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National Taipei University of Technology

# Taipei Tech Post



## Taipei Tech Celebrates 113th Anniversary and Honors NJIT President Dr. Teik C. Lim



Taipei Tech marked its 113th anniversary with a grand celebration, honoring Dr. Teik C. Lim, president of the New Jersey Institute of Technology (NJIT), with an honorary doctorate. Dr. Lim was recognized for his remarkable contributions to international academic exchanges and collaboration with Taipei Tech. The university also honored the Minister of Transportation and Communications, Chen Shih-kai, as a distinguished alumnus of Taipei Tech for his work on advancing national infrastructure projects and human-centered transportation policies.

Taipei Tech President Wang Sea-fue highlighted the lasting contributions of Taipei Tech alumni across various industries and their significant impact on society. He also underscored the university's recent initiatives, such as advancing EMI—English as a Medium of Instruction—teaching, creating a diverse and inclusive campus environment, and building global partnerships through joint research, teaching observations, and faculty and student exchange programs. “Dr. Lim, today's honorary doctorate recipient, has been a key partner in Taipei Tech's efforts to enhance international collaboration,” said Wang.

Wang further indicated that Taipei Tech places great emphasis on preserving cultural heritage. It is a school not only known for academic excellence, but also as a vital collaborator in fostering sustainable prosperity worldwide. “Technology improves lives, but the culture elevates people and nations to greatness—this is the ultimate goal in our pursuit of sustainability and shared prosperity,” said Wang.

Legislator Wang Shih-chien, who was named a distinguished honorary alumnus of Taipei Tech last year, also addressed the audience, encouraging students to take pride in their university and future alma mater. “You are the hope of the nation. Today, you take pride as a Taipei Tech graduate; in the future, Taipei Tech, Taipei City, and even the nation will take pride in your success,” he said.

Dr. Lim, a Malaysian-born mechanical engineer and Fellow of the National Academy of Inventors (NAI), is internationally renowned for his work in structural vibrations and acoustics as well as modeling and simulation technology. Over the years, he has fostered lasting partnerships between Taipei Tech and institutions such as the University of Cincinnati, the University of Texas at Arlington, and NJIT. In his remarks, Dr. Lim highlighted the similarities between NJIT and Taipei Tech as industry-integrated institutions. He encouraged students to seize opportunities with courage and persistence, emphasizing the importance of driving societal progress.

Minister Chen Shih-kai, who graduated from Taipei Tech's MBA program, was named a distinguished alumnus this year. Chen was not able to attend the ceremony due to official engagements but delivered a message via a pre-recorded video, in which he expressed gratitude to Taipei Tech for broadening his professional perspective. He encouraged students to excel and carry on Taipei Tech's legacy of distinction.



## Taipei Tech Unveils Legacy and Arts Commons, Centered Around Taiwan's First Campus RC Building



Taipei Tech celebrated the grand opening of its Legacy and Arts Commons on November 22, 2024. The Legacy and Arts Commons is a designated area to showcase Taipei Tech's history that is centered around the newly restored Yida Corridor, the oldest surviving structure on Taipei Tech's campus and Taiwan's first reinforced concrete (RC) building on a school campus. Originally constructed between 1918 and 1921, the building is a testament to Taipei Tech's century-long commitment to practical education.

Registered as a historic building by the Department of Cultural Affairs, Taipei City Government in 2018, Yida Corridor's restoration began in 2022 and was completed in May 2024. The unveiling ceremony gathered nearly 200 distinguished alumni and guests, including Yen Chih-fa (Senior Advisor to President Lai), Li Kuei-hsien (poet laureate), and several industry leaders who are also Taipei Tech's honorary doctors such as Raymond K. Y. Soong (LITE-ON Technology founder) and Tseng Kuo-Hua (Chicony Power general manager).

President Wang Sea-fue emphasized that Yida Corridor reflects the university's spirit of hands-on learning and practical application, which has been integral to Taipei Tech since its founding. Though currently named a "corridor," the structure is actually an L-shaped building that houses several rooms. Initially serving as an applied chemistry laboratory, the Yida Corridor building later housed departments like Architecture, Design, and Mining & Metallurgy. Reflecting on his own time as a student taking experiment classes in one of the classrooms, President Wang noted that restoring the structure as a Taipei Tech Archives

preserves both Taipei Tech's architectural heritage and cultural spirit.

