

UMD, Lockheed Martin Strengthen Strategic Partnership

A strategic partnership between the university and the world's largest defense contractor continues to grow and flourish.

The University of Maryland and Lockheed Martin Corp. signed a master research agreement in November that officials say will streamline and encourage research and development projects. The new agreement comes two years after a memorandum of understanding jumpstarted several projects in cognitive human performance, supply chain logistics, energy policy and more.

"A key benefit of our longstanding relationship with Lockheed Martin is that our faculty get first crack at some tremendously difficult scientific challenges," says **Patrick O'Shea**, Maryland's vice president for research and chief research officer. "Our researchers have access to some technologies not available on campus, and Lockheed is able to tap into some of the best scientific minds anywhere."

Lockheed Martin provided \$100,000 in funding to **Bradley Hatfield**, chair of kinesiology, to study how stress, physical fatigue and information overload can affect the mental readiness of certain military personnel.

Hatfield's team is developing a series of cognitive tests for fighter pilots and joystick operators of armed unmanned aerial vehicles—both jobs that demand a high level

of alertness and the ability to make quick decisions.

"We like to think of [the tests] as an index of their readiness to respond under the most demanding of conditions," Hatfield says.

Other UMD/Lockheed Martin interactions include a diverse array of topics like energy storage policy (**Elisabeth Gilmore**, public policy); health-care efficiency modeling (**Jeffrey Herrmann**, engineering, **Ritu Agarwal**, business, and others); nanomaterials used for sensors (**Alison Flatau**, engineering); genomic sequencing (**Mihai Pop**, computer science); and a substantial research and training program in supply chain logistics (**Jacques Gansler**, public policy).

"We've made a concerted effort to bring Lockheed Martin officials to campus to meet with our research faculty, identifying strategic scientific areas—whether it's climate, health IT or cybersecurity—where our respective strengths can complement each other," says **Ken Gertz**, Maryland's associate vice president for research development.

The latest projects build upon a 60-plus year association between the university and Lockheed Martin, tracing its roots back to early involvement between aviation pioneer Glenn L. Martin and Maryland's aeronautical engineering program.

Lockheed Martin continues to maintain close ties to the university's A. James Clark School of Engineering, sponsoring student events, offering unique internships and strongly supporting the school's Corporate Partners Program, which gives its members an inside track to recruiting Maryland's top students once they graduate.



Lockheed Martin Senior Vice President and Chief Technology Officer **Ray Johnson** (left) signs a master research agreement with UMD Vice President for Research and Chief Research Officer **Patrick O'Shea**.

UMD AND LOCKHEED MARTIN COLLABORATIVE PROJECTS

- Energy storage
- Cultural modeling
- Computer vision
- Advanced material and sensors
- Bioinformatics
- Health IT
- Supply chain management
- Logistics

Researcher Wins Lockheed Martin Innovation Contest

A Maryland research scientist has taken the top prize in a new international innovation competition sponsored by Lockheed Martin.

Moble Benedict in the Department of Aerospace Engineering won \$25,000 in the Innovate the Future Challenge that encourages and nurtures innovative technologies that will lead to a secure future for the planet.

Benedict submitted a highly efficient, vertical axis wind turbine design for clean-energy generation in urban environments. The turbine is self-starting at speeds as low as 3.3 mph and can capture energy regardless of fluctuations in wind direction.

He developed the design after eight years of intensive research in cycloidal-rotor design, development and testing in the Alfred Gessow Rotorcraft Center in the A. James Clark School of Engineering.

Benedict says applications could include small rooftop farms using micro wind turbines that generate wind power efficiently in urban environments, where energy needs are very high and wind conditions are extremely unpredictable.

As part of the grand prize, Benedict will also receive an incubation contract with Maryland Technology Enterprise Institute (Mtech) to advance his design toward commercialization.



Moble Benedict

Lockheed Martin Partnership Suite

A new meeting space and work area designed to facilitate collaboration with Lockheed Martin is now open in the Jeong H. Kim Engineering Building. The suite, which includes a sitting area, two offices



and a conference room that can seat 10, is available to any faculty on campus, says **Michael Frame**, director of strategic corporate partnerships in the Division of Research. Anyone interested in reserving the suite, or discussing any matters related to Lockheed Martin, should contact Frame at mframe@umd.edu.

