2021-2022
PROGRESS REPORT

LEADING THE MOBILITY TRANSFORMATION

M | city
UNIVERSITY OF MICHIGAN

FROM THE DIRECTOR

HENRY LIU
MCITY DIRECTOR

DIRECTOR OF THE CENTER FOR CONNECTED AND AUTOMATED TRANSPORTATION (CCAT); PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING

Change defined 2022 at Mcity.

This is our first progress report since the start of the COVID-19 pandemic. Mcity moved to fully remote work in March 2020, and the test facility shut down entirely. By June, however, the track had reopened. The Mcity office reopened in August 2021. The pandemic slowed our work for a time but did not stop us.

In January 2022, our academic home at the University of Michigan moved to the College of Engineering. As part of Michigan Engineering, Mcity has greater access to college resources as we pursue goals we share: advancing safety, sustainability, equity and accessibility in mobility to serve the common good.

Sadly, we closed the year mourning the unexpected death of my colleague and friend, Professor Huei Peng, who had remained engaged with Mcity even after he stepped down as director in December 2021 following his remarkable six-year tenure. Huei was an accomplished researcher and dedicated teacher as the Roger L. McCarthy Professor of Mechanical Engineering, and he was instrumental in establishing Mcity as a respected leader in future mobility research and testing. Read more about Huei and his legacy on pages 20-25.

What remained constant throughout 2022, however, as it has since Mcity was established as a public-private research partnership almost a decade ago, was our dedication to collaborating with and serving our partners in industry, government and academia.

NOTABLE ACHIEVEMENTS

Research. Mcity provides its members with access to research at the local level through projects funded by Mcity; at the regional level through the Center for Connected and Automated Transportation (CCAT), a regional transportation research center funded by the U.S. Department of Transportation where I also serve as director; and at the national level through the National Science Foundation (NSF).

Since 2020, Mcity has invested $3.5 million to fund 17 research projects across a range of topics from cybersecurity to pedestrian detection to design guidelines for developing accessible automated vehicles.

Notably, about 25 percent of Mcity's research portfolio now encompasses the social sciences, moving us closer to realizing our goal of supporting multidisciplinary projects and demonstrating the societal benefit of our work.

Mcity initiated a project designed to deepen our understanding of transportation insecurity, how to measure it effectively and better understand how future mobility technologies could improve access to transportation options and potentially improve quality of life. The project builds on the Transportation Security Index developed by Alexandra Murphy, assistant professor of sociology in U-M's College of Literature, Science and the Arts. Professor Murphy is lead researcher on the Mcity-funded project.

Another research focus area was, and continues to be, AV safety. The Mcity ABC Test, and the SAFE TEST, developed through CCAT, together comprise the Mcity Safety Assessment Program. The program is a methodology for demonstrating the safety of AVs before testing on public roads, a crucial need as concerns about AV safety stall widespread rollout of the technology.

Most recently, Mcity was awarded $5.1 million by the NSF to enhance the physical infrastructure of the Mcity Test Facility, while adding digital infrastructure that will enable remote use of the testing environment. This will increase access to AV testing resources

while accelerating adoption of new mobility technologies. We call it Mcity 2.0.

Workforce Development. TechLab at Mcity has grown annually since launching in 2016 in partnership with Michigan Engineering's Center for Entrepreneurship. The company-in-residence program brings together early-stage advanced mobility companies and highly talented students to work on company-sponsored technical projects involving connected and automated vehicles at Mcity.

Developing the talent pipeline for mobility is a priority for Mcity, and TechLab is prime for growth with the addition of two major funding sponsors: Perot Jain, a venture capital firm, and Ford Motor Co. Their support will allow TechLab to expand its unique entrepreneurial educational experience to other emerging tech-driven markets while enhancing the current partnership with Mcity.

Testing Resources. Mcity provides a variety of mobility test beds including the safe, controlled conditions of the Mcity Test Facility and on-road vehicle deployments in Ann Arbor and beyond.

