



Patents to Patients®

Office of Economic Engagement

Annual First Look Forum: What's Brewing in MKE?

Hosted jointly by the UWM Research Foundation,
The Medical College of Wisconsin Office of Technology Development, and
the Office of Economic Engagement at Marquette University

Agenda

4:00-4:20 pm - **Welcome; Opening remarks**

- Craig Rigby, Vice Chair, UWMRF, Vice President of Technology, Clarios
- Ann B. Nattinger, MD, MPH; Associate Provost for Research; Senior Associate Dean for Research, School of Medicine; Professor of Medicine, Lady Riders Professor of Breast Cancer Research, MCW
- Paul J. Jones, JD, Vice President for University Relations and General Counsel, Marquette University

4:20-5:45 pm - **Presentations and Panel Discussion**

Presentations



Pradeep Chaluvally-Raghavan, Ph.D.

Associate Professor, Obstetrics and Gynecology, Medical College of Wisconsin

“Novel Therapeutic for Ovarian Cancer”

Ovarian cancer (“OC”) is among the most lethal gynecological malignancies and the fifth leading cause of cancer-related mortality in women in the United States. While patients with advanced ovarian cancer may respond initially to surgery, chemotherapy, and targeted therapy, many patients often see their cancers re-emerge, with nearly half of these patients not surviving beyond five years. This technology,

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jointly developed by researchers at the University of Texas Health Science Center at Houston, would potentially provide a new agent to help diagnose and treat this often-lethal disease.



Sandeep Gopalakrishnan
CEO, Co-founder, MegaPerceptron, LLC

“Wound care in the cloud”

Accurately predicting wound healing trajectories is difficult for wound care clinicians due to the complex and dynamic processes involved in wound healing. Wound care teams capture images of wounds during clinical visits generating big datasets over time. Developing novel artificial intelligence (AI) systems can help clinicians diagnose, assess the effectiveness of therapy, and predict healing outcomes. Rapid developments in computer processing have enabled the development of AI-based systems that can improve the diagnosis and effectiveness of therapy in various clinical specializations. In the past decade, we have witnessed AI revolutionizing all types of medical imaging like X-ray, ultrasound, computed tomography, magnetic resonance imaging, etc., but AI-based systems remain to be developed clinically and computationally for high-quality wound care that can result in better patient outcomes. In the current standard of care, collecting wound images on every clinical visit, interpreting, and archiving the data are cumbersome and time consuming. We developed an AI driven digital platform to perform wound assessments and provide clinicians with a workflow for diagnosis.

Sheila Schindler-Ivens, Ph.D., PT
Founder, Venus Rehabilitation Technologies, LLC; Associate Professor,
Dept. of Physical Therapy, Marquette University



“CUped: A Novel Device to Improve Mobility after Stroke”

Venus Rehabilitation Technologies, LLC spun out of Marquette University to develop rehabilitation products based on our research. Our first product is a new device called CUped™ (pronounced cupid, like the Roman god) to restore movement and improve mobility in people with stroke. Stroke is a catastrophic event that diminishes quality of life. Many stroke survivors never recover enough walking function to fulfill the mobility demands of work, leisure, and community engagement. While some interventions increase walking speed or distance, few target recovery. Without recovery, walking is crude, clumsy, unsafe, and non-functional. CUped™ is a robotic exercise technology designed to supplement gait training. It fits within existing physical therapy workflow. As the name suggests, CUped™ compels use of paralyzed limbs during pedaling. Limb use is essential for recovery, but difficult for people with stroke.

With >\$500,00 federal and university support, we conceived the idea for CUped, developed a working prototype, secured a patent portfolio, and completed feasibility testing with >30 stroke survivors. Preliminary studies suggest that CUped™ achieves desired outcomes in a manner that is acceptable to stroke survivors. Next steps include applying for non-dilutive funding to validate the clinical effects and commercial potential of CUped™.

