

- Extract DNA from insects in nearby streams and use a DNA barcode and database system to identify the species;
- Partner with nonprofit organizations including Dreaming Out Loud, an urban farming operation; Kingdom Cares, which provides food, toiletries, household supplies and utilities assistance; and iFLY Youth, a school and international travel program for middle school girls;
- Use photographic interpretation and 3D printing to make a contemporary version of Bronze Age art; and
- Go inside a real manufacturing plant through virtual reality to gain a new understanding of supply chain operations.

NEW ACADEMIC PROGRAMS

- BACHELOR OF SCIENCE IN MECHATRONICS ENGINEERING
- BACHELOR OF ARTS IN TECHNOLOGY AND INFORMATION DESIGN
- MASTER OF PROFESSIONAL STUDIES IN BIOINFORMATICS AND COMPUTATIONAL BIOLOGY
- DOCTORATE OF BUSINESS ADMINISTRATION
- MINOR IN CREATIVE PLACEMAKING
- MINOR IN DATA SCIENCE
- MINOR IN DIGITAL STORYTELLING AND POETICS

The community and campus came together through a mural project led by Assistant Professor of Art Brandon J. Donahue to provide a vibrant backdrop for The Hall CP in the university's Discovery District and be a visual reminder of our shared future. The "creative placemaking" project is part of the new **Arts for All** initiative, which brings together the arts, technology and social justice to spark innovation and new ways of thinking.

The newly dedicated **School of Public Policy Building** draws together students, faculty and experts in interconnected areas designed to foster world-changing discourse and discussions. The 70,000-square-foot building unites the school's community under one roof for the first time in its 40-year history. With immersive videoconferencing, mic'd-up seating and transparent walls, the building's classrooms and gathering areas are designed to be contemporary versions of classic parliamentary debate chambers and to dramatically enhance the student experience.

WE INVEST IN PEOPLE AND COMMUNITIES

A NEW COMMITMENT

The university is setting aside an additional $20 million annually for scholarships for low-income students from Maryland in an ambitious new effort to increase affordability and access. The Terrapin Commitment reduces the gap between a student's total financial aid package and the cost of an education. The program ensures that tuition and fees are fully covered for Pell Grant-eligible, in-state students who are enrolled full time and have unmet financial need.

The dedication of **Johnson-Whittle Hall (1)** marked a new honor for two trailblazers who forged paths for Black and African-American Terps. The six-story, state of the art residence hall is named for Elaine Johnson Coates, who in 1959 became the first African American woman to earn an undergraduate degree at UMD, and Hiram Whittle, the first African American man admitted to the university in 1951. The building houses 450 students and members of the University Honors living-learning program, and is part of the new Heritage Community, which recognizes Terps who broke barriers and contributed to the university's diversity and culture.

As part of a groundbreaking new partnership with the nonprofit **International Rescue Committee (2)**, the University of Maryland is aiding in the temporary housing of refugee and evacuee families from Afghanistan. In this first-of-its-kind resettlement, the families include Afghan humanitarian parolees evacuated through Operation Allies Welcome as well as Special Immigrant Visa holders who faced the risk of persecution and violence in Afghanistan due to their work alongside U.S. personnel in jobs such as translators, drivers and cultural advisers.

More than 700 Terps returned to UMD for the first **Black Alumni Weekend (3)**. Organized by the Alumni Association and the Black Alumni Network, the three-day celebration featured sold-out signature events: the Gift of Giving gala, a "Terpchella" music festival and Sunday brunch.

WE TAKE ON HUMANITY'S GRAND CHALLENGES

MAKING AN IMPACT

To help address the world's most pressing challenges, from racial equity to climate change, the university will invest up to $30 million in its new Grand Challenges Grants program in four categories. A total of 50 proposals will receive funding: three Institutional Grants, six Impact Awards, 16 Team Project Grants and 25 Individual Project Grants.

