Taiwan Tech Arena (TTA) is a flagship startup ecosystem building program launched by the National Science and Technology Council. Through integration of various resources, TTA strives to transform Taiwan into a vibrant international startup ecosystem by supporting startups through our networks of partner accelerators, mentors, investors, and corporate members while expanding their global reach to create more business opportunities.

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TAiWAN TECH ARENA

INTERNATIONAL LINKAGE IN THE NEW GLOBAL ARENA

Stronger Collaborations will Generate New Innovative Value in Taiwan's Industries

ENGAGING TTA BLACK CARD COMMUNITY

By sharing their valuable experience and insights, the TTA Black Card community consistently adds to the growth and advancement of the Taiwan Startup Ecosystem.

TAiWAN TECH ARENA

TTA

JUL. 2023

11

Beyond the Billion Emerging Sectors with Potential for Disruption

Decoding the Rise of Billion-Dollar Startups. From the early stages of ideation to the potential for an IPO. Unravels the secrets behind the rapid growth, innovative strategies, and global impact of unicorns

Taiwan Tech Arena - A Hub of Technological Excellence and AI Innovation the Startup Ecosystem

Taiwan's emergence as a formidable force in the global technology scene, particularly in Artificial Intelligence (AI), can be attributed to several key factors. First and foremost, Taiwan's renowned expertise in manufacturing and engineering has provided a solid foundation for developing and integrating AI technologies. This expertise has allowed Taiwan to excel in hardware production, an essential component of AI systems.

Taiwan's startup ecosystem has experienced remarkable growth in recent years. A fertile ground for entrepreneurial endeavors, Taiwan has nurtured a vibrant community of startups that are revolutionizing industries and challenging the status quo. From AI and biotech to fintech and e-commerce, these startups leverage technology to create innovative products and services catering to local and global markets. With their relentless drive and determination, many of these startups are on the cusp of reaching the coveted "unicorn" status, attracting investments and attention worldwide.

Taiwan Tech Arena (TTA), the heart of Taiwan's entrepreneurial ecosystem, established as a flagship initiative, TTA catalyzes growth and innovation. By providing state-of-the-art facilities, funding opportunities, and a vibrant community, TTA has positioned itself as a springboard for startups to achieve their ambitious goals. The combination of Taiwan's technological expertise, robust research and development capabilities, supportive startup ecosystem, and initiatives like TTA has propelled the nation to the forefront of AI technology. Taiwan has successfully applied AI to various industries, including smart cities, healthcare, manufacturing, and transportation. This integration of AI has led to improved efficiency, enhanced decision-making, and transformative experiences for individuals and businesses alike.

As Taiwan Tech flourishes, it is poised to bring groundbreaking solutions and drive economic growth. The nation's dedication to technology and entrepreneurship positions it as a global leader in AI and emerging technologies. With its strong foundation, thriving startup ecosystem, and commitment to innovation, Taiwan is well-equipped to shape the future and significantly contribute to the global technology landscape.

Andrea Hsu

Director General, Department of Academia-Industry Collaboration and Science Park Affairs, National Science and Technology Council

CONTENT

JUL 2023 11

TTA BLACK CARD COMMUNITY

International Linkage in the New Global Arena

Market Trend and Industry Development in Emerging Markets. Taiwan involved in the Digital Transformation, Industry Ecochains Restructuring, Local Economy Revitalization, and Net Zero Carbon Emission to create new opportunities for Taiwan's industries.

IEK Consulting
Karen Ma / Division Director ; Emerging Regions Collaboration Division

Export plays a crucial role in Taiwan's economy. According to the statistics from WTO, in 2020 Taiwan exported products to 213 countries and areas; in other words, Taiwan has trade and economic relationships with over 90% of countries and areas around the world. When the global economy was gravely hit by the COVID-19 pandemic, Taiwan's export still managed to grow 4.9% in 2020, reaching USD 345 billion and ranked number 15 in the world.

Judging from these trade numbers, Taiwan's industries - especially the manufacturing industry – are already performing very well in terms of international linkage. Nevertheless, considering the impacts brought forth by the US-China trade war and the pandemic, 2021 marks a divide of an era. In the next 30 years, the global competition arena will be completely different from the one in the past three decades, and the idea of "international linkage" will not be the same, either. Therefore, Taiwan must be involved in the present four major international trends (Digital Transformation, Industry Ecochains Restructuring, Local Economy Revitalization, and Net Zero Carbon Emission) to create new opportunities for Taiwan's industries.

Digital Transformation

The expanded application of digital technologies is the most significant transformation in governments, businesses, and individuals during this global pandemic. Manufacturing industries must set up smart production lines and factories to provide fast, agile, and customized services; and the service sector should leverage digital technology to transition from traditional marketing methods to digital ones. The US-China trade war and pandemic also give Taiwan's AI startups a better chance at attracting international capital and entering larger regional markets beyond Taiwan.

Industry Ecochains Restructuring

The ICT industry is where we see the biggest manifestation of a globalized economy. In the past three decades, "American brands send orders to Taiwan and products are manufactured in China" was the typical business model. However, the US-China trade war in 2018 changed all of this. Taiwanese businesses returned to Taiwan and redeployed their production schemes. Industries that are relevant to national security and industry competitiveness, such as semiconductor, communication equipment, and key materials, changed their ecochains deployments as well: before the trade war, they used to run on global ecochains, which emphasized the high-efficiency division of labor; but now they are gradually transitioning to regional ecochains that focus on local markets. The demands of different regional markets are supplied by their respective ecochains, and this is where Taiwan's industries, which have the advantage of R&D and manufacturing, can create new growth opportunities.

Local Economy Revitalization

After the US-China trade war occurred, Taiwan is not the only nation that rolled out incentive policies to attract domestic businesses back to their country. Developed countries such as the US and Japan are also extending their call for "reindustrialization" and actively encouraging domestic manufacturers to return to their original countries. In the future, businesses will gradually produce and supply goods close to their consumer markets. This change fulfills national requirements for local production and avoids the risk of supply cut-off caused by unexpected situations such as the pandemic. Taiwanese industries, which are long-term collaboration partners of businesses in other

countries, will also have more opportunities to expand global deployment and technology development.