The Mcity Test Facility remains the best-equipped and most innovative test environment for connected and automated vehicles and technologies. In addition to developing Mcity 2.0, we've upgraded the track with features that include:

- Commercial 5G network
- State-of-the-art instrumentation and sensors
- House and garage exterior with accessibility ramp
- Digital twin of the test facility to run off-site testing scenarios
- Patent-pending augmented reality that allows physical test vehicles to interact with virtually connected vehicles in real time inside the test facility
- Mobile on-site workstation with WiFi, plug-in network, and power source

In addition, we opened a new Mcity Auxiliary Building adjacent to the test facility that has become a venue for researchers to work on projects, as well as a space to host events. Most recently, we welcomed the U.S. General Services Administration, the National Transportation Safety Board, and the NSF.

Deployments. In a year-long project that began in October 2021, Mcity was a partner in A2GO with May Mobility, the city of Ann Arbor, and others, to explore uses of AV data as part of a last-mile autonomous vehicle service connecting the U-M campus with downtown Ann Arbor.

Now we're working with the Michigan Mobility Collaborative to launch an autonomous ride service to serve the senior population in select Detroit neighborhoods. Once a vendor is selected, vehicle safety testing will take place at Mcity.

OUTLOOK

Today, the mobility landscape is shifting. Unbridled enthusiasm for widespread deployment of robotaxis within a few years has given way to a more realistic vision of what might be possible over time. While some companies remain committed to go-anywhere, anytime automation, others have shifted their focus to automated driver assistance systems (ADAS). At the same time, investments in electric vehicle development are growing dramatically. The federal government has set an ambitious goal: That electric vehicles comprise half of all new car and light truck sales in the United States by 2030.

Mcity's accomplishments in recent years leave us well-positioned to maintain leadership in the mobility space, and prepared to focus on new areas when it makes sense to do so as the mobility landscape changes.

Mcity has long recognized and spoken of the complexity of automation, a reality reflected in the slowing momentum of AVs. We have put Mcity 2.0 in place explicitly to tackle the fundamental scientific barriers that have prevented widespread AV deployment. In a paper published in Nature magazine in March, I refer to the "curse of rarity" in describing the safety challenges for AVs: Because safety-critical events are rare in everyday driving, it is difficult to test AVs against their ability to handle the most dangerous situations. The paper also explores possible solutions that could help accelerate AV development and deployment.

A critical question for Mcity today is, "What's next?" Our current three-year membership runs through June 2024. We are committed to demonstrating the value of being a partner with Mcity. As transportation and mobility solutions of the future evolve, Mcity will evolve as well.

