



HONORING **INDIVIDUALS** FOR
NEW **INVENTIONS, PATENTS,**
& **LICENSED TECHNOLOGIES**

INNOVATION 2024 AWARDS

THURSDAY **NOVEMBER 7**
UNMC CATALYST
5:00 PM



On behalf of UNMC and UNO leadership and UNeMed staff, we welcome you to the 2024 Innovation Awards reception as we celebrate all those who make our continued existence possible: You, the innovative UNMC and UNO faculty, staff and students who we honor today.

Our mission is simple: *UNeMed fosters innovation, advances research, and engages entrepreneurs and industry to commercialize novel technologies.*

Innovations all have the same humble beginning—an idea or a hypothesis. The path for an idea to become a product that improves the lives of millions is a daunting and perilous journey fraught with many obstacles. That is why UNeMed was created 33 years ago. We are here to help provide the advice, pathways and connections for your idea to grow and make the world a better place.

The Innovation Awards represent the culmination of Innovation Week as we celebrate the creators of novel technologies. Today, we will recognize the inventors who have submitted new inventions, received U.S. patents, and had a technology successfully licensed. We will also honor a cross-campus collaborative team as awardees of the 2024 Most Promising New Invention, and look to the future by recognizing Carecubes as the 2024 Startup of the Year.

We will also honor Breanna Hetland, PhD, RN, with our first Faculty Entrepreneur award. We've also created an award that recognizes an "Innovation Champion," which we will present to the Maverick Technology Venture Alliance.

Finally, our top award will be presented to Jingwei Xie, PhD, as our Innovator of the Year.

The UNeMed staff is committed to helping you develop your inventions and make vital connections with industry. Our goal is to help you create relationships that will enable your work to benefit the lives of people throughout Nebraska and around the world.

Sincerely,

A handwritten signature in blue ink, which appears to read "Michael Dixon".

Michael Dixon, PhD
President and CEO, UNeMed

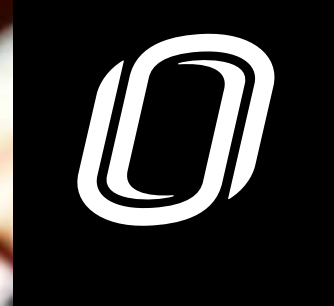
INNOVATION
2024
AWARDS

NEW INVENTION NOTIFICATION CONTRIBUTORS

Rizwan Ahmad
Abhijit Aithal
Michele Aizenberg
Daniel Anderson
Johary Andrianatoandro
Han Wei Ang
Brian Armstrong
Muhammad Salman Ashraf
Aiden Barger
Aaron Barksdale
Lisa Bartenhagen
Surinder Batra*
Elizabeth Beam
Shahnaz Benner
Raymond Bergan
Shaurav Bhattarai
Aretha Boex
Vidya Bommanapally
Mara Jana Broadhurst
Christopher Burcal*
Esmael Burhan
Abraham Campos*
Mark Carlson*
Caleb Cave
Yashpal Chhonker
Jason Christensen
Christopher Conrady*
Bradley Corwin
Jesse Cox
Shaun Cross
Richard (Beni) Csordas*
Punita Dhawan
Ling Ding
Yuxiang Dong
Louise Dow
Sarah Dunsmore
Benson Edagwa*
David Ellis
Joel Elson*
Margaret Emerson
Erin Etoll-Jones
Jared Evans*
Farahnaz Fallahtafti

Emma Foster
Flobater Gawargi
Howard Gendelman*
Nathan Goergen
Thomas Gouttierre
Chittibabu (Babu) Guda*
Rebekah Gundry
Robert Harms
Corey Hopkins*
Ronnie Horner
Shane Hultine
Majid Jadidi
Maneesh Jain
Carlos Jara*
Jason Johanning
Rana Kadry
Jennifer Kallio
Ranjana Kanchan
Erin Kearns*
Tammy Kielian*
Seung Kyeom Kim
Brian Knarr*
Scott Koepsell
Lee Korshoj
Ronald Krueger
Balawant Kumar
Aaron Likens*
Yutong Liu
Bethany Lowndes*
Sidharth Mahapatra
Ram Mahato
Madhur Mangalam
Nicholas (Nick) Markin
Eric Markvicka
Tess McKinney*
Zach McWilliams
Abraham Mechesso
David Mercer
Ted Mikuls
Paras Mishra
Arash Mohammadzadeh
Gonabadi
Natalie Moore

