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Dear Friends,

In the computer and tech world, you often hear stories about how companies and ideas for popular software and hardware were born in people's garages. We weren't so lucky at IHMC. We were born in an office about the size of a closet.

We've come a long way since the early 1990s when a small group of us mostly AI and cognitive science researchers met with former University of West Florida President Morris Marx. We shared our vision about the future of computer science and how it would relate to human cognition. We also pitched an idea for a research center, which became IHMC.

Today we have campuses in Pensacola and Ocala, where a collection of scientists and engineers have become world leaders in artificial intelligence, robotics, assistive technologies, agile and distributed computing, natural language understanding, and a number of other related fields.

And now, 30 years later, we have another new idea and vision in the works. In this issue of the newsletter, you will read about the ground-floor stages of the Healthspan, Resilience, and Performance research complex. We are recruiting world-class researchers in fields as diverse as molecular biology, biochemistry, physiology, neuroscience and biomedical engineering. They will team up with IHMC's established faculty in computer science, artificial intelligence and robotics to create a one-of-a-kind capstone research center focused on improving human physical and cognitive performance. This project will include a 44,000-square-foot facility that will open its doors in 2024. It's an ambitious endeavor that reminds me of the excitement we had back in those early days of IHMC's founding. More important, this new center is also an obvious next step for the institute as we continue to pioneer technologies aimed at leveraging and extending human capabilities and resilience.

As you can see, we have lots of good things happening right now. I hope after reading this edition of the newsletter, you will have a sense of why this is such an exciting time for all of us at IHMC.

Best wishes,

Ken Ford

Ken Ford

Triumph grant helps seed IHMC's vision for revolutionary human-performance complex

It's not enough for elite warfighters to have a high level of physical fitness and cognitive ability in today's military. They also have to be resilient. While the tools and weapons of today's warfighters have evolved dramatically over the past few decades, the military's understanding of the biological processes that govern human performance and resilience has not evolved to the same level.

For years now, Ken Ford, IHMC's co-founder and CEO, has envisioned a research team focused on finding innovative ways to extend the capabilities and resilience of high-performing humans who routinely operate in extreme conditions and environments.

"One of the reasons we're interested in extreme environments is that high performing humans often fail in these environments, and you can learn a lot by studying failure mode," said Ford. "If you take a high performing human, like an astronaut, and put them in space, things can go bad very quickly. That's just as true under the ocean and it's just as true in a fighter jet."

Ford made this point during a 2018 interview with Florida Trend following a $1 million donation from Pensacola philanthropists and entrepreneurs Quint and Rishy Studer, who bought into the vision of an expanded role for IHMC to play in human performance.

The effort received another boost last year when Triumph Gulf Coast awarded IHMC $6 million to help seed a Healthspan, Resilience, and Performance complex. The new complex is being fast-tracked and will establish a one-of-a-kind capstone for research and development. The multimillion dollar facility will expand IHMC's downtown campus into three main buildings.

In addition to creating a one-of-kind facility for human-performance research, the complex will bolster the regional economy through new funding in federal and industry-sponsored research.

"We will be collaborating closely with regional institutions and organizations that share an interest in human health span and performance," said Julie Sheppard, IHMC's Executive Vice President and Chief Legal Counsel, who helped spearhead the Triumph proposal. "It's our belief that these collaborations will lead to innovative spinoff opportunities not only for IHMC, but also will create opportunities for local technology transfer partners."

IHMC has always focused on the development of science and technology to leverage and extend human performance, particularly cognition and then locomotion, said Ford. "Originally our work was strictly cognitive because IHMC was started mostly by artificial intelligence people. Then we moved to broaden that to include robotics. And then next we started looking at not just cognitive performance, but also physical performance, exoskeletons and several other related fields."

About 10 years ago, Ford said he and others at the institute become more interested in broadening that work. "So now, rather than having only two approaches to elevating human performance, we are in the early stages of expanding our research into the biological means to do that."

The IHMC Healthspan Resilience and Performance team's research includes studies in hypoxic and hypercapnic-inducing environments.

The Triumph funds, secured from BP in a legal settlement following the 2010 Deepwater Horizon Oil Spill, have been set aside to stimulate economic development in eight Northwest Florida counties that were significantly impacted by the spill. Ford, as well as the Triumph board, believe the HRP complex will have a transformational economic impact on Northwest Florida.

IHMC currently receives significant federal government funding for its research, particularly as it applies to elite warfighters, astronauts and special-operations forces. The HRP complex will permit IHMC to grow its research portfolio in this emerging area. In addition to its collaborations with the Department of Defense, NASA and other federal departments and agencies, the HRP complex will bolster the regional economy through new collaborations and funding in federal and industry-sponsored research that focuses on molecular and genomic science; biochemistry; cellular and tissue biology; physiology; biomechanics; biomedical engineering; regenerative medicine; neuroscience; rehabilitation; clinical trials; and machine learning and computational biology.

The HRP complex is one of the reasons that Dr. Marcas Bamman joined IHMC last year.

"What we're talking about is a rare, one-of-a-kind research opportunity," said Bamman, an internationally recognized researcher known for his scientific contributions to the biology of human skeletal muscle and medical rehabilitation. Ford recruited Bamman to join IHMC's biologically motivated team and become one of the ground-floor architects of the new effort.

As the founder and former director of the University of Alabama at Birmingham Center for Exercise Medicine, Bamman and the UAB center have been recognized as world leaders in the biological mechanisms underlying exercise-induced adaptations and their clinical utility in disease prevention and treatment as well as rehabilitation.

"What drew me, in addition to the talent, leadership and vision of IHMC, is the unique opportunity to establish a capstone research complex for advancing knowledge in human performance and resilience in a truly interdisciplinary manner," said Bamman. "The idea is to bring together all the key focus areas that have not necessarily been co-located before. In other words, we will be bringing together everything from clinical assessment to rehabilitation to clinical trials to molecular and biological analysis. Then we will be able to use computational biology to look at people's biological responses to various treatments in a very powerful way."

What particularly excites Bamman is that the complex will allow him and others to do research from molecule to man. "One of the unique things we have here at IHMC, which will be substantially advanced by the new complex, is the ability to integrate researchers who specialize in human performance and resilience with computational scientists, artificial intelligence and even robotics. IHMC's exoskeleton-based work has a high degree of relevance for military operators as well as rehabilitation sciences. And like I said, to be able to do all this with one large team that leads research from molecule to man, or molecule to the whole human, is pretty remarkable."

Research programs with this scope typically rely on bringing together the expertise and facilities of several institutes from around the country or world, said Bamman. "In the new HRP complex, we will be able to walk across the hall and tap into the expertise of people outside of our particular focus area. It will be an exciting environment where we as scientists can all learn from each other."