OUR NEW HOME

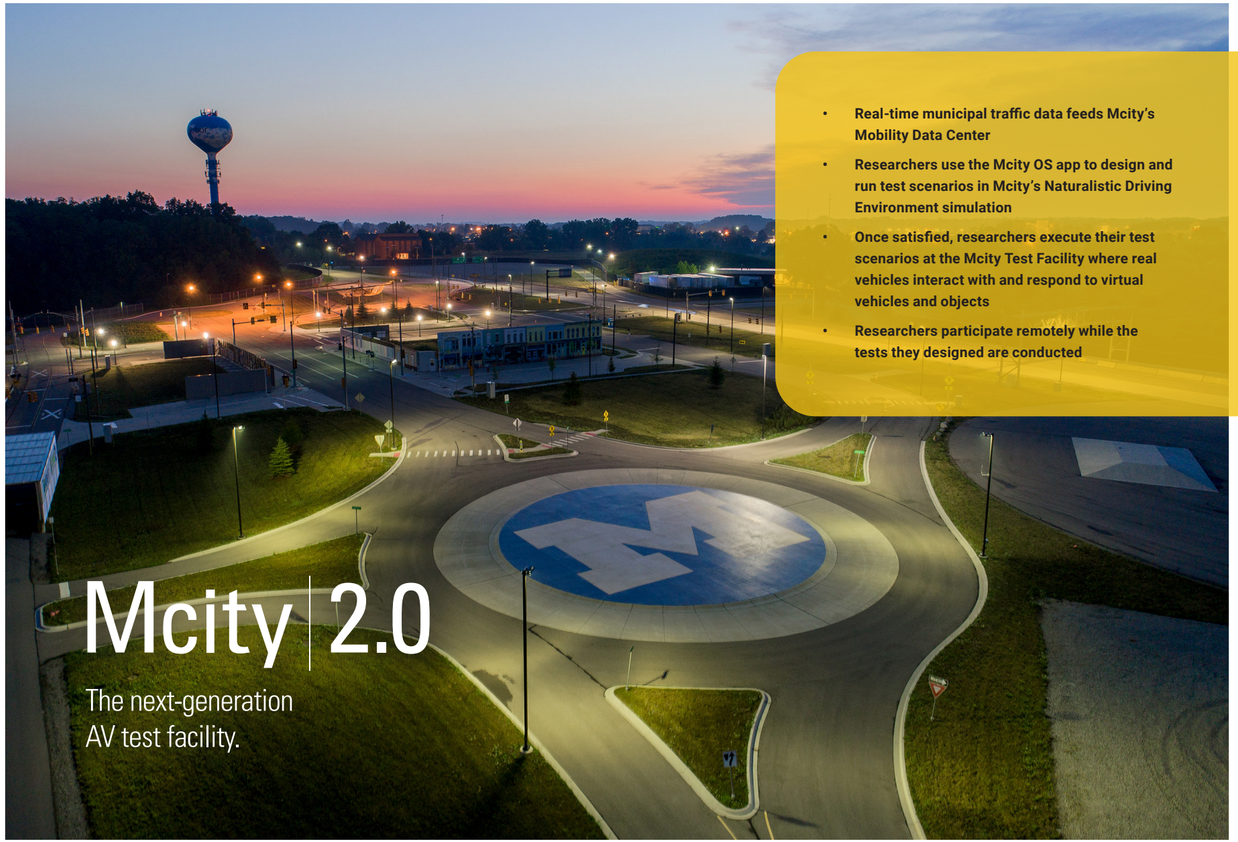
Read more about Michigan Engineering

On January 1, 2022, Mcity joined the University of Michigan's College of Engineering, and Henry Liu, professor of civil and environmental engineering, became Mcity's third director.

Dr. Liu succeeded Huei Peng, the Roger L. McCarthy Professor of Mechanical Engineering, who stepped down on December 31, 2021. The public-private mobility research partnership launched in 2013 under the leadership of the Office of the Vice President for Research. The Mcity Test Facility opened in 2015.

"Mcity … has become synonymous with mobility innovation," Liu said when his appointment was announced. "I will do my best to work together with our partners … to maintain that lead, and continue to strengthen Mcity's interdisciplinary initiatives."

Alec D. Gallimore, Robert J. Vlasic Dean of Engineering, said Mcity's move to the College of Engineering brings together two key players in advanced transportation and mobility research at U-M. "Being part of Michigan Engineering will bring Mcity greater access to engineering resources, supporting our shared goals of advancing safety, sustainability and accessibility in mobility to serve the common good," said Gallimore, who is also the Richard F. and Eleanor A. Towner Professor of Engineering, and Arthur F. Thurnau Professor of Aerospace Engineering.



- **Real-time municipal traffic data feeds Mcity's Mobility Data Center**
- **Researchers use the Mcity OS app to design and run test scenarios in Mcity's Naturalistic Driving Environment simulation**
- **Once satisfied, researchers execute their test scenarios at the Mcity Test Facility where real vehicles interact with and respond to virtual vehicles and objects**
- **Researchers participate remotely while the tests they designed are conducted**

AN EVOLUTION IN AV TESTING

Read more about Mcity 2.0

Thanks to a $5.1 million grant from the National Science Foundation (NSF), the Mcity Test Facility is evolving into a next-generation autonomous vehicle test track. Mcity 2.0 will give academic researchers and institutions nationwide, many without their own test facilities and vehicles, remote access to the facility and Mcity test vehicles.