**Multiple*





R. Lee Mosley
 Dilanga Mudiyansele
 Syed Muntazir Andrabi
 DJ Murry
 Lauren Musil*
 Sara Myers*
 Sumaiva Nahid
 Arwa Nasir
 Amarnath Natarajan
 Mohammad Nasim Neghat
 Carl Nelson*
 Victoria Nelson
 Marie Neumann
 Thang Nguyen*
 Heather Nichols*
 Janet Nieveen
 Rebecca Oberley-Deegan*
 David Oupicky
 David Padgett
 Sudipta Panja*
 Brianna Parr
 Milankumar Patel*
 Sachin Pawaskar
 Dongming Peng
 Iraklis Pipinos
 Ashok Puri*
 Prakash Radhakrishnan
 Ashley Ravnholdt
 Svetlana Romanova
 Donald Ronning
 Michael Rosenthal*
 Paul Rychwalski
 Jack Rygg
 Saeedeh Saeedi*
 Stephen Salzbrenner
 Juan Santamaria
 Joshua Santarpia
 Nora Sarvetnick
 Mithun Sattur
 Jody Scebold
 Andrew Schnaubelt
 Sam Schneider*

Sue Schuelke
 Stephen Scott
 Marcia Shade
 Abhineet (Monti) Sharma
 Alisha Sheffield*
 Ada-Rhodes Short*
 Navatha Shree Sharma
 Amar Singh
 Joseph Siu
 Gwenn Skar
 Stacy Smallfield*
 Joel Sommerfeld*
 Dhruvkumar Soni
 Dalton Staller
 Nicholas Stergiou
 Mahadevan Subramaniam
 Daniel Surdell*
 Irene Surdell
 Denis Svechkarev
 Simon Thengvall
 Huy Tran
 Paul Trippier*
 Laura Tyner
 James Vargo
 Angela Vasa*
 Michael Wadman*
 Andrew Walski*
 Guangshun Wang
 Shuo Wang
 Thomas Webster
 Justin Weeks
 Tyler Wiles
 James Willcockson
 Melinda Wojtkiewicz
 Nicholas Woods
 Wangbin Wu*
 Jingwei Xie*
 Pravin Yeapuri
 Steven Yeh
 Lubaba Zaman*
 Wesley Zeger*
 Siwei Zhao*

INVENTION MILESTONES

The following lists denote the total number of new invention notifications individual inventors have submitted since UNeMed was created in 1991. Inventors with four or less inventions are not listed.

40+ Inventions

Thang Nguyen	77
Howard Gendelman	73
Michael Wadman	67
Ben Boedeker	41

30-39 Inventions

Surinder Batra	39
Jingwei Xie	36
Sam Sanderson	36
Dong Wang	32
Hani Haider	31
Mark Carlson	30

20-29 Inventions

Thomas McDonald	27
Guangshun Wang	27
Brian Knarr	26
Jason Johanning	23
Steven Hinrichs	22
Janina Baranowska-Kortylewicz	21
Benson Edagwa	20
Wesley Zeger	20
Amarnath Natarajan	20

5-9 Inventions

Nicholas Heimann, 9; Marius Florescu, 9; Richard Reinhardt, 9; David Oupicky, 9; Milankumar Patel, 9; Ercole Cavaleri, 9; Rebekah Gundry, 9; John Jackson, 9; Mara Jana Broadhurst, 9; Bethany Lowndes, 9; Deepta Ghate, 8; Marilyn Larson, 8; Siwei Zhao, 8; Amar Singh, 8; Aaron Mohs, 8; Ioannis Chatzizisis, 8; Rongshi Li, 8; James Hammel, 8; Bhavesh Kevadiya, 8; James Talmadge, 8; Matthew Halanski, 8; Jesse Cox, 8; Prabakaran Narayanasamy, 8; Jialin Zheng, 8; Eleanor Rogan, 8; Kathleen Healey, 8; Russell Buffum, 8; Zhenshan Jia, 8; Timothy Greiner, 8; Maneesh Jain, 8; Byers Shaw Jr., 8; Maurice Godfrey, 7; Wen Shi, 7; Michael Duryee, 7; Bernard Baxter, 7; Sudipta Panja, 7; Hamid Band, 7; Maximilian Kurz, 7; Rakesh Srivastava, 7; Walker Arce, 7; Iqbal Ahmad, 7; Daniel Anderson, 7; Elizabeth Beam, 7; Kenneth Bayles, 7; Larisa Poluektova, 7; Liliana Bronner, 7; Shantaram Joshi, 6; William Tapprich, 6; Vimla Band, 6; Gregory Oakley, 6; Sachin Kedar, 6; Dhundy Bastola, 6; Joseph Vetro, 6; James Wahl, 6; Feng Xie, 6; Neal Grandgenett, 6; Andrew Walski, 6; Jatinkumar Machhi, 6; Santhi Gorantla, 6; Peter Kador, 6; Siddappa Byrareddy, 6; Philippe Malcolm, 6; Tess McKinney, 6; Prakash Radhakrishnan, 6; W. Scott Campbell, 6; Jennifer Bredehoft, 6; Keely Buesing, 6; Chittibabu (Babu) Guda, 6; Rodney Markin, 6; Andrew Schnaubelt, 6; Prithviraj Dasgupta, 5; Gregory Gordon, 5; Yuxiang Dong, 5; Mahmudul Hasan, 5; Javeed Iqbal, 5; Lynell Klassen, 5; Aaron Barksdale, 5; Joseph John McBride, 5; Krishnaiah Maddeboina, 5; Alicia Schiller, 5; Kai Fu, 5; Marcus Snow, 5; James Campbell, 5; Pankaj Singh, 5; James Gehringer, 5; Sheryl Paskevici, 5; Yuri Lyubchenko, 5; Peter Iwen, 5; George Casale, 5; Deepak Khazanchi, 5; Lubaba Zaman, 5; Stephen Salzbrenner, 5; Denis Svechkarev, 5; Alex Dzewaltowski, 5.