Maryland Mesonet (1), a groundbreaking partnership between the state of Maryland and the University of Maryland, will build and operate a network of 75 weather-observing towers that will span the state and provide real-time, community-level monitoring to boost situational awareness during rapidly changing weather conditions.

A five-year, $41 million agreement with the U.S. Food and Drug Administration will expand the work of the University of Maryland-based **Joint Institute for Food Safety and Applied Nutrition (2)** (JIFSAN) to provide scientific information to fight food-related illness and enable the development of sound public health policy.

Named for the 120 Americans killed on average each day by firearms, the **120 Initiative** is a collaboration of D.C.-area universities co-created by UMD President Darryll J. Pines and George Mason University President Gregory Washington to support bold, creative and research-based ideas on curbing gun violence.

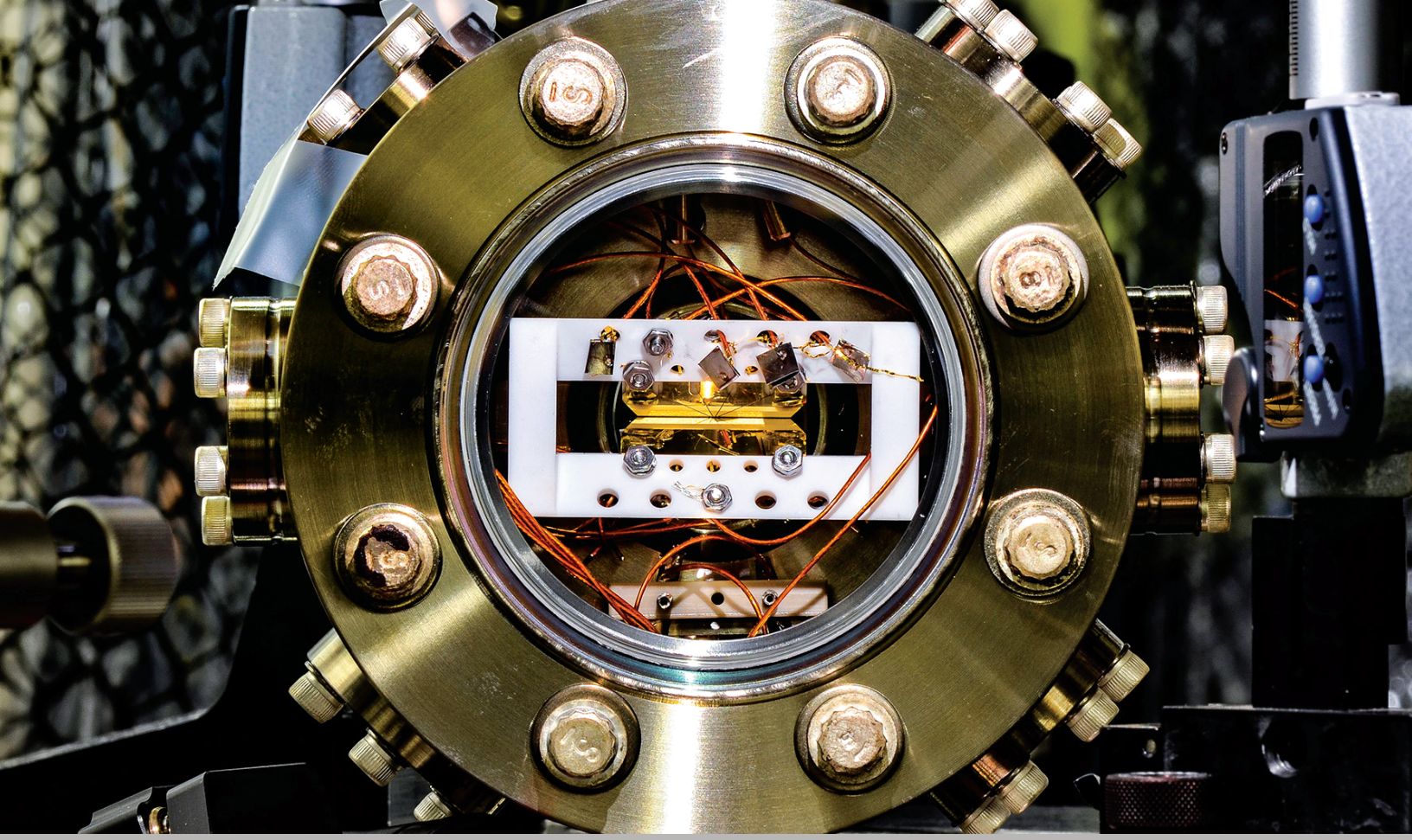
The **Center for the Study and Practice of Violence Reduction**, in collaboration with Arnold Ventures, will make its findings freely available to the general public as well as federal, state and local leaders to help apply mitigation strategies.