The Taipei Tech Archives within Yida Corridor features three exhibition areas:

1. Reception Hall highlights key milestones since the university's founding in 1912, featuring Campus Landscape XR Interactive Installation.
2. Permanent Exhibition Hall showcases historical artifacts, including the school bell and mechanical teaching aids from the Japanese rule period.
3. Special Exhibition Hall is a versatile venue for special exhibits and school-related events, featuring track-mounted display panels for flexible arrangements. This space allows students to showcase creative designs, encouraging artistic expression and academic exchange. It serves as a hub for exploring history, culture, and creativity.

The Legacy and Arts Commons also connects the historic Red House, the Banyan Garden, and nearby teaching spaces, blending historical architecture with modern technology to create an immersive educational environment. Alumni Association president Chang Chi-cheng described Yida Corridor as a shared cultural memory for generations of alumni, now transformed into a valuable resource for future generations. Reflecting Taipei Tech's dedication to innovation, sustainability, and cultural preservation, the Commons exemplifies the university's commitment to nurturing talent for the next century.



## Taipei Tech PBL Workshop: Bridging Borders and Industries

In summer 2024, Taipei Tech hosted an international Problem-Based Learning (PBL) workshop, the first in five years, uniting students from Taipei Tech, Japan's Osaka Institute of Technology, and South Korea's Kookmin University. Partnering with four global companies, the workshop saw 23 participants—10 from Taipei Tech—collaborate in interdisciplinary, cross-cultural teams over two months to address real-world challenges tied to the United Nations Sustainable Development Goals (SDGs).

### Cross-Disciplinary Collaboration

The 10 Taipei Tech students are from various programs, including engineering, electronic engineering, and design, of five colleges at Taipei Tech. They teamed up with participants from other institutions to propose solutions to problems raised by the event's corporate partners. The corporate partners were Sekisui House (Japan), Horiba (Korea), Compal Electronics (Taiwan), and Biotech (Taiwan), and they challenged participants to address issues related to sustainable housing, mobility, technology, and sensory data sharing.

### Tackling Real-World Challenges

- Sekisui House (Japan): Teams devised housing designs integrating adaptable features for future electric mobility trends.
- Horiba (Korea): Students developed prototype tires with porous spiral designs, enhancing remote-controlled car efficiency and eliminating the need for inflation.
- Compal Electronics (Taiwan): Participants proposed credit card-sized computers equipped with integrated AI assistants for automatic scheduling and a built-in 3D projector for enhanced functionality.
- Biotech (Taiwan): Teams explored innovative ways to share sensory data, such as smell, taste, and touch, enhancing telepresence experiences.

### Industry and Academic Impact

Corporate representatives commended the participants for their creative solutions and presentation skills, emphasizing the importance of integrating AI into future innovations. These collaborative efforts showcased how interdisciplinary projects can bridge theoretical learning and practical industrial applications.

The workshop demonstrated the benefits of cross-border learning. According to Professor Kenji Matsui, Director of the Robotics & Design Center at Osaka Institute of Technology, partnerships like this prepare students to solve complex real-world problems. Professor Yeon Gyu Yu from Kookmin University noted that visits to corporate headquarters in Taiwan, Japan, and Korea offered valuable insights into corporate cultures and fostered a deeper understanding of international teamwork.