Another key player in the development of the HRP complex is IHMC's Chief Science Officer Tim Broderick. Broderick is a surgeon and biomedical engineer who has been a pioneer in laparoscopic,

The addition of biometric data measurement and analysis is an important new tool in IHMC's research portfolio.

The IHMC team asks research subjects in a simulated high-altitude environment to then perform physical and cognitive tasks to track their performance in these high-stress scenarios.

robotic and telerobotic surgery.

Prior to joining IHMC in 2019, Broderick was an academic surgeon and a DARPA program manager. During his years at DARPA, he conceived and established five high-impact biotechnology projects that included revolutionary programs focused on precision diagnosis and treatment of military-relevant diseases and injuries. Broderick also has led multiple ground, flight and undersea-based biomedical research projects.

Broderick and IHMC recently worked on a project that is part of a DARPA program known as the Measuring Biological Aptitude program, or MBA. It's an example of the type of project that will become part of new complex's impressive portfolio.

The crux of the MBA program is correlating the externally observable physical, behavioral, and cognitive features and traits of specialized operators and pilots with measurable elements of their biology to understand and ultimately anticipate how they will perform in various situations over time.

"This project allowed us to work on developing a disruptive training platform that integrates revolutionary molecular and metabolic analysis with some advanced predictive models. These models will use the latest approaches in machine learning and artificial intelligence utilizing novel real-time sensors that will allow us to measure the performance of a special forces operator or pilot."

Some of the projects in IHMC's pipeline that tap into the institute's new multi-disciplinary expertise in human performance and resilience include:

- **Evaluating Potential Benefits of Intranasal Oxytocin on Undersea Operator Training and Performance:** Naval Special Warfare (NSW) operators are exposed to a variety of extreme environmental conditions and intense physical demands. In addition to beathing high-pressure gases during prolonged cold-water immersions, inadequate recovery from sustained physical exertion underwater can negatively impact individual and team performance. The sponsors are looking for biotechnologies that could mitigate the effects of cold as well as support physical recovery, which would represent a significant unmet need for the NSW operational community. A possible mitigant is oxytocin, which has a wide range of actions both locally in the brain and peripherally in the body as well as in skeletal muscle. These peripheral effects can be mediated by classic ligand-receptor activation given the abundant expression of the oxytocin receptor in peripheral tissues. The IHMC project is looking at the administration of exogenous oxytocin, an approved FDA Investigational New Drug that has been shown as an easy and safe method to increase circulating oxytocin concentrations that may augment actions on peripheral tissues. It is an easily administered, adjunctive biological therapy that has the potential to improve recovery, performance and resilience of warfighters.
- **Strategies to Augment Ketosis:** Assessment of Prophylactic Ketone Administration on Concussive Injury in the U.S. Army Basic Airborne Course: IHMC researchers are conducting a novel trial designed to assess the efficacy of ketone ester supplementation during U.S. Army Basic Airborne Course training as a prophylactic against detrimental cognitive outcomes that

soldiers sometimes experience following mild traumatic brain injury (mTBI). The study is exploring whether a metabolically supported ketone-fueled brain is more protected from neurotrauma. As part of the trial, researchers are examining the pre-jump prophylactic potential of ketone ester supplementation to attenuate closed head injury-induced changes in cognitive performance. Researchers also are looking at the potential of ketone esters to alter blood and urine-based protein, molecular, metabolic and lipid profiles that are impacted by closed head injury during jump training. Another aspect of the study is the development of a multidimensional predictive model of mTBI risk among basic airborne training course participants.

Dr. Morley Stone, IHMC's Chief Strategic Partnership Officer, says projects like this build upon the institute's multidisciplinary experience. IHMC already has extensive experience with traumatic brain injury research as well as a long history of productive and collaborative research for the Department of Defense.

"In addition to our reputation and heritage of impactful research, IHMC's internationally known researchers along with the new HRP complex will give us the infrastructure and experience capable of accepting and executing a wide range of grants and contracts related to human performance and resilience," Stone said.

To accommodate this expansion into human-performance research, IHMC is hiring people with specialized expertise (see profiles pages 5 and 6). Dr. Kaleen Lavin is a physiologist and molecular biologist who was a postdoc with Bamman at UAB for three years before recently joining IHMC. Her specialties are in human physiology and computational biology.

"What I do is provide a kind of molecular perspective on how a person's biology works. I incorporate a lot of computational work that helps us understand why people respond differently to exercise and other stressors, and why some people are more resilient than others when exposed to the exact same type of stress."

To do this, Lavin is looking at a person's biology at a very fine molecular level. She's looking at a person's gene expression and different proteins and how they change from person to person with exposure to stress.

"It requires a computational approach where the datasets are enormous," said Lavin. "That's how we are able to see the fine changes that we do see. But you can't look at these datasets in a spreadsheet like you can with other types of data. Here, we're talking about several tens of thousands of rows of data. Because of the complexity of the work we're doing, it will significantly improve the speed and accuracy of our work if we're able to have it become more automated with AI."

Lavin is already working with some of the AI scientists at IHMC on innovative ways to analyze data and write programs that will advance how researchers can interpret the complex sets of molecular data that she pulls together. As Bamman points out, "There are just not that many research environments where you can walk across the hallway and do that."

Bamman says the work that Lavin is doing is a great example of the kind of research IHMC will be able to do through the HRP complex. "We want to be able to take blood and saliva samples and map all the molecular responses that can occur as a result of any number of things that can change a person's physiology and how it relates to their physical and cognitive performance."

For example, Bamman said, take two military operators who are performing some sort of strenuous task in an extreme environment like high altitude. There would be common responses between the two at the molecular level. But there would also be several differences between the two. So how that high-altitude stress impacts the two individuals differently at the molecular and performance level is what we're trying to understand. "Kaleen is working with our AI scientists to map all of these similiarities and differences," said Bamman.

That's why Lavin is so excited about the human performance complex. "I love having the ability to ask the kind of questions that Marcas and the other researchers are talking about and having the resources around me to answer them in the most rigorous way possible by working with people who are top experts in their fields, fields that are quite different than mine. I mean, there's no better way to do this kind of research. That's what brought me to IHMC."

Ford is working to fast-track the HRP complex and have the doors open in 2024. "There is so much we can do once we get the HRP facility up and running. We will have an environmental chamber that we can use as a stress environment. We will have flight simulators and labs and the kind of advanced technology that will help rigorously test and measure physical and cognitive performances of warfighters, astronauts, pilots and other high-performing humans. I envision the complex being a place where researchers can, with very little bureaucracy, have access to a wide range of expertise to bear on a problem."

Ford says that in terms of IHMC future, he anticipates about a third of the work at the institute will be in human performance and about a third in AI and another third in robotics. "The vision for the human performance complex is to have a place where you can combine the computational expertise, the biological expertise and the translational expertise all in one place so that we can, as Marcas says, do research from molecule to man," said Ford. "This facility really will be one-of-a-kind."