Amid increasing fiscal challenges to building and maintaining road networks, the U.S. Department of Transportation awarded $5 million to the University of Maryland to establish a **Center for Transportation Excellence (3)**. The new center will foster innovative avenues for financing highway projects, including through public-private partnerships.

Supported by a grant from the Templeton Foundation, the **Maryland Quantum-Thermodynamics Hub** in the UMD Institute for Physical Science and Technology will bring together researchers to study how energy flows in quantum systems.

A $1.75 million gift from Meta (formerly Facebook) to the **Center for Community Engagement, Environmental Justice and Health (4)** in the School of Public Health will significantly bolster the group's ability to advance environmental justice across the United States.

The Earth System Science Interdisciplinary Center entered into a new five-year, $95 million **NASA agreement** to investigate the planet's complex physical environment and how humans interact with it.



WE PARTNER TO ADVANCE THE PUBLIC GOOD

REACHING NEW FRONTIERS TOGETHER

IonQ, the leading developer of quantum computing devices, and the University of Maryland formed a $20 million partnership to create the National Quantum Laboratory (Q-Lab) at Maryland. It is the nation's first user facility that enables the scientific community to pursue world-leading research through hands-on access to a commercial-grade quantum computer, and gives UMD-affiliated students, faculty, researchers and staff an unprecedented opportunity to gain experience with IonQ's industry-leading, trapped-ion quantum computer hardware and collaborate with IonQ scientists and engineers.

A University of Maryland-led project funded by the U.S. Department of Agriculture and the National Science Foundation is using **high-tech approaches to restore Chesapeake Bay oyster populations (1)** nearly wiped out by overharvesting and disease. Researchers are using robotic "precision farming" techniques from land-based agriculture to give watermen objective data that can better guide basic decisions such as where to plant oyster larvae and steer a boat to find fully grown ones.

A gift from Andy and Julie Klingenstein '80 to the Philip Merrill College of Journalism is creating a **local news collaborative (2)** and paid internship program to give students valuable real-world experience while bolstering reporting resources in Maryland.

As part of the University of Maryland Strategic Partnership: MPowering the State, the University of Maryland, College Park and University of Maryland, Baltimore are collaborating with the University of Maryland Medical System and Montgomery County to establish the **University of Maryland Institute for Health Computing (3)**. Located in North Bethesda, the new institute will leverage advances in artificial intelligence and computing and use de-identified health data to create algorithms that will help diagnose, prevent and treat diseases in patients across the state.

As part of a statewide program to expand broadband access, the University of Maryland Extension is providing $6 million to **address the digital divide (4)** that disproportionately affects residents in Baltimore and rural counties, low-income and older residents, and people of color through training, competency and education initiatives, and helping people sign up for access and acquire a device.

TURNING RESEARCH INTO RESULTS

NEW EYE IN THE SKY

The successor to the legendary Hubble, the James Webb Space Telescope went into orbit with a host of Terps involved in its creation and operation. College Park Professor and Nobel Laureate John Mather is the senior project scientist, and Associate Professor Eliza Kempton was one of the first astronomers to use it. Besides sending back never-before-seen pictures of space, the telescope was also used by a team of researchers, including Klempton and Assistant Professor Thaddeus Komacek, to capture the first clear evidence of carbon dioxide in the atmosphere of a planet outside the solar system.