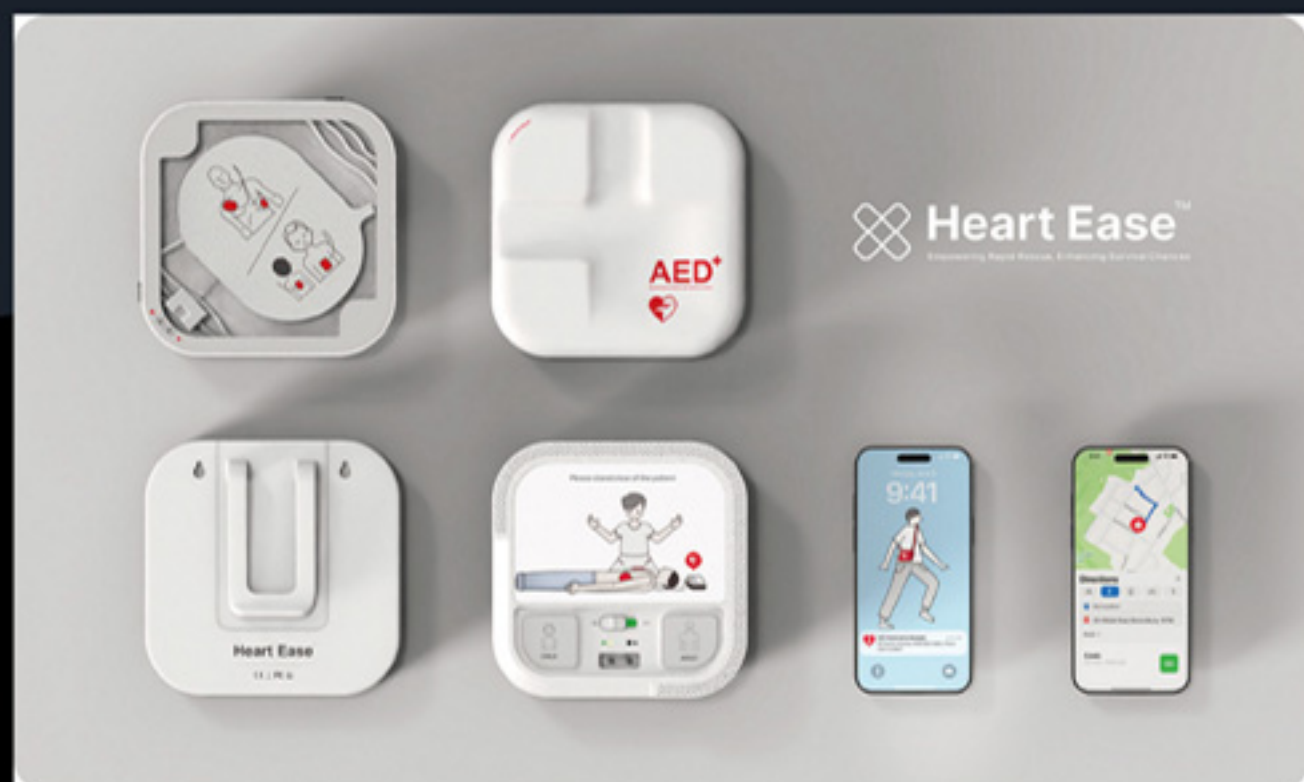
### Preparing Global Talent

The workshop emphasized SDGs such as sustainable urban development and innovation, equipping participants with vital skills in problem-solving, designing, and cross-cultural collaboration. As Professor Yeon observed, these experiences expanded students' global perspectives and instilled the confidence to address challenges in a rapidly evolving workforce.

In the future, Taipei Tech will continue offering experiential learning opportunities that combine industry collaboration with sustainability initiatives. Such efforts will further prepare students to drive progress in achieving global SDGs while excelling in an interconnected world.



Taipei Tech's Department of Industrial Design achieved remarkable success with its innovative designs at international competitions. The team's Heart Ease won Gold at the 2024 MUSE Design Awards and a Winner's recognition at the DNA Paris Design Awards. Their Purity Breathe design earned Silver at MUSE, while OptiWeight received an Honorable Mention from DNA Paris. These accomplishments highlight Taipei Tech's global impact on design innovation.



### Heart Ease: A Life-Saving Design

Heart disease is the second leading cause of death in Taiwan, with 20,000 people experiencing cardiac arrest each year before they can make it to a hospital. Ambulances typically take four to five minutes to arrive, so survival often depends on having a trained professional nearby and immediate access to an AED.

Heart Ease, developed by Professor Zheng Meng-cong and his students, enables anyone to connect with nearby professionals holding AED or CPR certifications. Central to the system is a portable AED, designed by Dr. Wu I-hui of National Taiwan University Hospital, which is the smallest on the market, further enhancing its practicality and accessibility.

Heart Ease is an innovative solution that seamlessly combines software and hardware. The system allows users to track the rescuer's location and features a redesigned AED interface that provides clear guidance. This innovation addresses two key challenges in today's AED systems: locating trained professionals and ensuring the AED is effectively utilized. Zheng highlighted that this innovation could expand access to emergency tools in schools and communities worldwide.