Key New Players on the Healthspan, Resilience and Performance Team

DR. MARCAS BAMMAN, SENIOR RESEARCH SCIENTIST

Marcas is leading the team that is standing up the new research area in Human Healthspan, Resilience and Performance. He sees this work as something that covers "molecules to the whole human."

"It's more than applied science," he says. "It's seeing who performs this task well, what can we learn from them, and how can we help them to do it better."

For him, the HRP team's work is foundational research that helps us understand how to improve human performance through treatment and training.

Its applications could range from Parkinson's disease patients to elite athletes and military personnel — all of whom could benefit from interventions that ultimately are proven to help bodies recover and respond better.

He has directed research for more than 25 years. He has a history of leading exercise clinical trials focused on dose-response optimization, exercise-drug interactions, exercise-device interactions, and biological underpinnings of inter-individual response heterogeneity. He has examined these in high performers as well as those with conditions including aging sarcopenia, Parkinson's disease, end-stage osteoarthritis, total joint arthroplasty and spinal cord injury.

He came to IHMC from the University of Alabama at Birmingham, where he was the UAHSF Endowed Professor in Regenerative and Translational Medicine and principal investigator or site principal investigator of multiple NIH and DoD-funded research projects.

DR. KALEEN LAVIN, RESEARCH SCIENTIST

Kaleen joined the Institute in September 2020 as part of Bamman's transition to IHMC.

Her research goals are to understand the molecular mechanisms by which the body adapts to stressors such as acute exercise, training, unloading, and aging, using computational biology techniques to improve human health and resilience. IHMC is the perfect place for her to accomplish those goals.

"This opportunity is a great setting to learn from and work with experts in research disciplines outside of my own, as we collectively contribute to advancing various high-impact projects focused on human health," she says.

She is interested in the use of exercise as a countermeasure for a range of disease conditions. Her most recent work examined the molecular effects of exercise training in skeletal muscle and circulation of people with Parkinson's disease.

Her experience with skeletal muscle biology and exercise physiology provides critical context for data interpretation and connecting molecular patterns to whole-body and/or systems-level health.

"I'm enthusiastic to be able to be a small part of the growing HRP area and to work towards developing a bright future for HRP as well as all of IHMC," she says.

She earned her bachelor's degree at Georgetown University; her master's degree at Marywood University; and her Ph.D. at Ball State University.

DR. ZACH GRAHAM, RESEARCH SCIENTIST

A major goal of Zach's research is to find therapies that improve skeletal muscle health during disuse. His past research has focused on finding ways to slow or prevent muscle loss in mouse and rat models of spinal cord injury.

At the molecular level, the use of multiomic profiling of blood and muscle is a large component of Zach's studies with the aim of using these types of datasets to describe unique molecular signatures that may predict susceptibility or resiliency to disease/disuse, responses to an exercise bout or drug treatment, or to help in the design of individual exercise interventions.

He collaborated with the HRP team for nearly three years before he came to IHMC in late 2021. He wants to build a rehabilitation research program using robotic exoskeletons and IHMC allows him the chance to do that.

"When the opportunity for a position came up, it was a no-brainer," he says. "My graduate training was in human performance research and I have been looking to transition back to human work as I've spent the past nearly eight years working with animal models."

Outside of the lab, he is an avid hiker, backpacker, rock climber, cyclist and musician.

He earned his bachelor's degree from The Ohio State University and his master's degree and a Ph.D. at the University of Kansas. He received postdoctoral training in muscle physiology at the National Center for the Medical Consequences of Spinal Cord Injury at the James J. Peters VA Medical Center in the Bronx.

DR. ANDREW KOUTNIK, RESEARCH SCIENTIST

Andrew studies the influence of lifestyle and metabolism on health, disease, and performance.

His love of collaborating in multidisciplinary teams for initiatives exploring nutrition, exercise, and supplemental or pharmacological therapies to address problems has found a home at IHMC.

"Dr. Ford set up the institute to bring the best out of everyone involved and it shows," he says. "I joined IHMC for the people, culture, and unique opportunities to have our work make large-scale impacts."

As a father of two, family has great importance in his life. That feeling of family drew him to IHMC.

"There is room for creative freedom here not readily available elsewhere," he says. "Our IHMC family is comprised of experienced leadership, exceptional administrative staff, and world-class scientific expertise across diverse domains."

He also has given a TEDx talk on his personal journey using lifestyle and metabolic factors to manage Type-1 diabetes for more than 14 years.

His research path began at Florida State University in exercise science. He earned his doctorate in biomedical sciences at the University of South Florida, where his research focused on studying metabolism and metabolic therapies for health, disease, and performance outcomes.

DR. JEREMY McADAM, RESEARCH SCIENTIST

Jeremy sees IHMC as a great environment for impact in doing what he loves.

"Working with the HRP team will provide a great opportunity to do what I enjoy, conduct meaningful research that will help improve human health and physical capabilities," he says.

His research falls into two main areas: understanding the physiological and biological impact of exercise, and supporting data management to improve how we collect and analyze that data.

He wants to pair his strengths in statistics and data management with an understanding of what influences a person's ability to positively respond to exercise training, such as nutrition, recovery, and exercise prescription.

"I saw IHMC's commitment to be a leader in the field of human health and performance," he says. "I also loved the streamlined structure and the talented group of research scientists/support staff at IHMC."

He completed his master's and doctoral training in Kinesiology/Exercise Physiology from Auburn University. Prior to coming to IHMC, Jeremy served as a postdoctoral fellow at the University of Alabama at Birmingham's Center for Exercise Medicine.

DR. DAVID MORRIS, RESEARCH SCIENTIST

David has an extensive background in the enhancement of exercise performance in elite individuals — including appointments as a physiologist for the U.S. Olympic Committee and U.S. Cycling Team.

That experience led him to investigate areas of human exercise performance including nutritional strategies, optimizing athlete preparation including the enhancement of recovery and sleep in conjunction with athlete training, and exercise in extreme environments.

He first got involved with IHMC in 2019, spending five months here working on a variety of projects. That collaboration on projects continued upon his return to the University of Texas. He finally came on board at IHMC full-time in the fall of 2021.

"One of the biggest factors that brought me back was the opportunity to collaborate with great people on a variety of projects," he says. "I really enjoy solving problems by working with others from a wide variety of fields and IHMC offers a unique opportunity to do that."

In addition to his experience with elite athletes, he has been active as a researcher and consultant to military special operations forces since 2011.

He's now working on studies, one looking at improving sleep in military personnel and the other investigating the effects of dehydration on fighter pilot performance.

He earned a bachelor's and a master's in exercise physiology at the University of Missouri – Columbia; and a Ph.D. at University of New Mexico.