Net Zero Carbon Emission

Green recovery will be one of the highlights of economic recovery policies around the world post-pandemic. In 2019, the EU proposed the carbon neutrality goal of reaching net zero emissions for greenhouse gases in 2050. So far, 130 countries, including Taiwan, have joined the mission. As a crucial player in the international supply chain, Taiwan's industries have always been one of the leaders in promoting green supply chains. Although the 2050 net zero carbon emission objective raises the bar for the industries, it also offers new opportunities for innovative technologies and emerging industries, as well as the generation of new competitive advantages.

The aforementioned four major international trends will significantly affect the future development of Taiwan's industries. For example, the emerging low carbon technology markets will generate new business opportunities. Through closer international collaborations, we hope to make progress in four main directions (Build Resilient Ecochains, Enhance Local Industry Values, Spearhead Innovative Applications, and Realize Environmental Sustainability) and enhance the overall competitiveness of Taiwan's industries.

Build Resilient Ecochains

Actions such as diversifying supply chains, expanding global deployment, and building smart factories create resilience which allows manufacturers to maintain uninterrupted operations even when they encounter emergency situations.

Enhance Local Industry Values

Leverage Taiwan's advantages in the industry ecochains and attract foreign businesses to invest and establish R&D centers in Taiwan. We can thus cultivate globalized talents and keep on transforming and upgrading our industries.

Spearhead Innovative Applications

Encourage advanced technology collaborations and jointly improve the technologies at major international testing venues to seize related application opportunities and spearhead the development of innovative applications.

Realize Environmental Sustainability

Following the guidance of the 2050 net zero emissions vision, businesses should promote industry transformation and implement net zero emissions production models to realize environmental sustainability and enhance business brand images. Based on ITRI's interviews and research of eighteen iconic domestic companies, the research team has concluded that industries should implement the following eight major actions to strengthen international linkages: Leverage Mutual Strengths, Enhance International Participation, Attract Foreign Investments, Expand Global Deployment, Establish R&D Collaborations, Provide Testbed Venues, Pioneer for Role Model, and Achieve Common Goals. If we look deeper, the common key of the eight actions is "professional talents". The COVID-19 pandemic sped up the introduction of digital technology into businesses and expanded the acceptance of remote working, and flexible working locations make it more feasible to hire technology professionals and experts from all over the globe. In addition to more comprehensive regulations and mechanisms, if we can enrich our global talent pool, Taiwan will be able to create new international opportunities for our domestic economy.

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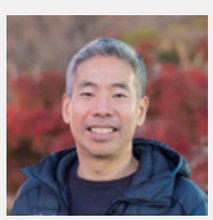
The Global Landscape: Building Relationships, Understanding Markets, and Fostering Company Culture

Unlock Venture Partners Founder and CEO Andy Liu: Empowering Early-Stage Entrepreneurs and Release their Potential!



Andy Liu

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“Effective leadership plays a pivotal role in driving sales, not only to customers but also to employees.”

Andy Liu, the visionary co-founder and Managing Partner of Unlock Venture Partners, seeks to leave an indelible mark on the world by investing and coaching startups.

Born and raised in Seattle, Andy’s journey as an entrepreneur began in 1999 when he built his first software company while studying at Wharton Business School. This initial venture focused on marketing analytics software and laid the foundation for his future success.

For five years, Andy led his marketing analytics software company, harnessing his expertise and entrepreneurial spirit to create innovative solutions. Eventually, he sold the company to aQuantive, marking a significant milestone in his entrepreneurial career. Although he intended to take some time off, Andy’s passion for innovation soon led him to found BuddyTV, a television software company. Over the course of almost a decade, he nurtured BuddyTV’s growth and guided it to a successful acquisition by Vizio, a prominent television company based in Irvine, California.

Throughout his journey as an entrepreneur, Andy discovered a passion for angel investing. From 2005 to 2015, he invested in 95 early-stage technology startups, leveraging his experience and insights to identify promising ventures. This endeavor brought him immense satisfaction and energized him to make a lasting impact in the startup ecosystem.

Going full-time as Venture Capitalist

Following the sale of his last company, Andy embarked on a new endeavor: building a venture capital firm that reflected his values and aspirations. In 2017, Unlock Venture Partners was born, with Andy at the helm. Since then, the firm has gone on to invest in approximately 38 early-stage technology companies, fueling their growth and success. Notably, Unlock Venture Partners also operates a venture studio in Taipei, underscoring Andy’s commitment to the Taiwan startup ecosystem.

At Unlock Venture Partners, Andy’s focus lies predominantly on technology companies at the early stage, with a particular emphasis on e-commerce, SaaS, FinTech, real estate tech, and health tech. His venture studio in Taipei serves as a catalyst for rapid product development and the creation of new startups. By partnering with ambitious entrepreneurs in their nascent stages, the studio facilitates the quick prototyping of software products, which are then spun out and provided with go-to-market strategies and venture backing in the United States.

Andy recognizes the immense potential within Taiwan’s engineering talent pool, encompassing both software and hardware expertise. He admires the earnestness, friendliness, hardworking nature, thoughtfulness, and high integrity prevalent among the local talent. Leveraging this strong foundation, he believes in the ability to build exceptional products in Taiwan and discover global markets for them.

While Unlock Venture Partners primarily focuses on companies based in Seattle and Los Angeles, the venture studio in Taipei acts as a hub for nurturing new ideas and rapidly scaling them into successful ventures. This unique approach allows Andy and his team to support early-stage Taiwanese entrepreneurs looking to enter the US market or expand their product reach internationally.