15-19 Inventions

Dmitry Oleynikov	19
Nicholas Stergiou	18
Jason MacTaggart	18
Travis Vanderheyden	16
Thomas Porter	16
R. Lee Mosley	15
Corey Hopkins	15
Hanjun Wang	15
Bin Duan	15
Jorge Zuniga	15
Jonathan Vennerstrom	15

10-14 Inventions

Abraham Campos, 14; Tammy Kielian, 14; Stephen Rennard, 14; Irving Zucker, 14; Sara Myers, 13; Geoffrey Thiele, 13; Gregory Bennett, 12; Ka-Chun Siu, 12; Alexey Kamenskiy, 11; Paul Trippier, 11; Michael (Tony) Hollingsworth, 11; Nicholas Markin, 11; Steven Carson, 10; Nora Chapman, 10; Christine Cutucache, 10; Punita Dhawan, 10; Joel Elson, 10; Channabasavaiah Gurumurthy, 10; Steven Lisco, 10; Babu Padanilam, 10; Iraklis Pipinos, 10; Myron Toews, 10.





CREATORS OF LICENSED TECHNOLOGY

Howard Gendelman
Jeffrey Gold
Rebekah Gundry
R. Lee Mosley

David Padgett
Sabarinath Subramanian
Melinda Wojtkiewicz

TECHNOLOGIES LICENSED

Glycan Preparation Kit

- Rebekah Gundry
- Sabarinath Subramanian
- Melinda Wojtkiewicz

Combination Therapy for Parkinson's Disease

- Howard Gendelman
- R. Lee Mosley

UNePlan

- Jeffrey Gold
- David Padgett

INVENTORS WITH ISSUED PATENTS

Mark Carlson*
Paul Davis
Benson Edagwa
Shane Farritor*
Marius Florescu
Howard Gendelman*
Channabasavaiah Gurumurthy
Hani Haider*
Zhenshan Jia
Jiang Jiang
Alexey Kamenskiy*
Jason MacTaggart*

Eric Markvicka*
R. Lee Mosley
Amarnath Natarajan
Thang Nguyen
Peter Pellegrino
Jonathan Vennerstrom
Michael Wadman
Dong Wang
Hanjun Wang
Jingwei Xie*
Wesley Zeger
Irving Zucker

PATENTS ISSUED

1. "Stent to Assist in Arteriovenous Fistula Formation"

U.S. Patent No. 11,701,216 — issued July 18, 2023

■ Marius Florescu

2. "Evaluation of Mantle Cell Lymphoma and Methods Related Thereto"

U.S. Patent No. 11,725,248 — issued August 15, 2023

■ Wing (John) Chan
■ Kai Fu

■ Timothy Greiner
■ Dennis Weisenburger

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3. “Methods and Compositions for In Situ Germline Genome Engineering”

U.S. Patent No. 11,732,273 — issued August 22, 2023

- Channabasavaiah Gurumurthy
- Masahiro Sato
- Masato Ohtsuka

4. “Expanded Nanofiber Structures Comprising Electrospun Nanofibers and a Plurality of Holes and Methods of Making and Use Thereof”

U.S. Patent No. 11,738,116 — issued August 29, 2023

- Jingwei Xie
- Shixuan Chen
- Mark Carlson

5. “Biomarkers for Monitoring Immune Transformation”

U.S. Patent No. 11,806,385 — issued November 7, 2023

- Howard Gendelman
- Gary Siuzdak
- R. Lee Mosley
- Erica Forsberg

6. “Surgical Devices and Methods”

U.S. Patent No. 11,806,040 — issued November 7, 2023

- Jason MacTaggart
- Paul Deegan
- Alexey Kamenskiy

7. “Methods, Systems, and Devices Relating to Robotic Surgical Devices, End Effectors, and Controllers”

U.S. Patent No. 11,806,097 — issued November 7, 2023

- Shane Farritor
- Eric Markvicka
- Tom Frederick
- Jack Mondry
- Joe Bartels
- Nikhil Salvi