Mcity Director Henry Liu, Managing Director Greg McGuire and the Mcity team are developing digital infrastructure to overlay the physical test facility and create a cloud-based, augmented-reality CAV testbed – enabling a more equitable playing field for mobility research.

Dubbed Mcity 2.0, this digital infrastructure provides access to three critical tools researchers may lack:

- Data to build algorithms, train systems and validate that they will behave in ways expected by other road users
- A good simulation environment for quickly, accurately, and repeatedly testing assumptions
- A world-class test facility where assumptions can be tested on a physical vehicle on real roads

MCITY PARTNER IDENTIFIES BARRIERS TO TRANSPORTATION DATA ACCESS

Municipal transportation data is a treasure trove for planners — if they can get to it.

Read the white paper

Smart infrastructure produces a vast array of data – from traffic volumes and crash statistics to pedestrian counts, bike counts, street mapping information and more. City governments, nonprofit organizations and businesses rely on this data to develop ways to reduce traffic congestion, improve road safety and make mobility more accessible, but using this data is difficult.

Mcity published the second in a series of four white papers by Covington & Burling LLP, a Washington, D.C.-based global law firm and a member of Mcity's Leadership Circle of industry partners. *Contracting Tools for Transportation Data* identifies barriers to the accessibility of transportation data including the lack of standardization and clarity in the permissions granted when transportation data is made available, as well as privacy and other concerns that prevent data that could be useful from being made available. For example, a smart streetlights project in San Diego was discontinued due to concerns about the potential use of transportation data for surveillance purposes.

- **A2GO served more than 8,500 riders in 2022**
- **The autonomous shuttle service launched in October 2021, connecting U-M campus and downtown Ann Arbor**
- **Shuttles operate Monday–Friday 8am–8pm within a 2.64-square-mile service area**
- **All vehicles are staffed with autonomous vehicle operators**
- **Mcity was a partner in A2GO's first year of operation, collecting data from the A2GO fleet for use by researchers and developers**

A LAST-MILE AUTONOMOUS SOLUTION

Read more about A2GO

Mcity joined May Mobility and several other partners in October 2021 to launch A2GO, a free, public, on-demand autonomous shuttle service that connects the University of Michigan campus, Kerrytown, and the State Street Corridor in Ann Arbor.

The A2GO service demonstrates how communities can work together to incorporate transportation, safety, land use and economic development into the mobility landscape.

At launch, the fleet included five autonomous, shared vehicles – four hybrid-electric Lexus RX 450h SUVs each carrying up to three passengers, and one fully electric, wheelchair-accessible, one-passenger Polaris GEM.

A2GO partners included Ann Arbor SPARK, !important Safety Technologies, 4M, the State of Michigan's Office of Future Mobility and Electrification, the Michigan Economic Development Corporation and Mcity. While Mcity's work with A2GO ended in early 2022, the service continues to operate. Rides are requested via a free May Mobility app available through Apple's App Store or Google Play.

GRADUATE STUDENT DEVELOPS LOW-COST ROBOTIC PROXY

Read more about the Cozy Coupe

The Cozy Coupe is just one of dozens of potential robotic proxies researchers will be able to deploy on the Mcity test track to gauge how accurately self-driving cars and trucks recognize obstacles in the road.

Before fully autonomous vehicles become a reality on the road, their control systems need to be able to avoid hazardous obstacles in the road (a wandering toddler, a distracted pedestrian, an oblivious cyclist, a wayward shopping cart, a stray dog, etc.). Testing these systems requires proxy objects – small robotic platforms that can be programmed to accurately repeat the same set of behaviors time after time. Commercially available models cost as much as $250,000 each and often run on proprietary software.

Ryan Lewis, a 25-year-old Michigan Robotics master's student, intentionally selected a relatively inexpensive existing commercial robotics platform with open-source software that can be customized to fit Mcity's needs and simplify the ongoing maintenance and development of new proxies.