Threshold Of Going Global Becomes Lower

To succeed in global markets, Andy emphasizes the importance of understanding customers on a profound level. He encourages entrepreneurs to immerse themselves in the target market, develop deep insights, and build strong customer relationships. By truly comprehending customer needs and behaviors, entrepreneurs can create tailored solutions and drive sales effectively. Andy believes that leveraging AI technologies can enhance efficiency and enable entrepreneurs to deliver solutions more rapidly and accurately than ever before.

Moreover, Andy highlights the transformative impact of AI in enabling cross-cultural communication. AI-powered language translation capabilities have made it easier for entrepreneurs to enter new markets and connect with customers across different languages and cultures. Entrepreneurs can now engage with diverse markets and deliver their solutions efficiently, fostering a more accessible and inclusive business landscape.

Andy's unwavering dedication to the startup ecosystem is evident in his endeavors to support early-stage entrepreneurs and nurture innovative ideas. By combining his extensive entrepreneurial experience, strategic investments, and the venture studio's resources, he has created a thriving ecosystem that empowers entrepreneurs to transform their ideas into successful ventures.

As Andy continues his mission to foster growth and innovation, both in Taiwan and the United States, he envisions a future where Unlock Venture Partners serves as a catalyst for global entrepreneurship, connecting talented individuals with the resources they need to build remarkable technology companies.

AI Still Can't Replace The Value Of Human Interactions

In an era of global competition, Andy Liu recognizes that venturing into new markets poses both challenges and opportunities for entrepreneurs. While

AI tools have transformed efficiency and accessibility, they cannot replace the value of human interactions. For aspiring entrepreneurs aiming to enter global markets, Andy emphasizes the significance of building relationships and truly understanding the intricacies of each market.

Every country possesses its unique dynamics and preferences, and what works in one market may not necessarily succeed in another. Andy advises Taiwanese entrepreneurs to invest time in building strong teams and developing a deep understanding of their target market. By combining a talented team with market insights, Taiwanese entrepreneurs can gain a substantial advantage over their competitors, both local and global.

Furthermore, Andy advises entrepreneurs to avoid being overly broad in their market approach. Instead of attempting to tackle multiple markets simultaneously, he suggests focusing on one country and crafting a superior product that resonates with the local market. By achieving product-market fit in a specific country, entrepreneurs can then expand their operations with a strong foundation of success.

Effective leadership plays a pivotal role in driving sales, not only to customers but also to employees. Andy emphasizes the importance of salesmanship within a company, fostering a corporate culture that aligns with the organization's mission and values. While global organizations inherently exhibit cultural differences between teams, strong leaders can create a cohesive company culture that appreciates and leverages the diversity within the workforce. Localized teams can provide invaluable insights into the target market, enhancing understanding and facilitating market penetration.

Aiming High

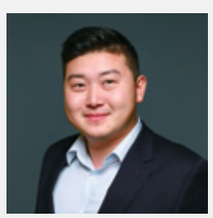
Looking ahead, Unlock Venture Partners aims to leverage its success in Fund 1 and expand its presence in Asia through Fund 2. As the firm plans for Fund 3 and beyond, Andy envisions a future where Unlock Venture Partners serves as a bridge between exceptional US entrepreneurs seeking to enter Taiwan and Southeast Asia markets and outstanding Asian teams interested in accessing the US market. By attracting top talent and facilitating cross-market collaborations, the firm aims to strengthen its position as a venture capital powerhouse straddling the Taiwan-US bridge.

In five years' time, Andy envisions himself devoting substantial time to both Taiwan and the US, nurturing the growth of Unlock Venture Partners and providing unparalleled support to entrepreneurs in their global endeavors. The firm's sustainable competitive advantage lies in its ability to attract exceptional entrepreneurs from both sides of the Pacific, creating a powerful conduit for market expansion and collaboration.

With Andy Liu's leadership and Unlock Venture Partners' commitment to fostering innovation, the future looks promising for early-stage technology startups in Taiwan and beyond. Through strategic investments, the venture studio in Taipei, and a global perspective, Unlock Venture Partners is poised to shape the startup landscape and empower entrepreneurs to turn their visions into reality.

John Keh: A Loving Father Fueling Taiwan's Entrepreneurial Growth through Geospatial Analysis

Balancing Entrepreneurship and Parenting: Insights from John Keh's Journey



John Keh

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"Taiwanese and Asian investors tend to acquire significant equity stakes, which may discourage founders from taking risks and pursuing their own ventures."

John Keh, a devoted father and serial entrepreneur, brings his wealth of experience from diverse industries, including the military, tech, and crypto, to Taiwan's vibrant startup scene. With a passion for geospatial analysis and an entrepreneurial spirit, John aims to contribute to Taiwan's growth while revolutionizing the field of AI software. This article delves into John's perspective on Taiwan's entrepreneurial environment, his entrepreneurial journey, and his decision to focus on geospatial analysis, all through the lens of his role as a loving father.

Unleashing the Potential of Geospatial Analysis: Nurtured by Military Service and Entrepreneurship

John's profound expertise in geospatial analysis traces back to his time in the US Air Force, where he served as a dedicated geospatial analyst. This unique background laid the foundation for his entrepreneurial ventures, allowing him to harness his skills and knowledge to create innovative solutions.

Recognizing the immense potential of geospatial analysis software for surveillance, reconnaissance, and other applications, John set out to develop cutting-edge technology in this field.

John's decision to pursue geospatial analysis aligns with his diverse skill set and accumulated experiences. With a background in computer vision, AI, and geospatial analysis, he recognized a compelling business opportunity that would effectively leverage his talents. Leveraging his prior venture in computer vision and military experience, John is uniquely positioned to explore the geospatial AI market and has connected with many potential partners here in Taiwan.

While John remains dedicated to his entrepreneurial endeavors, he acknowledges the importance of ecosystem builders and their role in shaping Taiwan's startup landscape. In collaboration with Taiwanese engineers and founders, John aims to make an immediate impact through his companies, building a geospatial AI company that not only pushes the boundaries of technology but also contributes to Taiwan's growth and development.