8. “Microfiber Structures and Methods of Synthesis and Use Thereof”

U.S. Patent No. 11,813,377 — issued November 14, 2023

- Jingwei Xie
- Jiang Jiang

9. “Gross Positioning Device and Related Systems and Methods”

U.S. Patent No. 11,813,124 — issued November 14, 2023

- Shane Farritor
- Mark Reichenbach

10. “Single Site Robotic Device and Related Systems and Methods”

U.S. Patent No. 11,819,299 — issued November 21, 2023

- Tom Frederick
- Shane Farritor
- Joe Bartels
- Jack Mondry
- Eric Markvicka

11. “Nasal Specimen Collection Apparatus”

U.S. Patent No. D1,006,248 — issued November 28, 2023

- Thang Nguyen
- Wesley Zeger
- Michael Wadman



12. “Methods, Systems, and Devices Relating to Surgical End Effectors”

U.S. Patent No. 11,832,871 — issued December 5, 2023

- Shane Farritor
- Tom Frederick
- Joe Bartels

13. “Antiviral Prodrugs and Formulations Thereof”

U.S. Patent No. 11,839,623 — issued December 12, 2023

- Howard Gendelman
- Benson Edagwa

14. “Dimers of Covalent NFκB Inhibitors”

U.S. Patent No. 11,840,540 — issued December 12, 2023

- Amarnath Natarajan
- Sandeep Rana

15. “Automated Retrievable Hemorrhage Control System”

U.S. Patent No. 11,857,443 — issued January 2, 2024

- Jason MacTaggart
- Alexey Kamenskiy

16. “Method and Apparatus for Computer Aided Surgery”

U.S. Patent No. 11,857,265 — issued January 2, 2024

- Hani Haider
- O. Andres Barrera

17. “Methods, Systems, and Devices for Surgical Access and Insertion”

U.S. Patent No. 11,883,065 — issued January 30, 2024

- Shane Farritor
- Eric Markvicka
- Tom Frederick
- Dmitry Oleynikov
- Jack Mondry
- Jacob Greenburg

18. “Time-Varying Quantification of Capacitive and Resistive Arterial Blood Flow”

U.S. Patent No. 11,896,423 — issued February 13, 2024

- Irving Zucker
- Ioannis Chatzizisis
- Hanjun Wang
- Alicia Schiller
- Peter Pellegrino

19. “Robotic Surgical Devices, Systems, and Related Methods”

U.S. Patent No. 11,909,576 — issued February 20, 2024

- Shane Farritor
- Tyler Wortman
- Ryan McCormick
- Dmitry Oleynikov
- Kyle Strabala
- Amy Lehman
- Eric Markvicka

PATENTS ISSUED

20. “Anti-Parasitic Immunological Compositions”

U.S. Patent No. 11,911,464 — issued February 27, 2024

- Paul Davis
- Sam Al-Murrani

21. “On-Board Tool Tracking System and Methods of Computer Assisted Surgery”

U.S. Patent No. 11,911,117 — issued February 27, 2024

- Ibrahim Al-Shawi
- O. Andres Barrera
- Hani Haider

22. “Surgical Loupes Head Strap”

U.S. Patent No. 11,934,039 — issued March 19, 2024

- Donny Suh
- James Hermesen

23. “Nanofiber Structures and Methods of use Thereof”

U.S. Patent No. 11,946,164 — issued April 2, 2024

- Jingwei Xie

24. “Nanofiber Structures and Methods of Use Thereof”

U.S. Patent No. 11,951,227 — issued April 9, 2024

- Jingwei Xie
- Mark Carlson
- Shixuan Chen

25. “Single-Arm Robotic Device with Compact Joint Design and Related Systems and Methods”

U.S. Patent No. 11,950,867 — issued April 9, 2024

- Shane Farritor
- Joseph Palmowski

26. “Ozonides for Treating or Preventing Virus Infections”

U.S. Patent No. 11,963,945 — issued April 23, 2024

- Jonathan Vennerstrom
- Ravit Boger

27. “Polyethylene Glycol-Conjugated Glucocorticoid Prodrugs and Compositions and Methods Thereof”

U.S. Patent No. 12,011,450 — issued June 18, 2024

- Dong Wang
- Zhenshan Jia
- Fang Yuan
- Xiaobei Wang





Photo: UNMC

FROM LEFT: Sarah Dunsmore, PhD, Project Coordinator; Brianna Parr, MPH Student and Research Assistant; Elizabeth Beam, PhD, RN, Associate Professor, UNMC College of Nursing, HEROES Program Director, Director of Global Health; Bethany Lowndes, PhD, MPH, Associate Professor of Human Factors UNMC Department of Neurological Sciences

Ruggedized Beam Helmet

Powered air purifying respirators (PAPRs) and related personal protective equipment are manufactured with astronauts and miners in mind, not healthcare workers. Regardless, protective gear such as PAPRs have been adopted in healthcare to protect clinicians from highly infectious respiratory pathogens. The bulky and sometimes awkward devices might be great at protecting its wearer from the vacuum of space or meeting the intense physical demands of protecting a miner from coal dust. But a healthcare worker in a clinical setting has different needs.