- **Robotic proxies are designed to be "run-overable" – durable and flat to prevent damage when hit at high speeds**
- **This example includes a 24-inch-tall customizable, programmatic robotic platform manufactured by SEGWAY**
- **In addition to the Little Tikes® Cozy Coupe®, the 16-acre Mcity test track has a number of obstacles to simulate real-world urban, suburban, and rural driving, including a robotic deer**

RESEARCH HIGHLIGHTS

Since 2020, Mcity has invested $3.5 million to fund 17 research projects across a range of topics.

SAFETY

Exploring Standards and Guidance for Automotive Ethernet Security

MORLEY MAO, ANDRE WEIMERSKRICH

PROJECT ABSTRACT

Automotive Ethernet is considered the next-generation in-vehicle network because of its high bandwidth, high throughput, and low-cost characteristics. While the technology could greatly improve in-vehicle communication, no common standard for a security protocol has been established. Security is critical to prevent sophisticated cyber attacks, such as remote braking. The objective of this project was to establish a favored protocol candidate, supported by thorough evaluation, and propose standardization for secure Ethernet protocol in automotive use cases.

STATUS: COMPLETED

ACCESSIBILITY

The Impact of Future Mobility Technologies on Transportation Insecurity

ALEXANDRA MURPHY

PROJECT ABSTRACT

Deploying mobility technologies to promote transportation equity requires understanding the landscape of transportation insecurity in the United States, and developing tools to evaluate whether these technologies move people from transportation insecurity to security. This research will use national data from 2018, plus new data collected in 2022, to better understand how factors such as where people live and the modes of transportation they use contribute to transportation insecurity. The work will also further develop the Transportation Security Index, the first validated individual measure of transportation insecurity.

STATUS: IN PROGRESS

EFFICIENCY

Cooperative Driving for CAVs

HENRY LIU, BOQI LI, TINGHAN WANG

PROJECT ABSTRACT

For the foreseeable future, connected and autonomous vehicles (CAVs) will share the road with human drivers. But can CAVs interact, even cooperate, with human drivers for safer, smoother driving? In this project, CAVs will combine observed positions and velocities with a behavior prediction algorithm to predict human drivers' future movements statistically and plan a safe path. Project goals are to develop a trajectory prediction algorithm and a cooperative motion planning algorithm, then validate both on a CAV at the Mcity Test Facility.

STATUS: IN PROGRESS

COMMERCIAL/ECONOMIC VIABILITY

Automated Driving Effect and Motion Sickness Response

MONICA JONES, SHAOBING XU

PROJECT ABSTRACT

Engineering models that control vehicle movement parameters in a manner that meets consumers' expectations and mitigates the onset of motion sickness are needed to guide AV design. Current engineering approaches involve control inputs for vehicle route and speed. This project will identify metrics that meaningfully characterize vehicle dynamics, particularly acceleration, which could be modeled in AV control algorithms, and provide preliminary definitions of acceptable acceleration limits.

STATUS: IN PROGRESS

Read more about Mcity Research

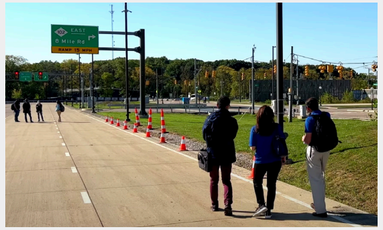
EVENTS

GSA HOSTS EV ROUNDTABLE AT MCITY

In July 2022, U.S. General Services Administrator (GSA) Robin Carnahan, at the center of the table in the above photo, met with auto industry stakeholders at the Mcity Test Facility to discuss accelerating efforts to transition the federal fleet to an all-electric, zero-emissions fleet by 2035. GSA is working to streamline this transition by obtaining the necessary infrastructure, including charging stations, for federal facilities. The visit to Mcity was a meaningful step in working to advance American manufacturing and clean energy innovation, which has never been more important in the fight against the climate crisis.