Taiwan's Entrepreneurial Landscape: Nurturing Growth and Customization

As John immerses himself in Taiwan's flourishing startup ecosystem, he identifies the essential elements necessary for its success. He highlights the abundance of talent, including engineers and individuals with an entrepreneurial mindset, who possess the drive to innovate. Additionally, Taiwan benefits from accessible funding and resources, creating fertile ground for entrepreneurial ventures.

However, John recognizes the need to fine-tune the incentive structures within Taiwan's investment landscape. Traditionally, Taiwanese and Asian investors tend to acquire significant equity stakes, which may discourage founders from taking risks

and pursuing their own ventures. To cultivate a thriving startup ecosystem, John advocates for reevaluating these structures to offer greater rewards and incentives to founders, encouraging them to explore entrepreneurial opportunities rather than seeking safer options.

John believes that Taiwan's entrepreneurial environment has made significant progress in recent years. The influx of digital nomads, a thriving startup community, and the reopening of Taiwan post-pandemic have all contributed to its growth. To further stimulate innovation and development, John advocates for a comprehensive approach, drawing inspiration from successful models in the US, Europe, and Taiwan itself. By customizing solutions to address Taiwan's unique challenges and market dynamics, he believes the country can foster an ecosystem conducive to producing unicorns and driving substantial tech innovation.

Parenting Perspective: Nurturing Education and Future Plans

Alongside his entrepreneurial pursuits, John shares insights and advice for families considering moving to Taiwan and enrolling their children in local schools.

From language immersion to fostering individual growth, John also provides insights and advice for families considering moving to Taiwan and enrolling their children in local schools from his personal experiences. He also discusses his future plans, including his intention to have his son attend high school in the United States.

Language Immersion: A Trial by Fire with Positive Outcomes

John reflects on his son's educational journey in Taiwan, highlighting the decision to immerse him fully in the local school system. Initially, his son attended an English and Chinese dual-language private pre-school, which focused primarily on English. However, recognizing the importance of language immersion, John enrolled his son in a public school in Banqiao for elementary education.

While his son found the transition challenging initially, John observed his positive mindset and resilience. Despite initially struggling with test grades, his son gradually adapted and, by March, experienced a breakthrough in his ability to understand, read, and write Chinese. Currently, his son's performance has significantly improved, bringing joy and satisfaction to John as a parent.

Balancing Rigor and Individuality in Taiwan's Education System

While John celebrates his son's success, he notes some aspects of Taiwan's education system that differ from his own beliefs. He perceives the system as somewhat rigid and overly focused on molding students into an idealized image of the perfect scholar. John, on the other hand, embraces the notion that individuals learn and excel in various ways and should be encouraged to explore their interests. He advocates for fostering a love of learning in children by making education enjoyable and tailored to their individual needs. Although John recognizes the need for parenting and teaching in his own way, he acknowledges the challenges of aligning his approach with the expectations of the Taiwanese education system. Nevertheless, he believes in supporting his child's growth by providing guidance and shaping his education experience accordingly.

Advice for Families Considering Local Schools in Taiwan

Drawing from his personal experience, John offers advice for families contemplating a move to Taiwan and considering local schools for their children. For younger children, he suggests fully immersing them in the local education system to facilitate language acquisition. John believes that, despite the initial difficulties, younger children are more adaptable and likely to grasp the language quickly, ultimately benefiting from the immersive experience.

However, for children entering schools at a later age, particularly during adolescence, John recommends a more gradual transition. Exploring dual-language or English-focused schools can provide a smoother adjustment, considering the additional challenges young adolescents face, such as socializing and fitting in.

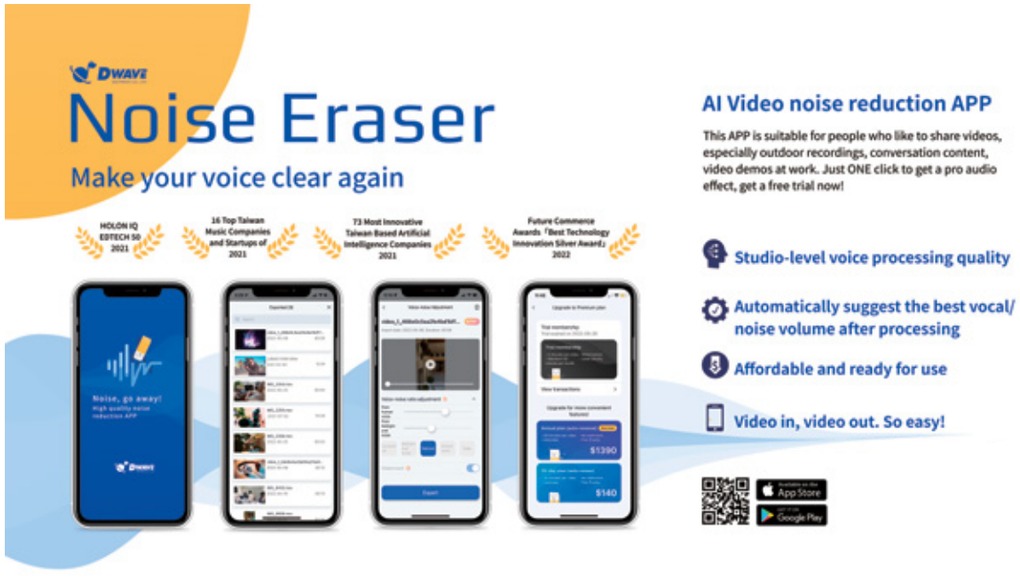
Planning for the Future: High School Education

While John is deeply committed to Taiwan's startup ecosystem, he acknowledges his long-term plan to return to the United States. He intends to have his son, Maxwell, attend high school in the US, believing it will optimize his chances of gaining admission to a reputable American university. Thus, he sees high school education in the US as a crucial step in his son's academic journey.

"Taiwan's unique challenges and market dynamics, he believes the country can foster an ecosystem conducive to producing unicorns and driving substantial tech innovation."