A UNMC team led by Elizabeth Beam, PhD, RN, and Bethany Lowndes, PhD, MPH, contracted with UNO's Brian Knarr, PhD, and Andrew Walski in the Machine and Prototyping Core to design and prototype a PAPR with the healthcare worker in mind. The result was a lightweight PAPR helmet that is all at once convenient to don and doff properly and easy to sanitize. With reduced fan noise and full-face visibility, the design goes far beyond improving user comfort and convenience to enhance performance and communication.

Imagining and developing a new medical device takes a village and this PAPR is no exception. The project has truly been a team effort with support from UNMC Design Thinking, UNeMed's Back-o-the-Napkin Contest, Great Plains IDEa-CTR, UNeTech Institute, and the Nebraska Research Initiative.

The significant impact on clinician comfort and communication, as well as interest from large companies and the military, makes this invention UNeMed's Most Promising New Invention of 2024.

The Healthcare PAPR Helmet Team has secured two grants to perform usability testing and create a ruggedized version for military use in austere environments.



Brian Knarr, PhD, UNO



Andrew Walski, UNO

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Jingwei Xie PhD

Professor, Department of Surgery, Division of Transplant Surgery; Mary & Dick Holland Regenerative Medicine Program, University of Nebraska Medical Center

Jingwei Xie, PhD, is the 2024 Innovator of the Year in recognition for a multitude of inventions that have developed into an extensive portfolio of nanofiber technologies.

Dr. Xie’s research focuses on the development of novel nanofiber compositions and manufacturing methods. His nanofiber technologies can be used for wound healing, hemostasis, bone regeneration, drug delivery, and sample collection.

He aims to generate technologies that offer enhanced properties, biocompatibility, and versatility for use within patients.

Dr. Xie has submitted 36 inventions in the last 10 years, including five in the fiscal year ending in 2024. His inventions have resulted in eight issued United States patents, two exclusive license agreements, four option agreements, and two sponsored research agreements.

Dr. Xie received his doctorate from The National University of Singapore in 2007, and he was a postdoctoral fellow at Washington University in St. Louis in 2007-2011. In 2011, he became a senior scientist at the Marshall Institute for Interdisciplinary Research at Marshall University. He then joined the University of Nebraska Medical Center in 2014.

He was previously awarded the Most Promising New Invention of 2017 for his nanofiber sponges that were capable of rapidly absorbing blood and other fluids while retaining their overall shape and size. He was also listed among UNMC New Investigator honorees in 2015, named a UNMC Distinguished Scientist in 2020, and was presented the prestigious Chancellor Emeritus Harold M. Maurer, M.D., and Beverly Maurer Scientific Achievement Award in 2019.

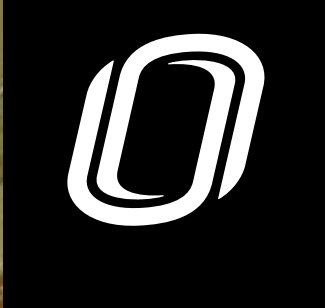




Photo: Carecubes, Inc.

Carecubes, Inc.

Carecubes was created through the work between UNMC's world-renown infectious disease team and a San Francisco-based research and development lab, Otherlab. The original designs were initially created in a response to concerns related to Ebola outbreaks in Africa. But the recent COVID-19 pandemic sparked the creation of Carecubes as a path to commercialize the new technology for wider use. The Carecube now provides a better way to treat patients with highly infectious diseases, particularly for care providers that work in areas that lack the kind facilities found at UNMC or other major medical centers.

The Carecube is a portable and rapidly deployable negative pressure isolation unit. The Carecube helps reduce the need and use of personal protective equipment while also helping enhance patient care and experience.

The Carecube can be rapidly deployed, setting up in less than 20 minutes. Some key features of the Carecube include lean-in glove walls and "pass-throughs". The glove walls allow for rapid and improved patient access. The "Pass Throughs" provide a safe and easy route delivering food, personal items, and equipment into the unit without breaking airborne isolation precautions.

UNMC and Carecubes, Inc., have received \$6.4 million in developmental support from the CDC. The startup also received its 510(k) clearance from the FDA in January 2024, and is now actively marketing the Carecube device.

Carecubes, Inc., has assembled a talented team to help lead the company, including Alex Laskey, Founder & CEO; Nancy Spector, COO; Gray Fleming, General Manager; Danny Uhlemann VP of Operations & Delivery; and Scott Leadbetter, VP of Sales.