Morley Stone looks to have game-changing impact on IHMC

Dr. Morley Stone tells the story about a young scientist who walked up to him at a meeting and asked why he had decided to leave his job as a researcher in the lab to become an administrator.

"I'm going to be very clear about this," said Stone to the young scientist. "There is nothing as much fun as being a bench scientist. But at a certain point in my career, I decided to trade personal joy for an opportunity to have a larger impact."

Stone had just left his job as a Senior Vice President at Ohio State University to become IHMC's Chief Strategic Partnership Officer when he had the conversation with the young scientist. IHMC CEO Ken Ford says he doesn't doubt that Stone was a great bench scientist during his career.

"But once Morley moved into administrative and leadership roles, he has made significant impacts at every agency, department and organization where he has worked. The good news for us at IHMC is that I believe Morley is not only going to make a big impact here, but I anticipate it's going to be a game-changing impact."

The opportunity to have that game-changing impact is what persuaded Stone to leave Ohio State, where he oversaw a billion-dollar research budget, to join the IHMC team.

"I've always been a big fan of IHMC and the core competencies upon which it is built, such as AI, machine learning and robotics," said Stone. "And when you look back at when IHMC was founded in the '90s, it's hard to imagine that these areas would become as central as they are today. I'm convinced these areas are going to continue to shape our nation and world. So that puts IHMC squarely in a leadership role. And now that IHMC is expanding its research portfolio into human performance and resilience, the timing is ripe for IHMC to create new partnerships and expand old ones. This is going to allow us to amplify our impact as well as our ability to solve problems at a national level."

Dr. Morley Stone

Stone's main focus at IHMC is the development of external strategic relationships involving federal agencies, research universities and the private sector. He also is involved heavily with IHMC scientists on implementing, coordinating and initiating their scientific and research projects.

"Morley has extensive relationships in the private and public sectors," said Ford. "But he also has a great reputation as a mentor of young scientists. It's this combination that makes him such a natural fit for IHMC."

Over a 30-year career that began after he earned a Ph.D. in biochemistry from Carnegie Mellon University, Stone has become known as an international leader in human performance and biomimetics. His research interests are broad and span areas such as the interface of materials science, biotechnology, human performance and autonomous systems.

From 2014 to 2018 he was the Chief Technology Officer for the Air Force Research Laboratory where he was responsible for the planning and execution of an annual $2.1 billion Air Force science and technology program and an additional $2.3 billion in externally funded research and development. From 2003 to 2006, Stone was a program manager in the Defense Sciences Office at the Defense Advanced Research Projects Agency (DARPA).

"When you look at Morley's career and all the experiences and relationships he has had over the years, it's as if everything he has done has positioned him for this role here at IHMC," said Ford. "We are quite fortunate to have him."

Senior Research Scientist Joins IHMC

Dr. Mark Williams, the former Chair of the Department of Health and Kinesiology at the University of Utah and the Editor-in-Chief of the Journal of Sports Sciences, becomes another internationally known scientist to join the faculty that IHMC is putting together for the new for Healthspan, Resilience and Performance complex.

A native of North Wales, Williams previously held senior leadership positions at Brunel University in London and the University of Sydney in Australia before moving to the U.S. in 2016. He has published more than 250 articles in peer-reviewed journals in fields ranging from exercise and sports science to experimental psychology to neuroscience.

Williams, who joins IHMC as a Senior Research Scientist, is known for his research on the neural and psychological mechanisms that underpin the acquisition and development of cognitive and perceptual-motor skills. In addition to his role at the Journal of Sports Sciences, he also is the editor of the Research Quarterly for Exercise and Sport and the journal Human Movement Science. He is a Fellow of the British Psychological Society, National Academy of Kinesiology, British Association of Sport and Exercise Science and the European College of Sports Sciences.

Dr. Mark Williams

"Mark has a great international reputation and we're very fortunate to have him become part of our incredible team," said IHMC's founder and CEO Dr. Ken Ford.

Three new members join IHMC Science Advisory Council

The IHMC Science Advisory Council welcomed three new members. The Council is a distinguished group of scientists from an array of disciplines to lend their expertise to guide the broad research goals of the Institute. These leaders in science, academia, government, business and the military, lend their experience to support IHMC's goals.

CEO Ken Ford credits the Board as a valuable resource of knowledge, support and expertise. "These leaders could give of their time, talent and treasure in countless ways. They choose to honor IHMC with their wisdom and we are grateful to have them," Ford said.

Katharina McFarland

Chairman of the Board of Army Research and Development at the National Academies of Science, and a director on the boards of SAIC and Transphorm. With more than 30 years of service, she is an expert on government procurement. She was previously the Assistant Secretary of Defense for Acquisition and acting Assistant Secretary of the Army (Acquisition, Logistics & Technology).

Dr. Robert Mandelbaum

Dr. Robert Mandelbaum is the Managing Director of the Lockheed Martin Advanced Technology Laboratories. At Lockheed, he leads a group of applied research labs to help the Corporation maintain technology dominance. Mandelbaum is part of the CETO organization led by CTO Steven Walker, where he provides input to the Corporation's technology strategy.

Dr. Jon Mogford

Chief operating officer and senior vice president of Texas A&M Health. He has an extensive background in biology research and its applications in the field of defense medicine and therapeutics. His expertise encompasses wound healing/ regeneration, cellular therapies, tissue engineering and vascular physiology.

IHMC lauded for hiring, recruiting veterans

The connections between IHMC and the military community run deep.

The relationship between the two bears fruit in many ways, most recently in an award recognizing IHMC as a workplace that prioritizes the cultivation, recruitment and hiring of military veterans into the civilian workforce.

The U.S. Department of Labor announced that the IHMC received a 2021 HIRE Vets Medallion Award for the research center's commitment to employing veterans.

The Medallion Award is the only federal-level veterans' employment award that recognizes a company or organization's commitment to recruiting, hiring, and retaining veterans.

"I'm a Navy veteran and so many of the other people who were part of IHMC's beginning are also veterans," said IHMC founder and CEO Ken Ford.

Nearly 13% of IHMC's new hires last year were veterans. IHMC's Associate General Counsel Stephanie Tillery coordinated IHMC's submission for the HIRE Vets Medallion Award.

"To be considered for the award, an entity must meet a seven percent hiring requirement, and we greatly exceeded that high standard," she said.

Among those veteran hires is Gregory Addison, a research associate who joined IHMC in July 2021 to be part of the Center for Human Healthspan, Resilience and Performance team.

Addison is a certified registered nurse practitioner who spent four years as a combat medic in the National Guard before joining the U.S. Navy. His duty stations included Pensacola, Guam, Hawaii and Lemoore, CA with numerous deployments in the Middle East and one to Antarctica. His Navy career included

time as a deep-sea diving medical technician and as a registered nurse.