STARTUP STORY

TTA Pre-Unicorn: Key Strategies for Pre-Unicorn Startups to develop innovative technologies to utilize existing ones to create efficient, scalable, and user-friendly solutions.



DeepWave

Surge in AI Voice Applications: Noise Reduction, Voice-to-Text, and Chatbots Lead the Charge

Owing to consistent advancements in chip computing and AI algorithms, the scope of AI applications has grown exponentially across multiple sectors. The early years saw a primary focus on image recognition, followed by gradual yet impactful inroads into speech and text applications. A notable breakthrough was the introduction of ChatGPT, a major achievement in AI speech technology that gained widespread acclaim since 2022.

At present, AI applications in the speech sector fall into three distinct categories. Foremost, chatbots that engage with consumers via text or speech, have become integral components in customer service frameworks. Second, voice-to-text applications translate recorded files or user speech into corresponding text, thereby reducing manual processing time considerably - an optimal solution for tasks like recording meeting minutes or for media professionals.

DeepWave's Chief Operating Officer, Sung-tsan Yeh, cites noise reduction and the separation of human voices from background noise as the third noteworthy application of AI in the speech sector. Traditional methods to enhance speech quality required meticulous professional input, making it a time-intensive and expensive process only affordable for high-budget video projects. In contrast, individual content creators such as YouTubers or online instructors with limited budgets could only rely on pre-production noise-canceling equipment as they could not afford professional post-production services. Given the rising popularity of YouTube and online teaching, a significant number of companies are investing in AI technology to address the need for noise reduction and voice-background noise separation.

DeepWave Revolutionizes Noise Reduction with AI Acoustic Recognition Technology

Founded in September 2019 by Professor Roger Jang of National Taiwan University's Computer Science & Information Engineering Department, CTO Ken Yeh, and CEO Henry Lin, DeepWave is a startup created under the aegis of Taiwan's National Science and Technology Council's Germination Program. This pioneering company is committed to offering cost-effective AI acoustic recognition technology, aiming to streamline manpower requirements, elevate productivity, and augment industrial value across numerous sectors requiring speech recognition. The startup offers over 20 varieties of API services for acoustic AI recognition and processing, closely collaborating with sectors such as music post-production, education, corporate interviews, and anomaly detection in mechanical noises.

A key product from DeepWave, the Noise Eraser, exemplifies intelligent AI noise reduction. Trained on approximately 10,000 human voice and noise files, it mimics professional sound effects engineers' noise-reduction techniques. This enables users to effortlessly achieve professional-grade noise reduction and enhance voice clarity in their videos. The user-friendly tool requires only three steps and an average minute to process five-minute footage, significantly alleviating disruptions from environmental noises for content creators and educators, thereby enhancing video quality.

COO Sung-tsan Yeh notes that conventional noise-removal methods often render audio signals unauthentic, a common issue with most free tools. DeepWave's approach, built on foundational AI technology and backed by extensive experimentation and user testing, allows optimal application ratios for a broad spectrum of use-cases. Users can fine-tune the voice-to-noise ratio based on their preferences. With over two decades of presence and numerous victories in international speech and music analysis contests, DeepWave seeks to translate promising technologies into stepping-stones to expedite businesses' digital transformation, thereby contributing to Taiwan's digital revolution.

DeepWave's Noise Eraser: A Global Success Story and a Glimpse into the Future

DeepWave operates its flagship product, Noise Eraser, under a freemium model where users can process up to five-minute videos for free, while unlimited access is provided to subscribers of the paid version. The product's superior noise reduction capabilities, coupled with affordable subscription pricing, have attracted a significant international user base, contributing to 70% of the company's revenue. Testament to its robust technological prowess, DeepWave has received numerous accolades, including the "2021 GO NEXT DIGITAL" award under the Bureau of Industry's "Demo: Pitch Talent Cultivation Program", "Purpose Demo Show" by Startup Taipei, Chang Gung University and United Innovation, and the AIGO AI Talent Training Program award by the Administration for Digital Industries, Ministry of Digital Affairs.

CEO Henry Lin acknowledges the support DeepWave has received from various legal entities and government agencies during its growth phase. Apart from the National Science and Technology Council's Taiwan Germination Program, the company has participated in multiple events facilitated by the TTA. Lin notes that these engagements have not only amplified brand and product exposure but also provided opportunities to connect with overseas investors and clients, bolstering the company's long-term growth prospects.

In light of Noise Eraser's market success, DeepWave has ambitious plans for 2023, including the launch of new services like meeting minutes management. Their meeting minutes service, capable of discerning different human voices and organizing all spoken content during meetings, has emerged as a promising tool. Several government agencies currently trialing this service have lauded its efficacy and potential.

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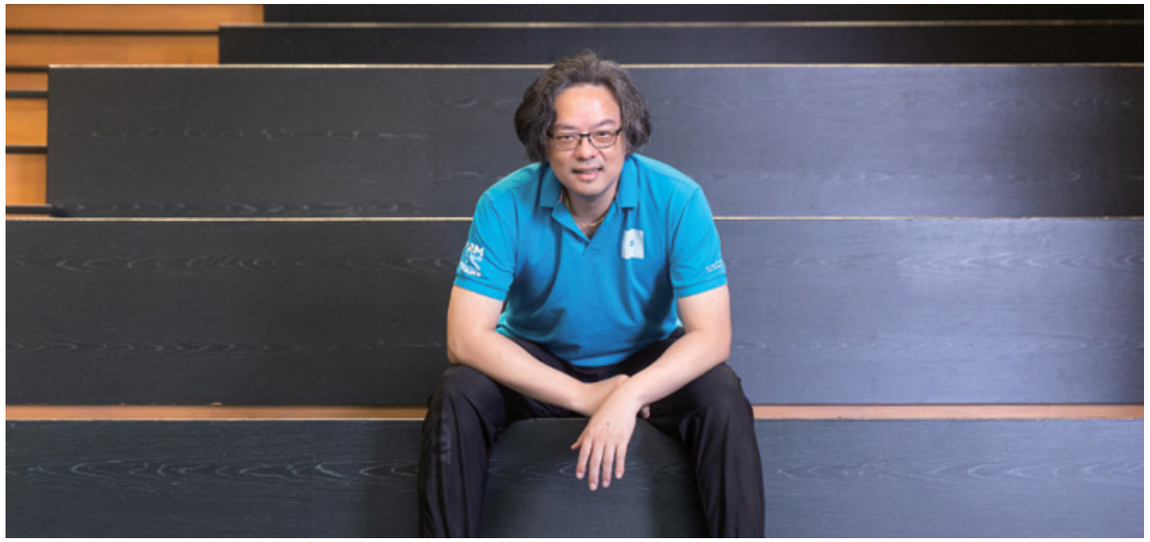