The UNMC researchers that helped create, design, and test the Carecube device were Mara Jana Broadhurst, MD, PhD; James Lawler, MD, MPH; David Brett-Major, MD, MPH; and Christopher Kratochvil, MD. Drs. Broadhurst, Lawler, and Brett-Major continue to serve as advisers to Carecubes, Inc.



Breanna Hetland, PhD, RN, CCRN-K

Assistant Professor, College of Nursing, University of Nebraska Medical Center; Co-Founder, Family Room

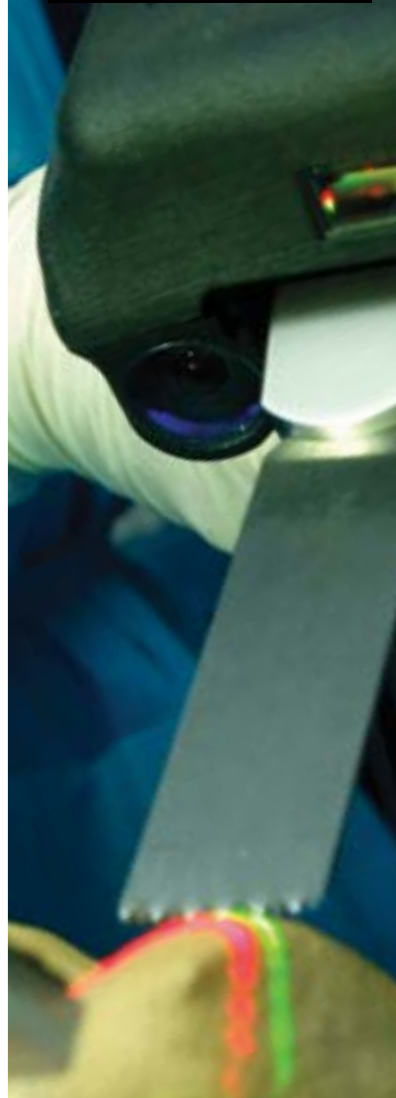
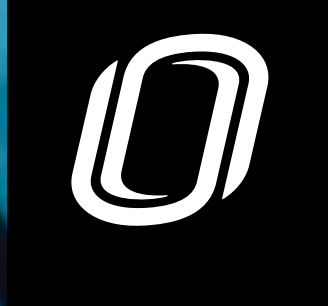
Breanna Hetland, PhD, RN, was the clear choice as the initial recipient of UNeMed's first-ever Faculty Entrepreneur Award. She earns the distinction in recognition of her trailblazing efforts to advance translational research both within and outside the University walls.

Dr. Hetland landed at UNMC in 2017, and immediately showed her entrepreneurial and innovative abilities. She submitted an invention disclosure for a software solution that would enable and promote more robust patient and family engagement during acute hospitalizations.

Over the previous seven years, Dr. Hetland has continued to compete for or receive highly competitive grants and awards including the Harriet H. Werley New Investigator Award from the Midwest Nursing Research Society; the Betty Irene Moore Fellowship for Nurse Leaders and Innovators; the Judges Award in the Digital Tools category of the Equalize Pitch Competition; and a Small Business Technology Transfer grant from the NIH.

Called "Family Room," Dr. Hetland's software application helps patients and families make informed decisions during hospitalization. The Family Room app—which Dr. Hetland and her co-founder, Greg Nelson, refer to as a "nurse in your pocket"—is initiating clinical trials this winter.

Dr. Hetland received her RN from Southern Illinois University and her PhD in Nursing Science from the University of Minnesota.



**Brent Clark, PhD**

Assoc. Dir., Center for Entrepreneurship, Innovation and Franchising; Prof. of Management, College of Business Administration; Site Dir., Great Plains NSF I-Corps Region; University of Nebraska at Omaha

**Lamonte Russell, MA, MS**

Strategy and Ventures Manager, UNeTech Institute, University of Nebraska Medical Center & University of Nebraska at Omaha

Maverick Technology Venture Alliance (MTVA)

The Maverick Technology Venture Alliance is a student-led business strategy program housed within the UNeTech Institute, the University's startup incubator. Under the supervision of Lamonte Russell and Brent Clark, PhD, the Maverick Technology Venture Alliance builds business strategies for inventions that come from faculty and staff of the University of Nebraska System.

Students work with inventors to conduct a wide variety of business analyses; apply entrepreneurship theory to the latest University inventions; and publish reports that help define what a startup "could" be for any particular invention.

Over the past three years, the Maverick Technology Venture Alliance has produced a total of 56 Strategy Reports; facilitated the creation of nine start-ups; and completed several customer discovery projects, resulting in numerous new contacts and leads for UNeTech. The organization engaged with the community through various investor, entrepreneur, and inventor events while implementing numerous process improvements and developing the MTVA Strategy Playbook. These accomplishments demonstrate MTVA's ongoing commitment to driving startup activities and strengthening connections within the innovation ecosystem.