"It was personally very exciting to see that IHMC was awarded the 2021 Hire Vets Medallion Award. It showed me how IHMC values both the military veterans educations and, maybe even more importantly, our experience.

Exoskeleton work links human performance and robotics

Dr. Gwen Bryan is an IHMC research scientist whose work links two of the Institute's core disciplines — robotics and human performance.

Bryan focuses on performance augmenting exoskeletons. She is developing an exoskeleton to assist workers during nuclear remediation activities to offload some of the weight of required personal protective equipment.


Dr. Gwen Bryan

She joined IHMC after completing her Ph.D. at Stanford University in 2021. During her doctorate, Gwen developed a hip-knee-ankle exoskeleton emulator and used that device to find optimized exoskeleton assistance.

"The research combines a few of my passions," Bryan said. "I enjoy the technical, robotics side of things which led me to getting a Ph.D. in mechanical engineering. I also really enjoy physical fitness and understanding how our bodies work, which helped draw in the human performance side of my research."

She is working with both the IHMC robotics team and the healthspan, resilience, and performance team. "Exoskeletons are a fantastic bridge between the two disciplines," she said.

Exoskeleton research is very human focused, and we don't quite fully understand what the user wants from the device, Bryan said. "I think it is interesting to design exoskeleton control strategies and then evaluate how well they work on a person."

The applications of the work could be wide-ranging, from daily assistive devices for people with walking impairments, to an intervention that can help ameliorate the wear of joints offload the stress of labor-intensive jobs.

"It would be amazing if we could make these devices small enough to fit under clothes so nobody would even know they were there," Bryan said.

James Allen honored with the Herbert A. Simon Prize

IHMC's James Allen has been honored with an award named for one of the fathers of artificial intelligence, Herbert A. Simon.

Allen, who came to IHMC in 2006, was honored with the Simon Prize for Advances in Cognitive Systems for his research on temporal reasoning, language understanding, dialogue systems, and knowledge extraction.

Allen's work has spanned more than 40 years in artificial intelligence and cognitive science. The award is co-sponsored by the Herbert Simon Society. It comes with a $10,000 cash award and honors work focused on the nature of mental processing in humans and machines. Allen is the fourth recipient of the award.

In November 2020, Allen was elected to the rank of AAAS Fellow by the American Association for the Advancement of Science. The AAAS specifically cited Allen for his "broad contributions to artificial intelligence and natural-language understanding, including seminal contributions in temporal logic."

In addition to his work at IHMC, Allen has an appointment as the John H. Dessauer Professor of Computer Science at the University of Rochester.

Dr. James Allen

Since earning his Ph.D. in computer science in 1979 from the University of Toronto and receiving the Presidential Young Investigator award from the National Science Foundation in 1984, Allen has built an international reputation as a leader in AI and collaborative human-machine interaction.

"The Simon Prize is a well-earned honor for James," said IHMC Chief Executive Officer Ken Ford. "It is another recognition of James' role as a leader in the realm of AI. We at IHMC are very happy for him."

Simon earned the prestigious A.M. Turing Award for his work in computer science and won the 1978 Nobel Prize in Economics. Simon's legacy can be seen through his enduring contributions to a wide range of fields. His research impacted business, human psychology, economics, and computing.

Jerry Pratt Honored for Groundbreaking Robotics Paper

The work that put bipedal robots on their feet came from IHMC — and its key authors were honored by an international conference recently.

The groundbreaking work of IHMC's Senior Research Scientist Dr. Jerry Pratt was honored at the 20th International Conference for Humanoid Robots virtually in late 2021.

An article by Pratt with co-authors Sergey Drakunov, Ambarish Goswami, and John Carff, an IHMC senior research associate, was named Most Influential Paper — a distinction spanning the 20-year history of the conference.

"Capture Point: A Step toward Humanoid Push Recovery" has been cited more than 1,000 times since its publication in 2007.

Today, key ideas from this project are the foundation of multiple humanoid robots' ability to balance and recover from unexpected pushes.

Expanding on mathematical models of balance, Pratt and his team developed formulas that allows bipedal robots to identify the area on the ground that they must step or shift to in order to avoid a fall if pushed.

Looking back at the significant impact this groundbreaking paper has had over the years, Dr. Pratt credits the dedication of his coworkers and colleagues and IHMC's culture of innovation for his success and recent recognition at the 2021 Humanoids conference.

"We knew we were on to a good idea, so we did put a lot of effort into making sure it was high quality," he says.

Pratt received the Humanoids Most Influential Paper award virtually this summer. He and colleagues continue to expand upon Capture Point concepts in the lab. He and his team are working to make IHMC's humanoid robots lighter and more able to approximate the agility of human muscle-actuated limbs.

IHMC Senior Scientist Dr. Jerry Pratt was lauded for his influential research paper on the "Capture Point."

UWF and IHMC's Intelligent Systems and Robotics program celebrate first Ph.D. graduate

Taher Rahgooy, a Ph.D. candidate of the intelligent systems and robotics program launched by the Institute for Human and Machine Cognition and University of West Florida, became the program's first graduate at UWF's Fall Commencement in December 2021.

Rahgooy was among the initial cohort of five students to join the program when it was established two years ago and was one of two students who transferred to UWF from Tulane University on the heels of Dr. Brent Venable, the program's founding director. Venable previously held a joint appointment as a professor of computer science at Tulane and research scientist at IHMC.

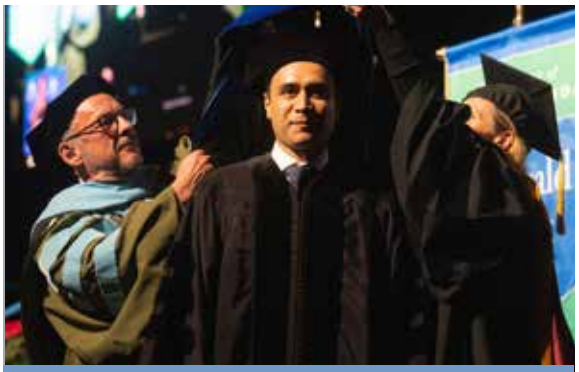
"The graduation of our first doctoral student is an incredible milestone for the intelligent systems and robotics program," Venable said. "Only two years after its establishment, our program is contributing to the highly skilled workforce in the intelligent systems field, which is a national priority with a high demand market. His graduation validates and motivates all our students, as well as UWF and IHMC mentors, to continue pursuing our innovative and personalized approach to graduate education in intelligent systems and robotics."

Rahgooy was a second year doctoral student at Tulane when Venable accepted the director role. He said it wasn't initially an easy decision to transfer, but three key factors played a role in convincing him to make the jump.