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Walter McDonald, Ph.D.
CIO; Assistant Professor,
Civil, Construction &
Environmental
Engineering, Marquette
University



Spencer Sebo, Ph.D.
CEO, Water Intelligence,
LLC, Research Assoc.,
Civil & Environmental
Engineering, Marquette
University



Henry Medeiros, Ph.D.
CTO; Associate Professor,
University of Florida

“Machine learning and video-based sensor for measuring sewer flows”

Combined and sanitary sewer systems in the U.S. discharge billions of gallons of untreated wastewater per year causing significant negative impacts on human and environmental health and well-being. To address this challenge, collection systems managers use water level and velocity data in their pipes to make costly infrastructure and operations decisions. However, existing flow monitoring technologies often produce inaccurate data, are expensive to purchase and operate, and cannot detect critical sewer events such as illicit discharges.

With \$165,000 of federal and University support we developed a novel patent-pending solution. Spun out of Marquette University, Water Intelligence was chosen to participate in the NSF's highly selective national I-Corps program. The company will secure non-dilutive STTR funds to develop our innovative solution. Water Intelligence's technology overcomes existing limitations through a novel, proprietary non-contact sensor that collects video of the flow in sanitary sewer systems to measure water level, velocity, and flow rate, and utilizes this data to detect blockages and illicit discharges. Overall, the proposed technology provides collection systems managers with accurate and reliable data on the flows within their sewer systems that they can use to improve operational and infrastructure decisions to reduce overflows and basement backups.

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Rachel S. Morris, M.D.

Assistant Professor, Trauma and Critical Care, Medical College of Wisconsin

“Development and implementation of a mobile application to optimize trauma triage”

Trauma is the leading cause of death in the United States of America for people under the age of forty-five. Accurately matching the severity of a trauma patient’s injury with an appropriate level of hospital triage improves mortality and resource utilization. This technology, developed with researchers at the University of Minnesota, is a predictive model and mobile delivery platform helping to match hospital resources to the severity of traumatic injury.

Ionel Popa, Ph.D.

Associate Professor, Physics, UW-Milwaukee

“Redesigning antibody purification”

Antibody purification is a process that uses specific proteins immobilized on agar beads that are used for pharmaceutical industry manufacturing of biologicals and for analysis and imaging research. Here we are introducing a new method of producing antibody purification columns by formulating hydrogels made from proteins that are known to bind antibodies in living organisms. Unlike current tools on the market for antibody purification, our material contains more binding sites for antibodies, which leads to less time needed for purification and higher yield. Our initial target market is the research tools industry.



Ching-Hong Yang, Ph.D.

Professor, Biological Sciences, UW-Milwaukee, Founder and CSO of T3 Bioscience, LLC

“T3's nearing the finish line to replace conventional treatments in agriculture with novel natural products”

T3 BioScience, LLC ("T3") is a 2012 Wisconsin incorporated university startup founded by UWM's Professor of Biological Sciences and Microbiology, Dr. Ching-Hong Yang. T3 has given itself the ambitious mission of "saving lives from antibiotic resistance by making the use of antibiotics in agriculture obsolete". In Q4-2022, T3 is targeting formal EPA submission for its first commercial biocontrol agent by the name of "RejuAgro". The product targets three devastating agricultural crop diseases: fireblight in apples and pears, citrus canker, and citrus greening, for which no proper disease control exists in the market. The product successfully inhibits these diseases at efficacy levels and product stability as so far only seen in the best commercially available antibiotics. However, as a biocontrol agent, RejuAgro is without the negative environmental and societal impact. Over the last ten years, Dr. Yang has established

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a highly efficient "Discovery Factory" based on his trade secret, the proprietary isolation methodology PROMISA, which now has yielded four additional high potential product candidates that were isolated from soil or insects. RejuAgro is expected to uniquely respond to the decade-long needs of growers in the U.S. and on a global scale.