10TH

AMONG PUBLIC INSTITUTIONS FOR RESEARCH AND DEVELOPMENT SPENDING

$1.14B

COMBINED RESEARCH EXPENDITURES IN FY21

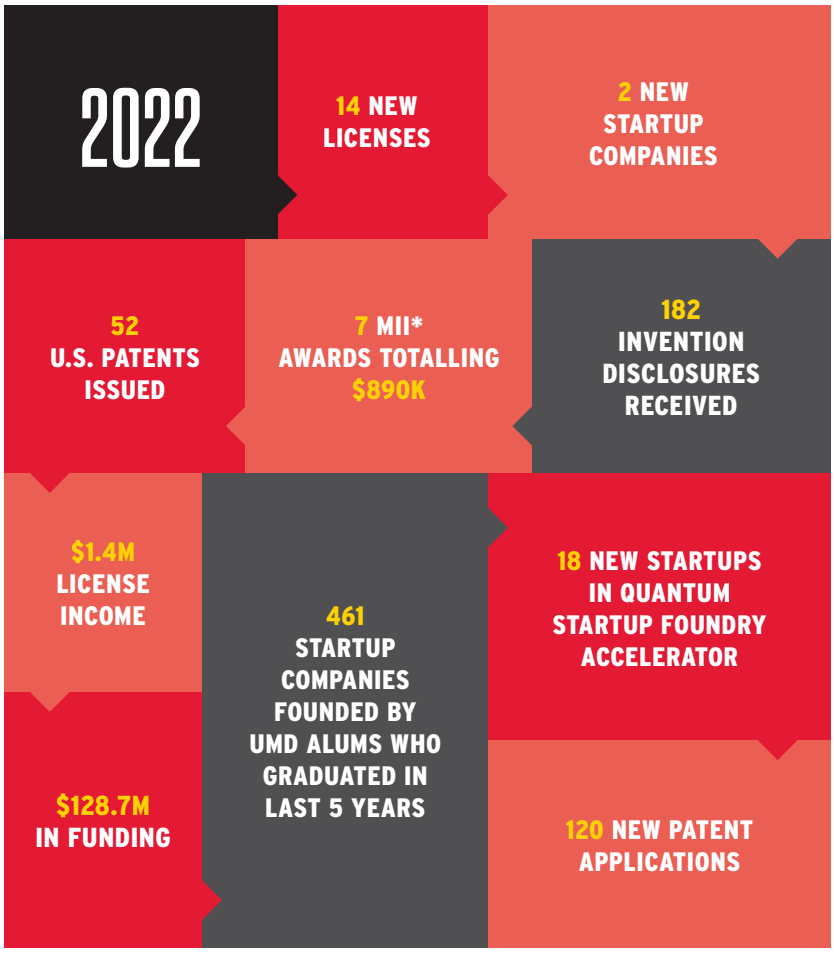
17TH

OVERALL IN NSF HIGHER EDUCATION R&D SURVEY

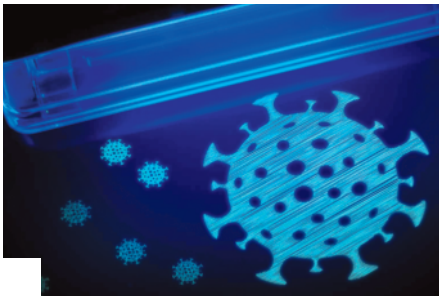
In a new partnership with NASA, researchers in the Department of Geographical Sciences will lead a **five-year, $15 million consortium (1)** to turn satellite data into actionable information to support agriculture in the United States. It expands upon the existing UMD-led global food security and agriculture program NASA Harvest to use satellite data for nitrogen management, irrigation management, early disease detection, and increasing soil health and resilience.