"I really enjoyed working with Dr. Venable, as she is an extraordinary researcher and advisor and I knew that continuing to work with her would keep me on track for my future career," Rahgooy said. "She told me about the IHMC community, which gives intelligent systems and robotics students access to world-class researchers. Finally, I knew the program would provide facilities for doctoral students that are essential for performing many machine learning and artificial intelligence tasks requiring the handling of big data."

The program centers on developing leading-edge software and hardware technology that combines human and machine elements to exploit their respective strengths and mitigate their respective weaknesses. The first of its kind in Florida and one of only a few in the entire nation.

The intelligent systems and robotics program provides students with individualized paths tailored to their interests. The program includes foundational courses in robotics and artificial intelligence that address topics such as knowledge representation and reasoning, machine learning, computational methods in AI, human/machine teaming, and research methods.



Dr. Taher Rahgooy

"Through the program, I worked with great researchers who helped me understand the whole research environment better, and who gave help and guidance about the choices I should make for my future," Rahgooy said. "The financial support of the program allowed me to fully focus on research without any distractions, and I was always supported and encouraged to participate in conferences to present my work."

Established in 2019, the program has grown to include 17 students from seven countries and 20 supervisors from IHMC and UWF's departments of intelligent systems and robotics, computer science and earth and environmental sciences. Venable said the "cutting-edge" research portfolio of investigated topics includes human-machine teaming, vision, robotics, natural language processing, cybersecurity, machine learning, cognitive systems, multi-agent systems and marine environmental sensing.

"Our program allows the 'mentor-student team' to tailor the coursework and research portfolio to specific interests pursued by each team, following the European style for doctorates and freeing them from the academic constraints typically involved in the vast majority of AI and robotics graduate programs in the United States," Venable said. "This level of personalization facilitates collaboration with industry and a project-driven style of research."

Rahgooy earned a bachelor's degree in computer engineering and a master's in artificial intelligence before beginning his doctoral studies in computer science at Tulane University.

His dissertation, titled "Machine Learning Guided by Linguistic and Behavioral Knowledge," discusses the data-driven methods he's developed for learning various cognitive models of decision-making, along with his work to expand into problems with sequential settings such as reinforcement learning.

Science Saturdays return to Pensacola and Ocala

Science Saturday is back in business for 2022.

IHMC's popular STEM outreach program hosted four sessions in the fall of 2021 for grade-schoolers in both Ocala and Pensacola. The free, monthly event featured increased safety measures in response to the pandemic and still brought students a lineup of hands-on projects geared toward sparking the love of science for students in grades 3-5.

The educational series is moving forward in 2022, says Ursula Schwuttke, director of educational outreach for IHMC, continuing its longstanding tenure as a community fixture that sees IHMC and community scientists lead half-day sessions that use "fun science" to spark learning, Schwuttke says.

"Fun science gives kids the ability to discover their interest and ability in science, and to develop self-confidence," she says. "Opportunity is vitally important for kids. Without the opportunity to discover their interest, they can't know that it's something they should pursue."

In fall of 2021, Science Saturday hosted sessions on computer game design, robotics, neural networks and machine learning, and the physics of roller coasters. Roughly 35-40 students attended each of these sessions. The Science Saturday lineup for 2022 includes sessions on game design, robotics, circuits, monarch butterflies and more.

Parents find Science Saturday provides much-needed science enrichment.

"The fact that this is the only enrichment Science opportunity in Ocala that is free and open to all of Marion County Public School students is extraordinary and greatly appreciated!" says the parent of a fourth-grade boy who attended in Ocala.

"My first child counts science and math as her favorite subjects. My second has a wonderful science curiosity and is open to all kinds of lessons, so I appreciate a wide diversity in your programming," says a Pensacola parent. "Thanks for a consistently high quality experience in our children's community."

The adults at the head of the classes enjoy it, too, including Heath Parr, technology education teacher at Brown-Barge Middle School in Pensacola.

"I enjoy teaching Science Saturday's because the hands-on activities allow the students to truly engage with the lessons," Parr says. "The students are allowed to move, discuss, and interact with each other. These learning environments are important to independent inquiry and leads to deeper understanding and knowledge retention."

For 2022, safety guidelines around masks, limiting occupancy, and distancing will be in place to help everyone stay safe while they learn. Enrollment will be capped at 24 students per session.

Sign-up for each session opens two weeks before the date of each Saturday. To register your child, email PensacolaScienceSat@ihmc.us or call 850-202-4462.

Visit www.ihmc.us/outreach/science_saturdays and join the mailing list to stay up to date.

Dr. Jerry Pratt with young scientists at Science Saturday.

Science Saturdays

Science Saturdays is a hands-on science program for kids in third, fourth and fifth grade. High school students also volunteer at the sessions, which are held one Saturday a month during the school year.

Past topics include bottle rockets, chemistry, computer game design, secret codes, and roller coasters.

Evening Lecture series resumes in Ocala, Pensacola

The IHMC Evening Lecture Series will kick off 2022 with speakers set to enlighten and spur community conversation.

The award-winning lecture series went forward in 2021 but saw interruptions due to the COVID-19 pandemic in both Pensacola and Ocala.

Michelle Bowers, senior events specialist for IHMC, said the team is eager to see the lecture series resume in 2022.

"We will resume our evening lectures by invitation only at least for the first part of 2022," Bowers said being mindful of how the pandemic is continuing to unfold.

In 2021, IHMC did host three Evening Lectures in Pensacola, highlighting brain health, age reversal through the gut microbiome and paradoxes in healthcare. Videos of each talk in the series are available at www.ihmc.us.

IHMC's popular Evening Lecture Series has resumed, bringing expert voices to the community.

DR. JOSH TURKETT

Reclaiming Youth: The Best "Brain Games" For Brain Health And Performance

Turkett has spent his professional life looking into the ways that cognitive activity can reverse the signatures of brain aging and reducing the age-related cognitive decline.

"Lifestyle can be our biggest enemy or our biggest ally in human health," Turkett said.

Turkett's talk reflects the Demand Driven Decline Theory — that the significant reduction in cognitively demanding activities that occur over our lifespan may be a driving force in cognitive decline and dementia.

He is the founder of Brainjo, President of Physicians for Ancestral Health, and author of three bestselling books.

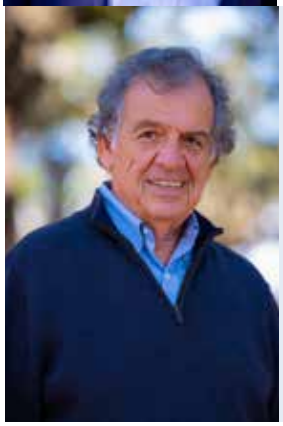
DR. WILLIAM DAVIS

Bowels Gone Wild: Microbiome Strategies For Age-Reversal

Davis is a cardiologist and author of the national best-seller, "Wheat Belly: Lose the Wheat, Lose the Weight and Find Your Path back to Health." His IHMC talk focused on the power of our guts to reverse aging, accelerate healing, improve muscle strength, boost bone density, and enhance empathy.