Notable examples of successful University startups that have benefitted from the program include Precision Syringe, University Medical Devices and Impower Health. Precision Syringe is a medical device company built on an innovative syringe that can be used comfortably and accurately with one hand, and may seek FDA clearance in the next year. University Medical Devices was UNeMed's 2023 Startup of the Year (see page 14), and Impower Health is building momentum as an early-stage startup that has the world's first self-pacing treadmill.

Dr. Clark received his Bachelor of Science and Master of Business Administration at Brigham Young University,

and his Doctorate of Business Administration is from the University of Missouri. Dr. Clark's primary research involves the impact of technology on decision-makers and organizations.

Russell joined UNeTech after a long career in the military, including roles with the US Army, Department of Defense and the Veteran's Administration. He holds an MA in National Security and Strategic Studies from the Naval War College, and holds an MS in Environmental Science from Webster University.

INNOVATION WEEK HISTORY



Dr. Kamenskiy



Dr. Desyatova



Ahmadi



Dr. MacTaggart



Dr. Wadman



Dr. Thang



Zeger



Dr. Gundry

Innovation Week dates back to 1998 when UNeMed and the Intellectual Property Office began hosting the Inventor's Recognition Reception, specifically tailored to honor UNMC researchers who had applied for or received patents in the previous year.

In 2007, UNMC restructured its technology transfer efforts into one organization, merging UNeMed with the Intellectual Property Office. UNeMed—under the leadership of then-CEO, James Linder, MD—transformed the Inventor's Recognition Reception into the Research Innovation Awards.

The awards ceremony was the final event in a week of activities that celebrated research and innovation at UNMC. In addition to recognizing researchers who received a U.S. patent, submitted a new invention or had a technology licensed, UNeMed also added emerging inventor and lifetime achievement awards. In 2008 it also added the “Most Promising New Invention” as an annual award. In 2013, UNeMed presented for the first time ever, an “Innovator of the Year” Award. In 2018, another distinction was added when UNeTech—the University's new incubator and accelerator program—presented the first Startup of the Year award. That same year, UNeMed and the University of Nebraska at Omaha formalized their relationship for UNO's deep roster of innovative researchers, faculty, staff and students.

Innovation Week is now about far more than recognizing a handful of scientists with issued patents. It's a celebration that recognizes, rewards and encourages innovative thoughts and ideas, whether they come from the most seasoned and esteemed researcher or a first-year student who might know a better way. The program has grown into an event that brings together innovators and leadership from throughout the University of Nebraska System.

Last year, the Most Promising New Invention was an improved stent design for vascular procedures in the lower legs. The device was a collaboration between UNMC surgeon Jason MacTaggart, MD, and UNO biomechanics experts Alexey Kamenskiy, PhD, Anastasia Desyatova, PhD, and Ali Akbar Ahmadi.

The 2023 Startup of the Year award went to Michael Wadman, MD, Thang Nguyen, PhD, and Wesley Zeger, DO, for their company, University Meical Devices. They are developing a device called MicroWash, a profound improvement over nasal swabs for collecting samples.

Finally, UNeMed's 2023 Emerging Inventor was Rebekah Gundry, PhD, in recognition of her inventions and research accomplishments in the field of mass spectrometry, bioinformatics and the cell surfaceome.

Dr. Gundry's work focuses on developing and applying novel mass spectrometry-based technologies and bioinformatic tools to better understand cell surface glycoproteins and glycans.

One of her technologies, CellSurfer, can be used to identify cell surface N-glycoproteins. Along with CellSurfer, she has also developed the Visual Inventory of Surface Proteins (VISUN) database, which is a catalog of experimentally verified surface proteins from a variety of cell and tissue types.