### Purity Breathe: Helping Smokers Quit

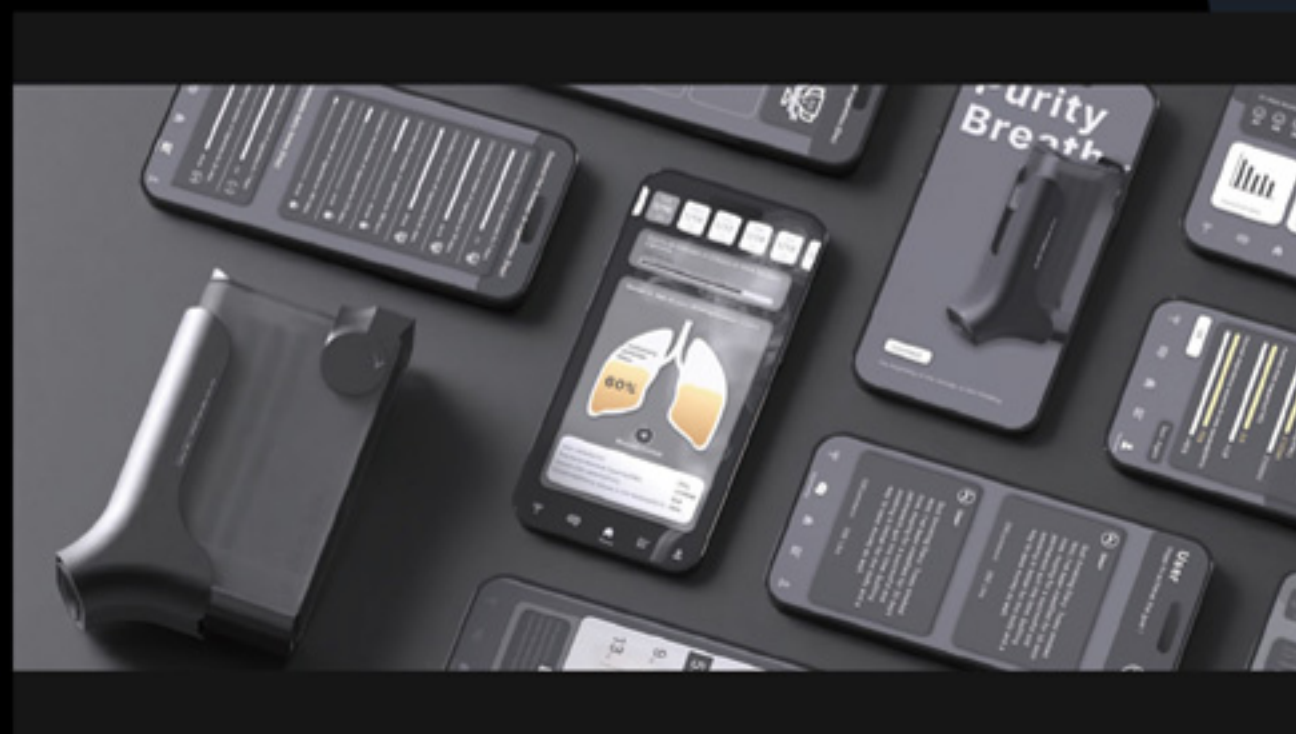
Purity Breathe, awarded Silver at MUSE, combines hardware and software to help smokers quit. The device conducts a lung function test using a specially designed mouthpiece before allowing users to retrieve a cigarette. The system monitors lung health using ultrasonic technology and displays the impact on their smartphone, motivating users to quit.

Zheng emphasized that the goal is to incorporate design



## Taipei Tech Wins Global Design Awards in France and the US

Achievements



elements, such as health monitoring and personalized quitting plans, to guide users toward gradually reducing nicotine intake and ultimately quitting smoking. Future collaborations with health institutions and insurance companies aim to promote a healthier, smoke-free lifestyle.



### OptiWeight: Empowering Medical Decisions

OptiWeight helps patients make informed treatment decisions by translating complex medical data into charts that are easy to understand. It was developed with input from medical experts and focuses on risks, benefits, costs, and side effects. The team plans to collaborate with hospitals to optimize the system further and expand its use for conditions like diabetes and cardiovascular diseases.

Taipei Tech's Department of Industrial Design has shown how practical design solutions can make a real difference in healthcare, from emergency response to patient care. These award-winning innovations, developed through close collaboration with medical professionals, are now moving toward implementation in select healthcare centers where they can help improve lives in communities.

# META PUNCH X

Boxing in the Metaverse:  
Taipei Tech Wins Jury's  
Special Prize at  
SIGGRAPH 2024



YouTube

**XR Lab**  
Interaction Design@NTUT

金屬創意

Taipei Tech partnered with Golden Slash to develop Metapunch, a metaverse boxing experience, and Metapunch X, the spectator system. This innovative project recently received the Jury's Special Prize at the 2024 SIGGRAPH DCEXPO Computer Animation Festival—marking the first time a team from Taiwan has earned this honor. In addition, the system was showcased at Japan's International Broadcast Equipment Exhibition (Inter BEE) in November 2024.