Replacing what he calls "keystone microbes" through dietary supplements shows the potential to improve skin elasticity, muscle health, bone strength, mood, sleep, and other conditions, Davis said.

Davis' books have sold nearly 4 million copies and are published in 40 countries. His most recent book is "Super Gut: Reprogram Your Microbiome to Restore Health, Lose Weight and Turn Back the Clock."



DR. CHRISTOPHER LOGOTHETIS

Addressing Paradoxes in Health Care

Logothetis of M.D. Anderson Cancer Center is the Director of the Genitourinary Cancer Center and Director of the Prostate Cancer Research Program.

He spoke about how dogmas in healthcare limits how we approach care — to the detriment of doctors and patients, Logothetis shared. Logothetis' goal is a world where cancer can become thought of as a chronic disease. That means leaving lots of healthcare dogma behind and maximizing the digital tools at our disposal to drive this, he said. His expertise in treating genitourinary cancers has given him insight into the importance of collaborations among colleagues in academic medicine, community physicians, and patient support and advocacy communities.

New team members at IHMC

At the Institute for Human & Machine Cognition, the best and brightest have found a place to shine.

IHMC is re-thinking the relationship between humans and machines, defining new directions in human-centered computing by linking cutting-edge research into a new alliance of artificial intelligence, linguistics, psychology, robotics, philosophy, engineering and social and educational studies.

From robotic walkers to conceptual education, from the semantic web to aircraft cockpit design, from new agent architectures to natural language communication, IHMC research programs are exploring ways to enable humans and computers to work together.

Our work is exciting and our standards are high. We are thrilled to welcome these new members to the team.

Gregory Addison

Certified Nurse Practitioner

Greg joined IHMC in July 2021 with the Center for Human Healthspan, Resilience and Performance team. He credits his varied experiences with preparing him for joining the IHMC team. He grew up in Stuart, Neb., population 600, as the oldest brother in a family of seven. He spent four years as a combat medic in the National Guard before joining the U.S. Navy "to see the world." Greg most recently graduated with his MSN from the University of West Florida. He was stationed in Pensacola, Guam, Hawaii and Lemoore, CA with numerous deployments in the Middle East and one to Antarctica. His Navy career included time as a deep-sea diving medical technician and as a registered nurse.

Andrew Dorsey

Research Associate

Andrew is as a research associate working with Dr. Jeff Phillips on human performance research projects. He has been involved with studies on breath sounds, hypercapnia, and dehydration. He earned a bachelor's degree in exercise physiology from Florida State University in April 2021. Previously, he worked as an IHMC intern in the human performance group. He also is pursuing a career in medicine by sitting for the MCAT.

Jairun Diemert

Research Associate

Jairun graduated with a bachelor's degree in cybersecurity with a focus in software engineering from University of West Florida in spring 2021 Summa Cum Laude. Before going back to school, Jairun worked in banking for almost 10 years. Jairun has displayed a liberated spirit most of his life. Jairun shined in software development teams as a great leader, architect/engineer, and not just "the security guy." He also traveled competing in breakdancing (Bboying) for more than 20 years. He values an honest opinion above all else and it may be delivered wrapped in sarcasm.

Nicole Esposito

Research Associate

Nicole joins IHMC as a research associate focusing on the design and development of lower body exoskeletons for rehabilitative or augmentative use. She is currently working on the EVA exoskeleton project funded by the U.S. Department of Energy. Before coming to IHMC, Nicole graduated cum laude with her bachelor's degree in mechanical engineering from the University of Florida and then worked under Dr. Daniel Ferris as a laboratory manager for two years, where she got hands-on experience with multiple different commercially-available exoskeletons and tested their capabilities and user impact.

The Florida Institute for Human & Machine Cognition is re-thinking the relationship between humans and machines as well as developing innovative ways to extend the performance and resilience of high-performing humans such as such as astronauts, elite warfighters, and fighter pilots. From robotic walkers to aircraft cockpit design to natural language communication to cold-water immersion, IHMC research programs are exploring ways to leverage and extend human capabilities. Our work is exciting and our standards are high. If you are one of the special few with the passion, skills, and desire to be a part of our team, whether as a summer intern or as a full-time researcher, go to www.ihmc.us/about/opportunities.

New team members at IHMC

Stefan Fasano

Research Associate

Stefan joined IHMC in July 2021, where he performs data science and data processing for the Artificial Social Intelligence for Successful Teams (ASIST) project (this is a DARPA project). He also serves as a controls engineer for the Wasp 2.0 quadcopter fleet, as well as the Sandia Exoskeleton project. He earned a bachelor's degree in aerospace engineering from the University of Maryland, College Park in May of 2021.

In school, he focused on space propulsion and power as well as space systems engineering. He joined IHMC to further his engineering development and education through hands-on participation in the diverse, innovative, and collaborative projects.

Timothy Nall

Research Associate

Timothy earned a bachelor's degree in engineering physics from the University of Oklahoma. Before joining IHMC, he worked for Boeing as an aerospace system engineer on a variety of Department of Defense platforms. While there, Tim volunteered as a mentor to a FIRST Robotics team helping them reach the Championships in his second year on the team.

In his spare time, Tim enjoys West Coast Swing Dancing and frequently travels to events and competitions. He is also into exotic cars and F1 racing.

Owen Winship

Research Associate

Owen joined the robotic lab at IHMC in November 2021. He writes controls software for the exoskeleton team. He earned his bachelor's and his master's degrees from the University of Michigan, where he worked with the Locomotor Control Systems lab at U of M. His research interests include parameter estimation and state estimation during different gaits, and his background in exoskeleton and prosthetics research made joining IHMC the logical next step.

Dr. Toshiya Miyatsu

Research Scientist

Toshiya joined IHMC in January 2020. He earned his Ph.D. and M.A. in psychology and brain sciences from Washington University in St. Louis and his bachelors' degree in psychology from University of California, Los Angeles. His research focuses on cognitive and technological tools that can enhance human learning, instruction, performance, and assessment. At IHMC, he is working with Drs. Peter Pirolli and Timothy Broderick on Learning through Electrical Augmentation of Plasticity (LEAP) and Peerless Operator Biological Aptitude (PEERLESS) projects both of which are funded by the Defense Advanced Research Projects Agency (DARPA).