Mindtronic AI

Eye tracking makes for a high-quality driving experience; Mindtronic AI creates new in-vehicle business opportunities

As technology advances apace, the modern demand for high-quality A/V experience has also continued to rise. From mobile phones, computers, and televisions, the demand has even extended to vehicle cabins. Major auto makers, looking to generate revenue, have also been quite keen to introduce new technologies to raise the added value of products. The smart cabin market is gradually taking shape alongside the development of the supply and demand sides. Mindtronic AI's eye-tracking AI system for vehicles, which can instantly track precise movements of the driver's eyes, is finding use in a variety of applications, and has been seen favorably by the industry since its release. More recently, Mindtronic has cooperated with Taiwan panel factories to enter the smart car market.

The auto industry has recently ushered in a new industrial revolution, one in which autonomous driving, electric vehicles, and smartification are the three key trends. According to analysis by Mike Huang, CTO of Mindtronic AI, the development of self-driving (autonomous) cars has not been as fast as expected, due to the need for highly integrated peripheral systems and innovative business models. With the simple structure of electric vehicle chassis, however, the technical threshold is relatively low compared with fuel vehicles, resulting in a large number of investors and major competitive pressures to existing car manufacturers. In such a scenario, introducing forward-looking technology to provide a high-quality ride, and at the same time creating a smart cabin with a range of value, has become an essential strategy for auto makers.

Huang also pointed out that the panel plays an important role in the smart cabin system. Most high-end vehicles on the current market come with customized touch panels. These panels incorporate the appearance and shape of next-gen cabin design and extend from the driver's seat to the front passenger seat. They also provide various functions in response to user needs, from driving assistance to high-resolution audio-visual applications. The smart cabin system requires a new type of human-machine interface (HMI) that includes not just touch technology, but also eye tracking as one of its main features.

Eye tracking, a technology that has been under development for many years, has found wide use in on-board vehicle systems. Its main purpose is to determine the mental state of the driver and issue alerts when the driver is tired or not paying attention. Mindtronic AI has further integrated with AI by making AI the "copilot". In situations not favorable to driving, such as when the driver is not mentally capable of driving, the ADAS of the in-vehicle system will temporarily "take the wheel." In addition to assisted driving, Mindtronic AI's systems also combine eye-tracking technology with intention inference algorithms. Driver can make use of the eye-sight manipulated control panel and the head-up display (HUD) screen function on the windshield, and the system also has the function to actively infer the user's intention and learn their preference or target of interest (TOI). Combined with the recommendation engine to actively provide information, entertainment, and driving service functions, this function can also become a commercial mechanism that can generate operating income for car dealers or platform operators.

Huang says that the current business model for auto makers is basically new car sales with follow-up maintenance. But with electric vehicles becoming a key policy in governments of various countries, the depreciation rate for electric vehicles off the lot is much lower than that for gas-driven vehicles, and the maintenance rate is thus also greatly reduced, so car manufacturers will need to find another source of revenue. Smart cabins may just be one source for new business opportunities. Huang further pointed out that there are two types of the software business service mechanism of the smart car cabin: in-cabin and out-cabin. The in-cabin service mechanism focuses on driving safety functions provided by auto makers, while out-cabin services are similar to smartphones. Consumers can download software products from app makers and use them on the smart cabin platform. From a functional point of view, the out-cabin service mechanism offers more functions and more business opportunities. Nevertheless, this mechanism is built on a complete ecosystem, like a smart phone, so it requires all those involved to work together for promotion.

Eye tracking will be an important control technology for both in-cabin and out-cabin systems. Huang mentioned that current control technologies for the HMI include touch, voice, and eye movement, each performing its respective function in the smart cabin. When the driver is parked or other passengers who there are those who are not in charge of driving, the operating system function mainly uses touch mode, while voice control is mainly used for inputting commands to the navigation system. Eye tracking technology also has its own use here: it is used for selecting functions and reading information during driving. However, Huang also pointed out that for eye tracking control to be practical in the smart cabin system, the two key objectives, i.e., accuracy and immediacy, must be met to create a high-quality experience for users. The technology developed by Mindtronic AI is not affected by ambient lights inside the cabin. With its fast and precise tracking of eye movement, the technology has won wide acceptance in the market, not only winning the US CES Innovation Award for 4 consecutive years, but also being used in cooperation with panel manufacturers and large auto makers.

While unique and practical, Mindtronic AI's eye-tracking AI system for vehicles is favored by the industry due to the innovation-friendly environment created by the government in recent years, argues Huang. He pointed out that the National Science and Technology Council's value creation program and the Taiwan Tech Arena (TTA) have been providing massive supports for startups, especially when taking a startup team to the United States to participate in CES, an excellent opportunity to gain exposure. Huang pointed out that startup teams are certainly aware of the importance of big overseas exhibitions, but that most teams are unable to participate in exhibitions due to limited resources. Also, small booth area limits the final exposure.
So, the TTA brought together a large number of Taiwanese start-up teams and set up the TTA Pavilion to magnify the exposure for exhibitors. This expanded exposure has benefited Mindtronic AI in the past. That is why Huang suggests that startups can make good use of the support offered by government policy to expand product exposure while enhancing their own technological capabilities.