## Fun and Stress Relief in the Metaverse

Metapunch is set in a supermarket-themed virtual arena, where targets appear as amusing characters like a bitter melon alligator or a carrot bunny. When players hit these targets using VR gloves, the system measures reaction time, punching speed, and force and relieves stress and displays these metrics in a playful way. In the metaverse, the gloves transform into a fork and spoon, allowing players to “punch away” disliked foods, mimicking the act of eating them in a fun and interactive way.

## Accessible for All Ages

Metapunch originated from MovableBag+, a punching bag robot that simulates a mobile boxing opponent developed by the same team for professional boxing training. With Metapunch, the team shifted to a fixed-target model to create a more cost-effective system—reducing expenses to one-sixth of the original—while still allowing real-time VR participation. A single computer can support up to four VR headsets, enabling both players and spectators to join simultaneously. The system also offers multi-angle, 360-degree viewing options on smartphones or VR headsets, catering to all age groups.

## Expanding Applications and Future Goals

Metapunch X has been tested at sports centers and hotels, where the public could try it for free. Many schools and institutions have shown interest, raising hopes of wider distribution across different counties. This blend of VR, robotics, and IT aligns closely with the aims of Japan's Superhuman Sports Society, which promotes sports that transcend age, gender, and even physical limitations. Taipei Tech's team hopes to officially register Metapunch as a competitive event with the society, further extending their vision of inclusive, high-tech sports for everyone.



# Award

北科大 互動設計系 專案講師 莊澤光 獲 美國 Filmcon Award 最佳實驗電影(Best Experimental Films) 與 IndieFest Film Awards 表彰獎(Award of recognition).

Lecturer C.K Chuang won the Best Experimental Films in Filmcon Award and Award of recognition in IndieFest Film Awards

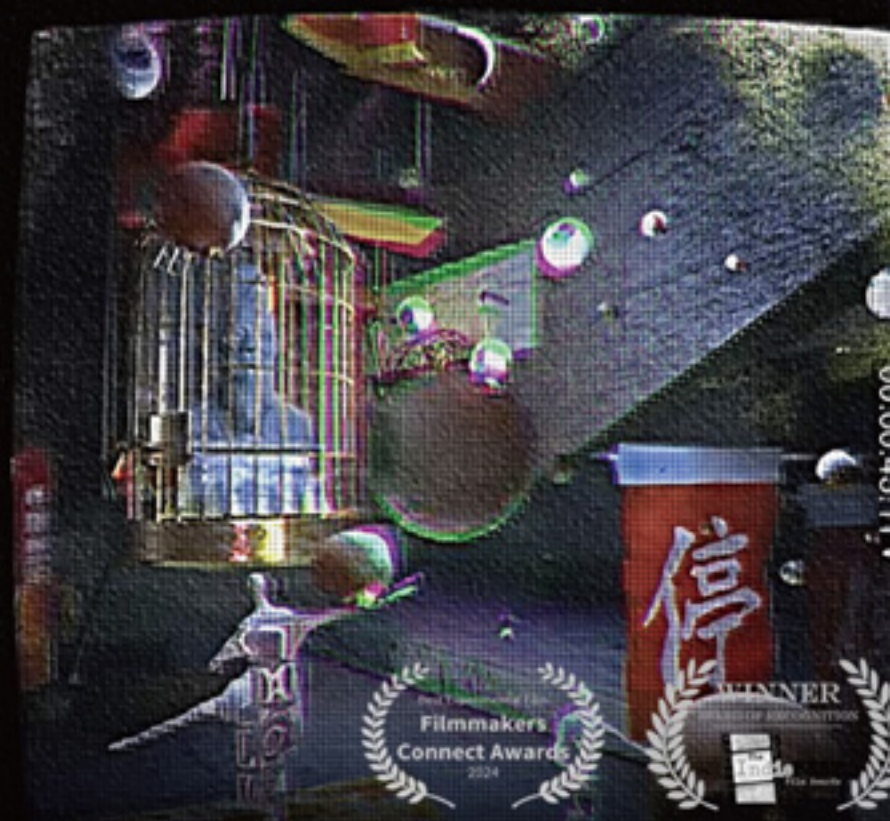
Collaboration

## Taipei Tech's “Education Parallax” Wins Global Recognition in U.S. Film Awards



北科大 互動設計系 專案講師 莊澤光 獲 美國 Filmcon Award 最佳實驗電影(Best Experimental Films) 與 IndieFest Film Awards 表彰獎(Award of recognition).