Shannon Nickinson

Communications Director

Shannon joined IHMC in January 2022. She will help share the stories of IHMC's researchers and their work through newsletters, news releases, and social media platforms. Through 2021, she was the director of early brain development for Studer Community Institute, building the footprint of the nonprofit's work in that area in the community. She is a Pittsburgh-area native and a 1994 graduate of Northwestern University. She spent 20 years in daily journalism, working for newspapers in West Virginia and Pensacola, Fla. She won numerous individual and team reporting and writing awards in her journalism career. At SCI, she managed all the Institute's early learning outreach projects, including the Brain Bag project, SCI's partnership with the University of Chicago's Thirty Million Words Initiative, and the parent outreach projects. She was the institute's development director, lead grant writer and content developer for SCI's public awareness efforts.

STEM-Talk guests share research expertise in public health, aging, obesity, cancer and more.

STEM-Talk is continuing to share fascinating conversations with the most interesting people in science and technology. STEM-Talk, hosted by IHMC founder and CEO Ken Ford and research scientist Dawn Kernagis, has had more than 3.1 million total show listens over its 150 episodes. Visit https://www.ihmc.us/stemtalks/ to keep up with the latest episode.

DR. JAMES KIRKLAND, EPISODE 122

Dr. James Kirkland, a geriatrics specialist and researcher at the Mayo Clinic in Rochester, Minn., appeared on STEM-Talk to talk about the role that senescence and senescent cells have on age-related dysfunction and chronic disease. Much of the interview focused on Kirkland's 2015 study that was the first to report on the potential of senolytic drugs to selectively kill zombie senescent cells. The paper, which appeared in Aging Cell, has been hailed as a major breakthrough in aging research.

DR. STEVE CHIEN, EPISODE 123

Dr. Steve Chien served with IHMC CEO Dr. Ken Ford on the National Security Commission on Artificial Intelligence. The independent commission produced a 756-page report for the President and Congress that looked at ways to advance AI and associated technologies to address the future national security and defense needs of the U.S. Chien is a senior research scientist and technical group supervisor of the Artificial Intelligence Group in the Mission Planning and Execution Section at the Jet Propulsion Laboratory in California.

GARY TAUBES, EPISODES 124 AND 125

Gary Taubes appeared in a two-part STEM-Talk following the release of his fourth book on diet and chronic disease, "The Case for Keto: Rethinking Weight Control and the Science and Practice of Low-Carb/High-Fat Eating." Gary talked about how current research is revealing a wide range of metabolic benefits that people experience as a result of a ketogenic diet. He addressed the common arguments that are often used against high-fat, low-carbohydrate way of eating. Gary also appeared on STEM-Talk back in 2107, episode 37, to discuss his 2016 book, "The Case Against Sugar."

DR. CHRISTOFFER CLEMMENSEN, EPISODE 126

Dr. Christoffer Clemmensen is an associate professor and lead researcher at the University of Copenhagen's Novo Nordisk Foundation for Basic Metabolic Research. He came onto the show to discuss pharmacological and therapeutic treatments for obesity and its related diseases and disorders. Clemmensen explained how he and his lab colleagues focus on dissecting the neuroendocrine signals involved in coordinating appetite, food-motivated behavior, energy expenditure, glycemic control and lipid metabolism.

ASK ME ANYTHING, EPISODE 127

STEM-Talk cohosts Dr. Dawn Kernagis and Dr. Ken Ford held another one of their periodic Ask Me Anything episodes where the two of them take turns answering listener questions. In this AMA, Ken and Dawn responded to questions about a Pentagon report on UFOs; a new study on the efficacy and safety of MDMA-assisted therapy; and Virta Health's two-year pilot study that demonstrated people diagnosed with prediabetes had normalized their glucose through carbohydrate restriction.

DR. TOMMY WOOD, EPISODE 128

IHMC visiting research scientist Dr. Tommy Wood came onto the show to talk about his paper that had just appeared in the American Society for Microbiology: "Reframing Nutritional Microbiota Studies To Reflect an Inherent Metabolic Flexibility of the Human Gut: A Narrative Review Focusing on High-Fat Diets." Wood, an assistant professor of pediatrics at the University of Washington, was making his fifth appearance on STEM-Talk. In this episode, Wood addressed common concerns that people have about the effects of fat and protein on the gut microbiota.

DR. MORLEY STONE, EPISODE 129

Dr. Morley Stone is the former Chief Technology Officer for the Air Force Research Laboratory who last year joined IHMC as its Chief Strategic Partnership Officer. In his new role, Stone is in charge of expanding the institute's public and private-sector relationships. During the interview, Stone talked about how he spent much of his career aimed at optimizing human performance in the nation's air, space and cyberspace forces. He also discussed his excitement about joining IHMC and working with the institute's scientists to help coordinate and implement projects.

DR. JOSH TURKNETT, EPISODE 130

The author of "The Migraine Miracle" and "Keto for Migraine" appeared on STEM-Talk to talk about his research and holistic treatments that have helped thousands of people end their chronic migraines. Dr. Josh Turknett is a neurologist with more than two decades of experience in cognitive and behavioral neuroscience. He talked about his Atlanta medical practice, the Turknett Center for Neurology and Cognitive Enhancement, and how migraines are a common and complex neurological disorder that is compounded by a genetic component. In addition to his work as a neurologist, Turknett also plays banjo in the band The Georgia Jays.

DR. CHRISTOPHER LOGOTHETIS, EPISODE 131

Dr. Christopher Logothetis is one of the nation's foremost experts on prostate cancer, the most common cancer among men. The disease leads to a man's death every 15 minutes in America. Logothetis has spent nearly five decades at MD Anderson in Houston developing therapies for prostate cancer as well as conducting research into the underlying biology of the disease. In addition to prostate cancer, he also has treated genitourinary cancers such as bladder, kidney, testes and penis cancer. Today, he is the director of MD Anderson's Genitourinary Cancer Center and the director of the Prostate Cancer Research Program.

DR. MARTIN KULLDORFF, EPISODE 132

Epidemiologist and biostatistician Dr. Martin Kulldorff has been in the national news the past two years for his view that the U.S. response to COVID-19 has been a public-health fiasco. Kulldorff is one of the co-authors of the Great Barrington Declaration, a paper that recommended "focused protection" against COVID rather than lockdowns and school closings. In the interview, Kulldorff discussed how Florida's decision to prioritize vaccinations for people over 65 was the right approach and noted that the state's age-adjusted mortality rate for COVID was below the national average.

DR. MARK MATTSON, EPISODE 133

Dr. Mark Mattson, who is affectionately known as the godfather of intermittent fasting, has been described by the National Institute of Health as "one of the world's top experts on the potential cognitive and physical health benefits of intermittent fasting." Mark is on the faculty at Johns Hopkins. His work has led to major contributions in our understanding of the pathogenesis of Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis and stroke. His interview came the day after the release of his book, "The Intermittent Fasting Revolution: The Science of Optimizing Health and Enhancing Performance."

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