A $9.4 million gift from Ethereum co-founder Vitalik Buterin will support research aimed at creating the next great public health revolution: innovative and affordable systems that provide clean, safe indoor air and prevent the spread of respiratory infections. The **project on germicidal ultraviolet light (2)** will be led by Professor Donald K. Milton, M.D., and his Public Health AeroBiology Laboratory.

INNOVATION PIPELINE



*MII=Maryland Innovation Initiative



STARTUPS TO WATCH

InventWood, founded by Liangbing Hu, Herbert Rabin Distinguished Professor in the Department of Materials Science and Engineering and director for the Center for Materials Innovation, received a $20 million award from the U.S. Department of Energy's innovation arm, Advanced Research Projects Agency-Energy, to expand the development of a wood product stronger than steel.

Ion Storage Systems (3), a battery technology company founded by Eric Wachsman, Distinguished University Professor and director of the Maryland Energy Innovation Institute, announced the initial closing of its $30 million series A fundraising round.

DEVELOPMENT THROUGH REINVESTMENT

$3.7B

IN ANNUAL ECONOMIC IMPACT TO THE STATE

GREAT BECOMING GREATER

The $2 billion Greater College Park Initiative continues to transform the community into one of the best college towns in the country.

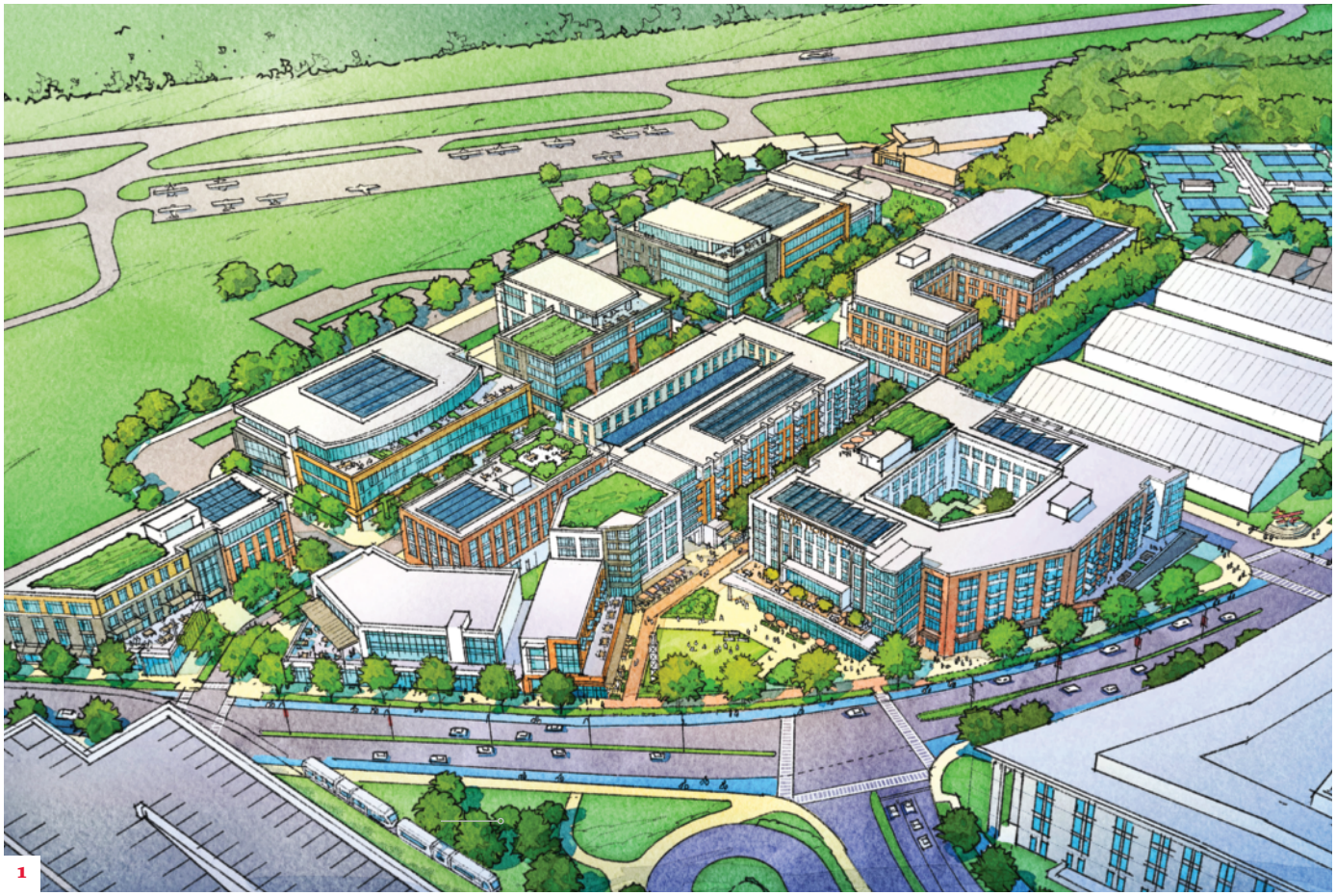
The first Trader Joe's in Prince George's County opened on Baltimore Avenue as part of the new Aster College Park mixed-use community, a project led by Terrapin Development Company and the Greenbelt, Md.-based Bozzuto Group. The complex includes nearly 400 residential units, with other retailers on the way.