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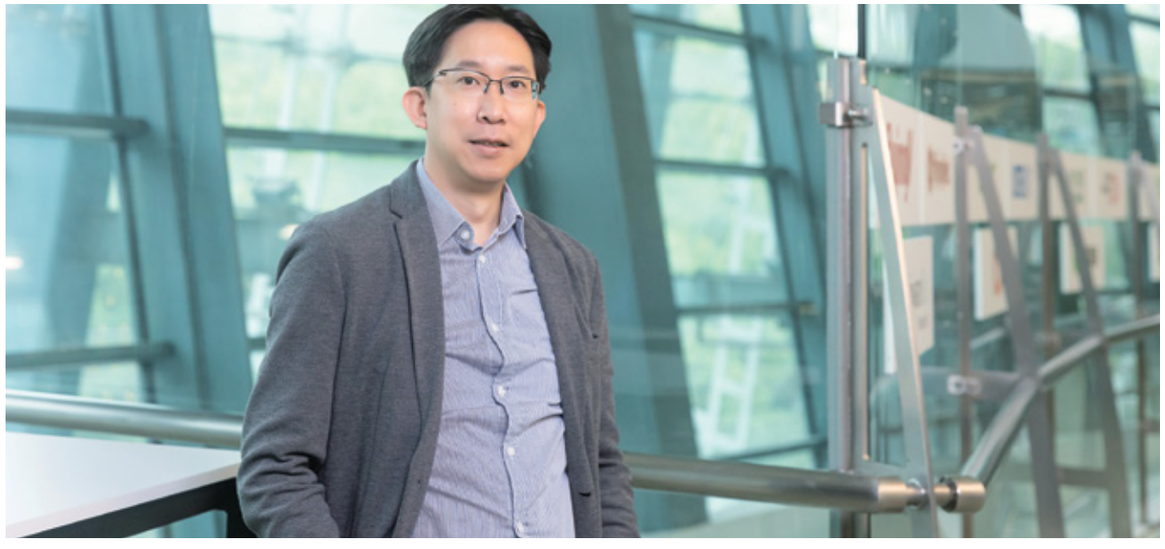

Ganzin Technology

Precise and Real-Time Eye Tracking: Ganzin Technology Creates New Generation of Solutions for Human-Computer Interaction

In March 2023, Google again announced that it had discontinued Google Glass, raising doubts about the future development of smart glasses in the market. However, Dr. Shao-Yi Chien, founder and CEO of Ganzin Technology, is pushing back against these naysayers, pointing out that even before this announcement, most people thought Google Glass had been discontinued long ago. It is not widely known that Google had been quietly developing the technology for a decade. This shows that the company has been holding on to smart glasses for many years. A closer look at the market shows that smart glasses are not only technologically advanced enough to be commercialized but that they have also begun to be used in certain fields over the last two years. Ganzin Technology's eye-tracking technology has been integrated into smart glasses, leading to a variety of applications.

In its early days, eye-tracking technology was initially used for military purposes, allowing fighter pilots to control the direction of their weapons using their eyeballs. Later, it was used to help physically disabled people communicate with others. The most famous example is Dr. Stephen Hawking. The brilliant physicist suffered from amyotrophic lateral sclerosis, which caused his limbs to gradually atrophy at a young age, leaving him unable to speak or write. Intel developed a custom device for him that integrated eye-tracking, predictive input, and speech synthesis technologies, allowing him to use his eyes to select letters of the alphabet, spell individual words or sentences, and talk through a speech synthesizer. However, eye-tracking systems of the past had two major weaknesses: a complex structure and limited accuracy, which hindered their dissemination and development. Ganzin Technology, on the other hand, uses AI and machine learning technologies to develop an efficient, accurate, and cost-effective eye-tracking solution to open new possibilities for eye-tracking technology.

Most eye-tracking devices currently on the market use corneal reflection technology, in which lots of LEDs are placed in the glasses as the anchors to locate the movement of the pupil. The comparatively complex structure of such devices leads to higher overall costs as well as production and maintenance difficulties. It also affects the flexibility and feasibility for compact glasses. Ganzin Technology, on the other hand, uses only one sensor and LED in conjunction with an AI algorithm to accurately track eye movements. Dr. Chien pointed out that tracking eye movements with this method is very difficult because there are no reference points for positioning in the internal structure of the glasses. Nonetheless, the company's database built over many years and proofs-of-concept have resulted in a simple yet precise technology for tracking eye movements in real time.

Diverse Applications of Eye-Tracking Technology in Smart Glasses

Ganzin Technology's main business model is to offer micro embedded eye-tracking modules that can be integrated into VR/AR glasses and smart glasses to create a new generation of human-computer interaction devices. For example, Jorjin, a Taiwanese manufacturer of smart glasses, has adopted Ganzin's products. In addition to the modules, Ganzin Technology has further strengthened its product value and application reach, starting with its proprietary eye-tracking chip. The company has also launched lightweight eye-tracking glasses. This device can track eye movements and record videos that can be used in various teaching and training environments, such as sports, smart factories, and medicine. Finally, Ganzin Technology's eye movement analysis software can create heat maps and gaze fixation sequence plots for business and behavioral analysis.

Eye tracking can also be combined with AR technology to develop a variety of smart applications. During surgical operations, for example, the AR images displayed by the glasses can show the paths of incisions to help surgeons perform them accurately and reduce the risk of medical errors. In large areas such as manufacturing plants, water reservoirs, or oil refineries, the visual data from the AR glasses can greatly improve the efficiency of equipment inspections. When a problem occurs during maintenance, the communication module in the glasses can send images to a back-end system. The system will then display the screen of the smart glasses and the view of the maintenance personnel. This allows experts to provide voice assistance remotely, while on-site maintenance personnel can follow instructions via the miniature microphone in the glasses to get the job done.