PRESS CONFERENCE FOR MCITY 2.0 LAUNCH

On October 24, 2022, Mcity, together with the National Science Foundation and State of Michigan representatives including U.S. Congresswoman Debbie Dingell and others, celebrated the launch of Mcity 2.0. Funded by a $5.1 million NSF grant, the Mcity Test Facility is evolving into a next-generation autonomous vehicle test track that will provide researchers nationwide with remote access to the test facility. In the photo above, Mcity Managing Director Greg McGuire explains how Mcity 2.0 works to media who attended the launch event.

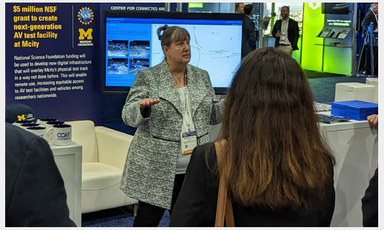


MCITY HOSTS STUDENT TEAMS

In June 2022, Mcity hosted AutoDrive Challenge™ II at the Mcity Test Facility. The event, sponsored by General Motors Co. and SAE International, brought ten student teams from colleges across the United States and Canada to compete in the first year of the three-year challenge to develop and demonstrate a Level 4 AV – a vehicle that can operate without any human intervention – capable of navigating urban driving courses. AutoDrive Challenge™ II returns to Ann Arbor in June 2023.

MCITY AT AUTOMOBILI-D

In September 2022, AutoMobili-D returned to Huntington Place (formerly known as Cobo Center) in Detroit for the first time since 2019 as part of the 2022 North American International Auto Show. Above, Mcity Director Henry Liu, right center, speaks with members of a delegation representing Michigan's state legislature. Mcity and the State of Michigan's University Research Corridor institutions showcased their work in transportation and mobility. Mcity 2.0, Mcity's NSF-funded next-generation test facility, was included at the University of Michigan's exhibit.



ITS WORLD CONGRESS

The ITS World Congress, presented by ITS America, is an annual global conference that allows the smart mobility community to come together to explore the deployment of intelligent transportation technologies. Mcity presented at two panels at the August 2022 event in Los Angeles: "Methods for Improving Road Safety: Smart Infrastructure, Crowdsourced Data, and Safety Metrics" and "Live, Virtual, and Constructive Evaluation of Connected and Automated Vehicles." Mcity shared a booth with the Center for Connected and Automated Transportation (CCAT), a regional transportation research center funded by the U.S. Department of Transportation. Above, CCAT Managing Director Debby Bezzina speaks with booth visitors.

NTSB COMES TO MCITY

The National Transportation Safety Board (NTSB) visited the University of Michigan in October 2022 to meet with representatives from Mcity, the Center for Connected and Automated Transportation (CCAT), the U-M Transportation Research Institute (UMTRI) and Ford Motor Co. The visit included a discussion on the current state of connected vehicle technology with NTSB Board Member Michael Graham, pictured above, and NTSB staffers. Demonstrations at the Mcity Test Facility highlighted the benefits of connected vehicle (CV) technology, ahead of a presentation about what is still needed to achieve wide-scale deployment of CV technology in the United States.

“Through his leadership and scholarship, Huei made an impact on our campus and in the field of engineering. He was an innovative researcher and a kind person, and we will miss him greatly.”

ALEC D. GALLIMORE
ROBERT J. VLASIC DEAN OF ENGINEERING
UNIVERSITY OF MICHIGAN

IN MEMORY OF HUEI PENG

Former Mcity director was an innovative researcher, leader and educator in vehicle controls and connected/automated vehicles.

Professor Huei Peng, who died November 17, 2022, served as director of Mcity from 2016-2021. He led the Mcity team with passion for our mission, bringing his intellect to the work and his generosity and kindness to his role as a leader.

Among his many achievements, Huei built strong relationships with Mcity partners in industry and government that were instrumental in establishing Mcity as a leading public-private mobility research partnership. In addition, Mcity added a host of new technologies and capabilities at the Mcity Test Facility for connected and automated vehicles during Huei’s tenure, funded nearly 90 research projects and published more than a dozen white papers.