Lecturer C.K Chuang won the Best Experimental Films in Filmcon Award and Award of recognition in IndieFest Film Awards



Taipei Tech interaction design professor Chuang Che-kuang received the Best Experimental Film award at the FilmCon Awards for his mixed media work “Education Parallax.” It was also selected as a finalist for Best Cinematography. Additionally, the piece earned an Award of Recognition at the IndieFEST Film Awards, showcasing Taiwan’s innovation and creativity in new media art on the global stage.

“Education Parallax” is part of Chuang’s 2024 Hierarchy Parallax series, inspired by his teaching experiences and personal reflections. The work explores the relationships between seemingly contrasting roles, such as students to teachers and citizens to governments, presenting them as opposing and interconnected. Through its thoughtful narrative, the piece highlights how these roles, often perceived as separate or divided, can overlap and complement one another, fostering dialogue and mutual understanding.

The award-winning work utilizes split-screen visuals and virtual reality (VR) technology, offering viewers an immersive and thought-provoking perspective on educational dynamics.

Chuang designed a classroom space represented through two triangular configurations. From one perspective, students’ faces are replaced by rotating notebooks as they move back and forth while a suspended, inverted teacher figure looms above them. From the opposite perspective, the teacher appears confined in a cage while students transform

into seated dancers, circling and observing the teacher. These contrasting classroom depictions exist within the same shared structure, symbolizing the duality of teacher-student relationships. Teachers and students are portrayed as observers and observed guides and learners, emphasizing their interdependent roles.

The narrative unfolds in three distinct forms: static visuals representing singular viewpoints, split-screen animations highlighting contrasting perspectives, and VR experiences that transcend traditional views to provide a more holistic perspective. By deliberately excluding human figures, the piece relies on spatial arrangements, interactive installations, and dynamic camera work to convey its themes, challenging viewers to rethink conventional educational relationships.

Chuang graduated from Taipei Tech Department of Architecture and later earned his master’s degree at the University of Applied Arts Vienna. With expert skills in computer animation, video post-production, graphic design, and architectural planning, he has garnered international recognition, including awards from the LAFA Los Angeles Film Awards, IDA Design Gold Award, and the American MasterPrize (AMP) in architecture. His innovative works have also been featured at the prestigious Ars Electronica Festival in Linz, Austria.

The Taipei Tech Racing (TTR) team concluded a successful run at the 2024 Formula SAE–Australia (FSAE–A) in December 2024, competing against 22 teams from around the globe. Participating in this race made TTR the first Taiwanese team to finish the endurance race in Australia. They are also the second Taiwanese team ever to complete a Formula SAE event abroad. In addition, the team also claimed the Technical Inspection Award and their race car was ranked well in other categories, including sixth in fuel efficiency, eighth in skidpad, and tenth in autocross.

Team captain Lin Yuan–shen, a Department of Mechanical Engineering student, noted that this marked the team’s first overseas race in five years, coinciding with the 10th anniversary of Taipei Tech Racing. “We achieved a major breakthrough by completing the endurance race, which demands exceptional design and vehicle reliability,” Lin said. The team balanced performance with durability, particularly during the 22 km endurance challenge—a demanding race where even a single critical component failure could end their endeavor.

TTR competed with its eighth-generation race car, the TTR8 EV, featuring:

- An updated frame with extensive tube bending for an 18% increase in torsional stiffness
- A refined manufacturing process for aerodynamic components, resulting in a 35% lighter front wing
- Advanced Accumulator assembly using laser and argon welding to reduce thermal deformation

· A self-developed Electronic Control Unit (ECU) showcases R&D capabilities comparable to those of top international universities

Associate Professor Chiang Hsin–han of the Department of Vehicle Engineering, one of the team’s advisors, explained that shipping the car overseas required completing logistical preparations at least a month in advance. Additionally, a team left for Melbourne a week before the competition to oversee assembly, finalize the Battery module assembly, and purchase additional racing equipment.

During the competition, TTR members engaged in active exchanges with other teams. They were invited to visit Monash University and the University of Melbourne afterward, gaining insights into vehicle design strategies and presentation techniques in static events. Static events in student formula racing typically refer to vehicle design and analysis presentations. These events are opposite to dynamic events, where the actual vehicles are put through various tests and challenges.

TTR extends gratitude to all sponsors and the university for their support. With valuable experience from FSAE–A, the team has renewed confidence and a broader vision and is already gearing up to develop an even more capable race car to achieve higher rankings in future international competitions.



## Taipei Tech Racing Excels at FSAE-A: First Taiwanese Team to Win Inspection Award



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