Other notable projects underway include:

- Tempo, an eight-story, 299-unit student housing, parking and retail complex;
- The Standard at College Park, a 951-bed apartment building;
- Atworth, with retail and 451 apartments; and
- Union on Knox, with apartments for 800 students and 21,000 square feet of retail.

SMALL BUSINESS DEVELOPMENT CENTER (FY22)

- Served **6,621** startups and existing businesses;
- Assisted in the formation of **293** businesses, including **47** by clients in the Hispanic Business Center;
- Helped clients obtain **$141 million** in loans and equity financing; and
- Launched the Maryland Economic Opportunity Center, dedicated to supporting small businesses owned by minority, women and other underserved business owners.



1

Terrapin Development Company, the university's economic development arm, is working with 4 Castles and Mosaic Development Partners to build **Aviation Landing (1)** near College Park Airport. The estimated 1.3 million-square-foot project will include residential units (including some designated as affordable housing), open space, retail and commercial research and innovation space. The county anticipates it will create 2,700 full-time, permanent jobs and $370 million in annual economic output.

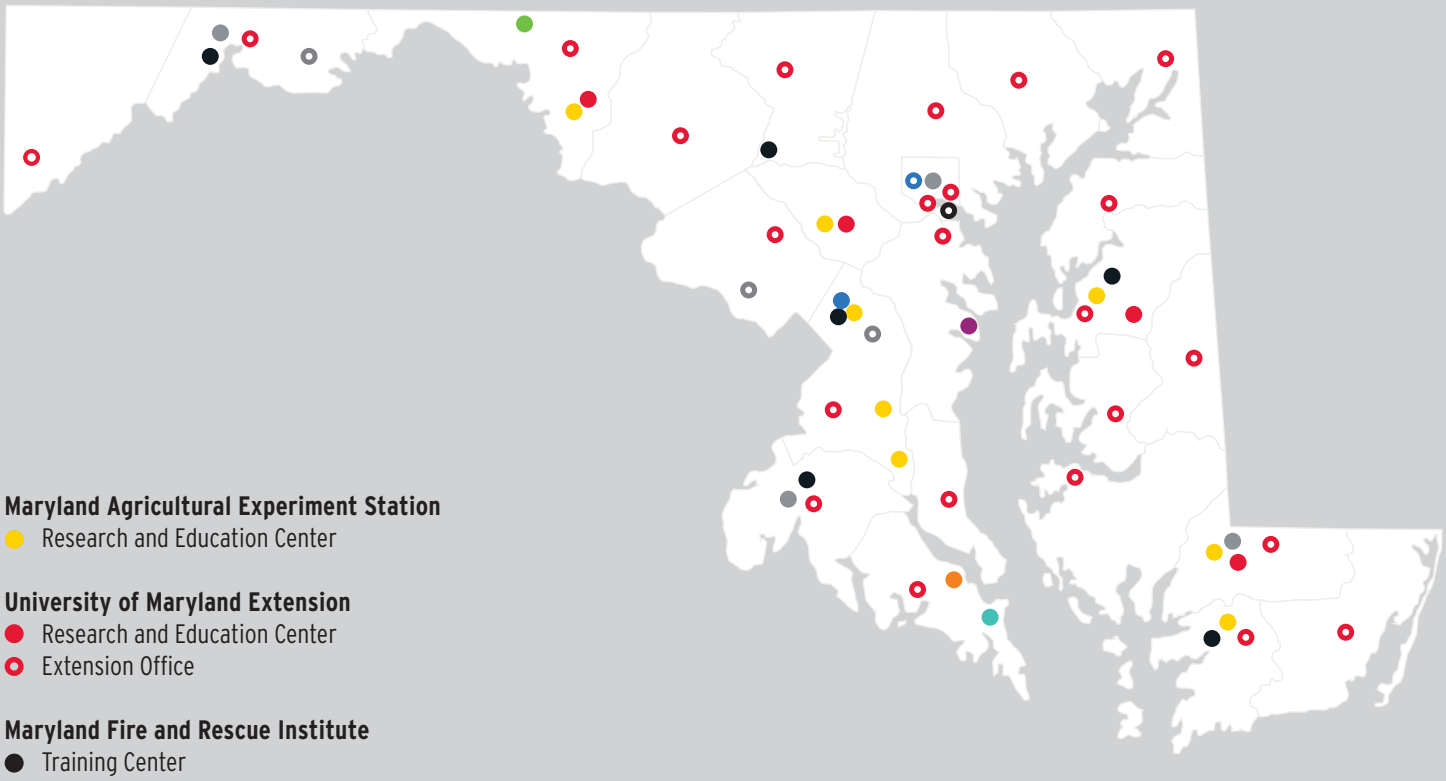
UMD's **Purple Line Corridor Coalition** received a $1.5 million grant from the Federal Transit Administration to develop a plan to add affordable housing, preserve small businesses and improve access for pedestrians and cyclists in neighborhoods along the coming light-rail route that will connect Mongtomery and Prince George's counties.

In its seventh year, the College Park City-University Partnership **homeownership program (2)** marked its 75th sale.