Huei led the Mcity Driverless Shuttle research project to learn more about consumer attitudes toward driverless technology, and he spearheaded development of a testing methodology — the Mcity ABC Test — that could be

HUEI'S ACHIEVEMENTS

- Developed an accelerated evaluation approach for AVs
- Developed an accurate localization method for collaborative connected vehicles using low-cost Global Navigation Satellite Systems (GNSS)
- Developed an Android-based vehicular data collection platform for CAVs
- Developed effective driver training methods for partial automation to improve user understanding and acceptance
- Developed fuel-saving algorithms for heavy trucks using CV technology
- Developed an advanced parking detection algorithm based on CAV sensors to reduce dependency on parking infrastructure
- Developed algorithms for dynamic map updates and incident detection using CV data from infrastructure
- Collected a data set that captures the interactions of drivers and pedestrians or bicyclists at intersections

used as a blueprint for validating the safety of highly automated vehicles before they are tested on public roads.

Huei's loss is felt not only by the Mcity community, but by Michigan Engineering, where Huei was the Roger L. McCarthy Professor of Mechanical Engineering; the University of Michigan; and the automotive engineering community in Michigan and around the world.

"This is a tragic and unexpected loss for all of us who were lucky enough to know and work with Huei at Mcity," said Mcity Director Henry Liu, also professor of Civil and Environmental Engineering and director of the Center for Connected and Automated Transportation. "He set a high standard for Mcity, and his dedication was reflected in everything he accomplished as director, and continued to achieve as a faculty member whose research we funded."

Huei's work focused on adaptive control and optimal control, with emphasis on their applications to vehicular and transportation systems. His latest research included design and control of electrified vehicles and connected and automated vehicles.

Huei joined the Department of Mechanical Engineering at the University of Michigan in 1993. He was the Roger L. McCarthy Professor of Mechanical Engineering and among the top 25 mechanical and aerospace engineering scientists in the United States according to research.com.

Under Huei's leadership, Mcity grew from being known primarily for its test facility for connected and automated vehicles to a full-fledged research collaboration with partners from the public, private and academic sectors.

Huei's tireless efforts to share Mcity's story and vision of making transportation safer, greener, more equitable and accessible will not be forgotten.

Read more about Huei's impact at:
mcity.umich.edu/in-memory-of-huei-peng/

PROFESSOR HUEI PENG 1962–2022
FORMER MCITY DIRECTOR

IN THEIR OWN WORDS

"Huei set a high standard for Mcity, and his dedication was reflected in everything he accomplished as director, and continued to achieve as a faculty member whose research we funded."

HENRY LIU
MCITY DIRECTOR; DIRECTOR OF THE CENTER FOR CONNECTED AND AUTOMATED TRANSPORTATION (CCAT); PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING

"Huei was a kind, dedicated, visionary leader, and a source of inspiration for many in both academia and the automotive industry. His memory will be forever treasured for what he had accomplished at Mcity."

EHSAN MORADI PARI
LEAD/PRINCIPAL SCIENTIST, HONDA RESEARCH INSTITUTE USA, INC.

"Huei mentored and inspired us with such humility, and for that we are forever grateful. You may be gone from our sight, but never from our hearts and minds. We will continue pursuing your vision for a world of safer and more sustainable mobility."

JEFF HOOD
PRINCIPAL, EMERGING BUSINESS & INNOVATION, AUTOMOTIVE, DELOITTE

"Huei Peng was an accomplished academic, a collaborative research partner and mentor to many students through the years. His passing has had a profound impact on all who knew and worked with him."

JIM SAYER
DIRECTOR, UNIVERSITY OF MICHIGAN TRANSPORTATION RESEARCH INSTITUTE (UMTRI)

"Huei was a brilliant researcher — principled, passionate and always curious. As a teacher, colleague, husband and father, he was caring and fun-loving. What made Huei so special was not that he possessed any one of these qualities, but that he exhibited all of them, often simultaneously. We were incredibly lucky to have Huei in our lives and his legacy to society will live on through our actions."