Responder Panel

MODERATOR: Tom Still, President, Wisconsin Technology Council



The Tech Council is the non-profit, bipartisan science and technology policy advisory board to the governor and the Legislature. Its programs include the Tech Council Investor Networks, the Tech Council Innovation Network, the Governor's Business Plan Contest, and regular events that connect entrepreneurs, investors, researchers, and others with a stake in the tech-based economy.

Still serves on the WiSys Board of Trustees, the Board of Visitors for the UW-Madison Department of Computer Science, the Industrial Advisory Board for the UW-Madison College of Engineering, the Badger Fund of Funds Limited Partners Advisory Committee, and the Wisconsin Healthcare Business Forum board, among other civic and business groups. He is the former associate editor of the Wisconsin State Journal in Madison. Still writes a syndicated column that appears regularly in about two-dozen publications.

Still moderated the Wisconsin Economic Summits (2000-2003) and helped write the Wisconsin Prosperity Strategy in 2010. Still is the co-author of "Hands-On Environmentalism," published by Encounter Books, New York. He was a 2008 winner of Madison Magazine's "Best of Madison Business" award and was named to InBusiness magazine's 2010 Executive Hall of Fame. Still was named "Communicator of the Year" by the Public Relations Society of America/Wisconsin in 2012. Still is a senior lecturer emeritus in the Department of Life Sciences Communication in the UW-Madison College of Agricultural and Life Sciences.

PANELIST: Khalif El-Amin, Co-Founder, Young Enterprising Society

Khalif El-Amin is the Co-Founder and COO of Young Enterprising Society (YES) and is a Milwaukee native. YES is a project management company that specializes in STEAM (Science, Technology, Engineering, Art, and Math) programming for middle and high school students and business acceleration for adults with tech startups. Through these programs respectfully, YES has worked with over 3,500 students in 8 different states and 66 adult startups in 7 different YES Blueprint cohorts. Khalif was a standout basketball player for the perennial powerhouse, Rufus King International High School where he was Co-Captain of the 2003 and 2004 WIAA State Championship teams. During his senior year, he was chosen by coaches as the Phillip Gayle Student-Athlete of the Milwaukee City Conference. After graduation, Khalif fulfilled his lifelong dream of playing collegiate basketball while earning a Sociology degree from UW-Stevens Point. His work ethic and talent helped earn him 1st team



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All-Conference honors and multiple Conference championships. Khalif currently is the Varsity Assistant boys' basketball coach for the 2019 WIAA State Champ Nicolet High School in Glendale, WI. In addition to his role and work with YES, Khalif also works with the John H. Scott Memorial Scholarship Foundation, with its leadership team he also represents the Fund on a local, regional, and national basis. Khalif has two beautiful children, Nasir (7) and Aminah (2).

PANELIST: Eli Blee-Goldman, Co-Founder and General Partner at Character



Eli Blee-Goldman is co-founder of Character, an early-stage VC that invests up to \$1M in pre/seed-stage startups betting on big shifts in customer behavior. The firm is remote-native and invests in companies located anywhere in the USA. After investing, Character works hand-in-hand with founders, using the Sprint method created at GV to help founders find and expand product-market fit. Previously Eli was a partner at a venture capital firm in Milwaukee.

PANELIST: Idella Yamben, Director, Center for Technology Commercialization

Dr. Yamben directs efforts at the CTC including consulting around the CTC's Lean Startup programs including Ideadvance. She has been a national SBIR reviewer and mentor as part of the national NIH I-Corps program. In Wisconsin, Idella has championed greater access for innovation and the federal SBIR program co-developing SBIR Ready, a foundational SBIR accelerator. Prior to the CTC, Dr. Yamben worked as a technical recruiter understanding the challenges in the WI technology, startup ecosystem. Dr. Yamben earned a PhD from UW-Madison in Cellular and Molecular Biology and a B.S. in Biology from the University of Chicago