Michael Frame

AAAS Recognizes UMD Researchers

Ten Maryland faculty members were among 702 researchers recently named as fellows by the American Association for the Advancement of Science (AAAS). The new fellows will be inducted in February for their "efforts toward advancing science applications that are deemed scientifically or socially distinguished."

University faculty named as 2013 AAAS fellows are:

Millard Alexander, for his contributions to theoretical and computational chemistry;

Andrew Baden, for his contributions to particle physics;

Marco Colombini, for his contributions to membrane channel biophysics;

William Fagan, for his contributions to spatial, theoretical and conservation-related ecology;

Michael Fuhrer, for his study of nanostructured carbon materials;

Christopher Monroe, for his novel techniques for quantum information processing;

Theodore Jacobson, for his contributions to quantum gravity and black hole thermodynamics;

Aravind Srinivasan, for his contributions to algorithms, probabilistic methods and networks;

Cynthia Moss, for her research in neuroethology with echolocating bats; and

Raymond St. Leger, for his contributions to mycology, pathology and microbial control.

We introduce you to new faculty and research scientists in the Maryland research community.



Isabella Alcañiz is an assistant professor of comparative politics. She examines the role of expert bureaucrats in advancing nuclear science and technology in Latin America, Africa and Asia.



Jin-Oh Hahn is an assistant professor of mechanical engineering. He studies dynamics and control, signal processing, biosystems and energy systems.



Francisco Barrenechea is an assistant professor of classics. He studies Greek drama, Latin epic poems, papyrology, fragmentary literature and the performance and reception of ancient theater.



Kasey Moyes is an assistant professor of animal and avian science. She researches the incidence and severity of metabolic diseases and disorders in dairy cattle caused by improper nutrition.



Anita Seate is an assistant professor of communication. Her research is driven by questions on how people's membership in various social groups affects their communication processes.

ADVANCE Seed Grants Build New Partnerships

A new round of interdisciplinary seed grants focused on advancing the research and scholarship of women on campus is scheduled for later this spring.

The grants, which provide up to \$20,000 to each researcher, are part of the ADVANCE program launched three years ago with \$3.2 million from the National Science Foundation.

"[The grants] are part of our overall effort to support the academic and scientific work of women on campus by building networks, offering individual mentoring and support, and providing strategic opportunities whenever possible," says **KerryAnne O'Meara**, co-director of the ADVANCE program.

To date, O'Meara says, the program has funded 30 seed grant proposals that support 64 faculty from every college and school on campus. These grants have resulted in seven journal articles, one conference invitation and 14 applications for additional funding from external agencies.

Even faculty who don't win one of the grants can benefit from the process, O'Meara says. "We provide all of the applicants with concise and constructive feedback on their proposal, which ultimately helps them improve subsequent proposals that they will submit during their academic career," she says.

Interested faculty should contact O'Meara at komeara@umd.edu.



KerryAnne O'Meara

FACULTY AWARDS & HONORS



PHILIP JOYCE, professor of management, finance and leadership, recently received the Association for Budgeting and Financial Management's Aaron Wildavsky lifetime achievement award. It recognizes Joyce's work in public budgeting, the congressional budget process, performance measurement and intergovernmental relations.



PETER SANDBORN, professor and associate chair of mechanical engineering, was named interim director of the Maryland Technology Enterprise Institute (Mtech), effective Jan. 1. Mtech helps aspiring entrepreneurs bring their ideas and products to the world. Sandborn replaces Mtech's founding director, **David Barbe**, who retired after 29 years of service.



VIVIAN SISSKIN, a clinical supervisor in hearing and speech sciences, was named a fellow to the American Speech-Language-Hearing Association. It recognizes Sisskin's ongoing work in identifying the causes of, and offering treatment for, communication disorders in school-age children.

Weinberg Is New Executive Director of CASL

A noted computational linguist is the new executive director of one of the nation's premier language research centers.

Amy Weinberg now leads the university's Center for Advanced Study of Language (CASL), established in 2003 to provide research in language and cognition to government experts involved with intelligence and national security matters.

Weinberg replaces founding director **Richard Brecht**, who retired in January.

"With Amy Weinberg at the helm, I am confident in the continued excellence of our programs in the language sciences, as well as our graduates who go on to serve the country," says **Patrick O'Shea**, vice president for research and chief research officer.



Amy Weinberg



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