2

STATEWIDE IMPACT

From viticulture, aquaculture and crops to drones, small business and first responders, UMD reaches every jurisdiction in Maryland.



Maryland Agricultural Experiment Station
- Research and Education Center

University of Maryland Extension
- Research and Education Center
- Extension Office

Maryland Fire and Rescue Institute
- Training Center

Maryland Small Business Development Center
- Regional Office
- Satellite Office

- **University System of Maryland at Southern Maryland**
- **Viticulture**
- **UAS Research and Operations Center**
- **National Socio-Environmental Synthesis Center (SESYNC)**
- **SAFE Center for Human Trafficking Survivors**
- **Smart Cities Initiative**
- **Port of Baltimore Initiative**

UNIVERSITY OF MARYLAND

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umd.edu

R30B22 University of Maryland College Park Campus, University System of Maryland
Fiscal Year 2024 Operating Budget
Response to Department of Legislative Services Analysis

Senate Budget and Taxation Committee
Senate Education, Business and Administration Subcommittee
Senator Nancy King
Friday, February 17, 2023

House Appropriations Committee
House Education and Economic Development Subcommittee
Delegate Stephanie Smith
Monday, February 20, 2023

Page 15 - The President should comment on how UMCP intends to use the additional $22.7 million in State funding.

This funding is allocated for fringe benefit increases and statewide adjustments based on Department of Budget and Management summary information. These are mandatory costs due to rate hikes in health insurance and other benefits provided to state employees.