CARRIE MORTON
CHIEF ENGINEER, ACCESSIBILITY, GENERAL MOTORS CO., AND FORMER DEPUTY DIRECTOR, MCITY

"I had the privilege of being one of Prof. Peng's students during my undergrad and later working with him supporting students and startups that are tackling critical challenges in the connected and autonomous vehicle industry. He had a profound impact on my thinking, and I'll always be appreciative of how he approached research, focusing on what would make the world a better place. He was wonderful to work with and a great supporter. I'll miss him a great deal."

NICHOLAS MOROZ
DIRECTOR OF ENTREPRENEURIAL PRACTICE, UNIVERSITY OF MICHIGAN CENTER FOR ENTREPRENEURSHIP

"We are deeply saddened by the tragic passing of Huei Peng. Huei led Mcity's rapid growth both in size and impact, transforming the research partnership into a broad coalition of public, private and academic entities committed to creating safer and more sustainable mobility. We were proud to collaborate with him on a number of research projects focused on autonomous driving and vehicle connectivity. In addition to his professional accomplishments, Huei was a friend."

PAT BASSETT
SENIOR VICE PRESIDENT, DENSO INTERNATIONAL AMERICA, INC.

"Huei was a great catalyst to transform the mobility industry with connected and automated technology research and a great ambassador for 'mobility for all' by creating collaboration bodies among different stakeholders. We are saddened by the loss of such a great industry leader and friend of Toyota."

SHINICHI YASUI
EXECUTIVE VICE PRESIDENT, TOYOTA MOTOR NORTH AMERICA - R&D

"Extremely saddened to hear this news. Huei was a great leader and friend. He will be missed tremendously by the community."

KOMAL (ANAND) DOSHI
DIRECTOR OF MOBILITY, WALKER-MILLER ENERGY SERVICES

"Huei's dedication and work in the mechanical engineering department and at Mcity over the last 30 years were unparalleled, and he always had such a kind presence about him. He will be dearly missed."

ELLEN ARRUDA, PHD, NAE
DEPARTMENT CHAIR AND PROFESSOR MECHANICAL ENGINEERING, UNIVERSITY OF MICHIGAN

"Very sad news. Professor Peng was a big contributor and supporter of the Ford-UM Research Collaboration program for many years. He will be missed."

H. SAM HAMADE
TECHNICAL LEARNING MANAGER, FORD MOTOR COMPANY

"Dr. Huei Peng was a pioneering leader of Mcity, a rigorous researcher, inspiring professor, and elevating mentor. Huei brought his full attention and presence to every interaction, anchored by his humility and affability. He approached opportunities with the wisdom of a sage and the wonder of a child. We will honor Huei's legacy, knowing we are standing on the shoulders of giants."

LIZ PULVER
PROGRAM MANAGER - RESEARCH IN DRIVING SAFETY, PUBLIC POLICY, PRODUCT DEVELOPMENT, STATE FARM

LEADING THE FUTURE OF MOBILITY

Mcity's **Leadership Circle** industry partners join with the University of Michigan and government entities to serve as collaborators and thought leaders in guiding and shaping all facets of the future of mobility. Members invest $600,000 over three years. The current term is July 2022–June 2025.

Mcity **Affiliate** members participate in a variety of focused activities. Affiliate members invest $150,000 over three years.

- 3D MAPPING SOLUTIONS
- AARP
- ANALOG DEVICES INC.
- BITSENSING
- CARMERA
- DANLAW INC.
- DYKEMA
- GENERAL MOTORS
- HITACHI LTD.
- J.D. POWER
- LEAR CORPORATION
- NAVYA
- RESCALE
- SPARTAN RADAR
- SUBARU

As of December 31, 2022

MCITY LEADERSHIP

HENRY LIU
MCITY DIRECTOR

GREG MCGUIRE
MANAGING DIRECTOR

VICTORIA WATERS
ASSISTANT DIRECTOR

SUSAN CARNEY
COMMUNICATIONS DIRECTOR

DEREK JOHNSON
PRINCIPAL ENGINEER

JIM LOLLAR
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- **ALEX ROZELLE**, TEST FACILITIES OPERATIONS ENGINEER

As of December 31, 2022

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