Most Promising New Inventions

2024	<i>Ruggedized Beam Helmet</i>	<ul style="list-style-type: none"> • Elizabeth Beam, PhD, RN • Sarah Dunsmore, PhD • Brian Knarr, PhD • Bethany Lowndes, PhD • Brianna Parr • Andrew Walski
2023	<i>Optimized Vascular Stent</i>	<ul style="list-style-type: none"> • Alexey Kamenskiy, PhD • Anastasia Desyatova, PhD • Ali Akbar Ahmadi • Jason MacTaggart, MD
2022	<i>System for Measuring Blood Pressure in Wearable Electronic Devices</i>	<ul style="list-style-type: none"> • Cody Anderson • Song-young Park, PhD
2021	<i>Improved Self-Pacing Treadmill</i>	<ul style="list-style-type: none"> • Brian Knarr, PhD • Travis Vanderheyden • Russell Buffum
2020	<i>Anterior Cervical Space Spreader</i>	<ul style="list-style-type: none"> • Joseph McMordie, MD • Daniel Surdell, MD
2019	<i>PDE4B Selective Inhibitors</i>	<ul style="list-style-type: none"> • Corey Hopkins, PhD
2018	<i>Multiplex Assay for Rapid Detection of HSV1, HSV2, EBV and CMV by qPCR</i>	<ul style="list-style-type: none"> • Catherine Gebhart, PhD • Varun Kesharwani, PhD
2017	<i>Nanofiber Sponges for Hemostasis</i>	<ul style="list-style-type: none"> • Jingwei Xie, PhD • Shixuan Chen, PhD • Mark Carlson, MD
2016	<i>Compositions for Modulated Release of Proteins and Methods of Use Thereof</i>	<ul style="list-style-type: none"> • Joyce Solheim, PhD • Tatiana Bronich, PhD
2015	<i>Emergency Medicine Care Portfolio: Wound Irrigation System & Oral Airway Management</i>	<ul style="list-style-type: none"> • Michael Wadman, MD, FASEP • Thang Nguyen, MSN, APRN, FNP-C
2014	<i>Orthogonal AquaBlade</i>	<ul style="list-style-type: none"> • Jason MacTaggart, MD
2013	<i>Targeted Glyoxalase-1 Gene Transfer to Prevent Cardiovascular and End-Organ Complications in Diabetes</i>	<ul style="list-style-type: none"> • Keshore Bidasee, PhD
2012	<i>Small Molecule in Vivo Inhibitors of the N-Terminal Protein Interacting Domain of RPA1</i>	<ul style="list-style-type: none"> • Gregory Oakley, PhD
2011	<i>Novel Target for the Treatment of Renal Fibrosis</i>	<ul style="list-style-type: none"> • Babu Padanilam, PhD
2010	<i>Noninvasive Monitoring of Functional Behaviors in Ambulatory Human Populations</i>	<ul style="list-style-type: none"> • Stephen Bonasera, MD, PhD
2009	<i>Novel Antibiotic Compounds</i>	<ul style="list-style-type: none"> • Paul Dunman, PhD
2008*	<i>Anti-HIV Peptides and Methods of Use Thereof</i>	<ul style="list-style-type: none"> • Guangshun (Gus) Wang, PhD
2008*	<i>Sex Hormone Binding Globulin: New Target for Cancer Therapy</i>	<ul style="list-style-type: none"> • Janina Baranowska-Kortylewicz, PhD

*In 2008 the Most Promising New Invention award was shared.

Special Awards

2024	Maverick Technology Venture Alliance..	Innovation Champion
2024	Breanna Hetland, PhD, RN	Faculty Entrepreneur
2024	Carecubes	Startup of the Year
2024	Jingwei Xie, PhD	Innovator of the Year
2023	Rebekah Gundry, PhD	Emerging Inventor
2023	University Medical Devices	Startup of the Year
2022	Bin Duan, PhD	Emerging Inventor
2022	Exavir Therapeutics	Startup of the Year
2021	Hanjun Wang, MD	Innovator of the Year
2021	Ensign Pharmaceutical	Startup of the Year
2020	COVID-19 Inventors	Innovators of the Year
2020	BreezMed	UNeTech Startup of the Year
2019	Benson Edagwa, PhD	Emerging Inventor
2019	FutureAssure.	UNeTech Startup of the Year
2018	Biomechanics Dept., UNO.....	Innovator of the Year
2018	Centese, Inc.	UNeTech Startup of the Year
2017	Donny Suh, MD.	Emerging Inventor
2016	Irving Zucker, PhD.....	Innovator of the Year
2015	Tammy Kielian, PhD	Innovator of the Year
2014	Marius Florescu, MD.....	Emerging Inventor
2013	Howard Gendelman, MD	Innovator of the Year
2012	Tammy Kielian, PhD	Emerging Inventor
2011	Jonathan Vennerstrom, PhD.....	Lifetime Achievement
2010	Amarnath Natarajan, PhD	Emerging Inventor
2009	Rodney Markin, MD, PhD	Lifetime Achievement
2008	Dong Wang, PhD.....	Emerging Inventor
2007	Robert LeVeen, MD	Lifetime Achievement





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- JD, Creighton University School of Law
- Joined UNeMed: 2015



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- PhD, Molecular Genetics, University of Nebraska Medical Center
- Joined UNeMed: 2003



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- Joined UNeMed: 2009



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- PhD, Cancer Biology, University of Nebraska Medical Center
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- LLM, International Intellectual Property Law, Chicago-Kent College of Law
- Joined UNeMed: 2009



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The Beam Helmet is a dramatic improvement in specialized personal protective equipment for frontline healthcare workers, particularly when treating patients with infectious diseases. Developed in response to frustrations with limited resources during the COVID-19 pandemic, a “ruggedized” version of the helmet is the 2024 Most Promising New Invention.

Photo: UNMC