As for the consumer sector, Ganzin Technology's eye-tracking solution could become the best control mechanism for smart glasses. The wearer could command the system by navigating the AR screen of the smart glasses based on how their line of sight moves or stops. Combined with an AI assistant, this type of control system could make users' lives a lot easier. For example, when interested in a nearby item, users could simply direct their gaze to the item and ask the AI assistant for product information via voice command. Dr. Chien pointed out that with the rapid development of AI technology, this type of interaction commonly seen in movies, such as that between Iron Man and his AI assistant Jarvis, is not far from actual implementation and will serve as a killer application for smart glasses.

Ganzin Technology's eye-tracking technology has been in the industry spotlight since its introduction because it is precise, responds superbly in real time, and integrates easily with smart glasses. Ganzin Technology won the first prize at the National Science and Technology Council's inaugural TIE Awards in 2022. Dr. Chien believes that in addition to the team's hard work, the government's efforts in recent years to create a new environment for start-ups have also contributed greatly to this success. He pointed out that the company incubated from National Taiwan University and became an independent company with the help of the Value Creation Program. Later, it participated in major overseas trade shows with the assistance of Taiwan Tech Arena. This support was crucial in showcasing the company's technology and marketing. Dr. Chien also noted that since Ganzin Technology's founding in 2018, Taiwan's start-up environment has taken on the feel of Silicon Valley in the U.S., exhibiting an increasingly vibrant industry atmosphere. He also believes that with the support of government policies, the industry and academia will become increasingly active in start-ups, giving new impetus to Taiwan's industry and triggering another wave of economic development.

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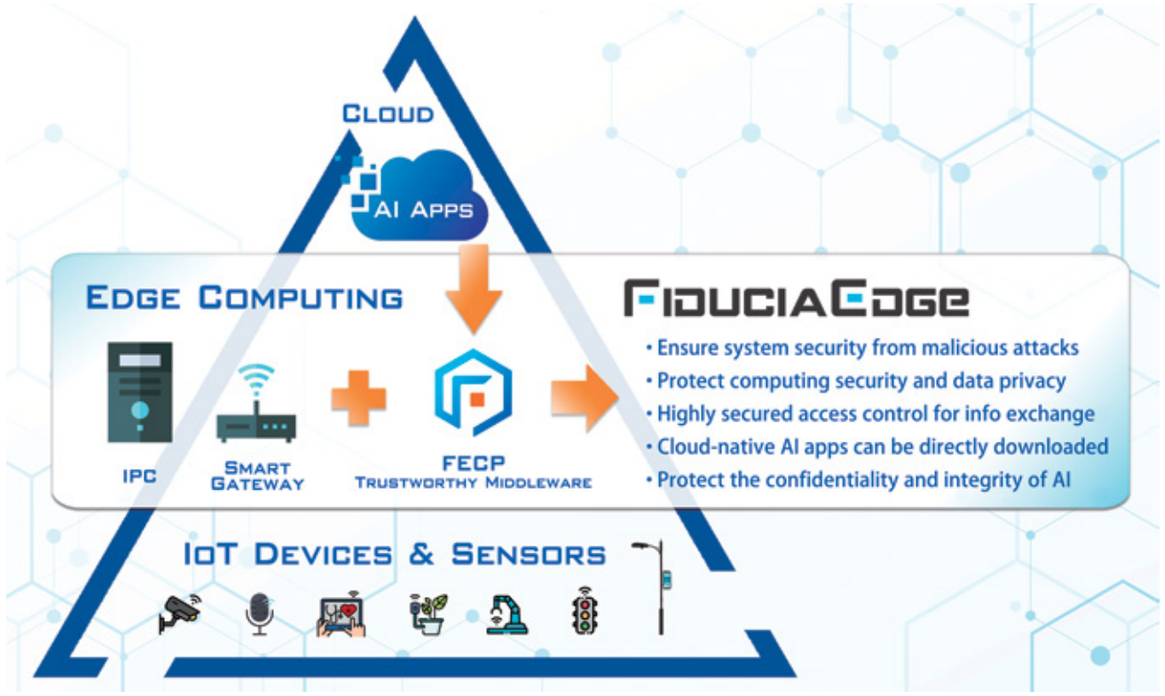

Fiduciaedge Technologies

Edge Computing Security Issues Attract Attention Amid AI Application Development Boom

ChatGPT has taken the world by storm, bringing unprecedented AI experiences to numerous consumers. This highlights the continuous development of AI technology and its rapid proliferation in people's daily lives. Meanwhile, with the vigorous development of technologies such as 5G, IoT, and cloud native computing, the concept of edge computing has also emerged to provide the best online experience for Internet users.

Traditional AI applications involve using the Internet to upload raw data to large cloud servers for analysis. However, with the increasing number of IoT devices, this often leads to issues such as raw data leakage, insufficient network bandwidth, and communication delays. Therefore, when cloud AI is deployed in smart manufacturing, smart transportation, and other scenarios, there may be a significant degradation in service quality as devices may not work together properly, potentially causing traffic accidents, industrial safety hazards, and other problems. For this reason, using edge computing servers to analyze data locally to mitigate such problems is a popular option in the market today.

However, with the rapid proliferation of AI services, the issue of potential information security risks has also come to the fore. Hacker groups have begun launching attacks on AI applications such as ChatGPT to steal large amounts of sensitive data. Edge computing security has therefore become a major challenge that needs to be addressed in the development of AI services.

Dr. John K. Zao, the founder and chairman of FiduciaEdge Technologies, pointed out that existing information security solutions can be roughly divided into three categories. The first category includes the use of virtual private networks (VPNs), firewalls, and other mechanisms to protect data in transit. The second category deals with security mechanisms for websites and databases to ensure the security of data in storage. The third category aims to implement appropriate information isolation in the trusted edge computing environments to protect those data in use. Trusted edge computing is becoming increasingly important as more manufacturers are now running AI applications on their sites to analyze the raw data collected from the IoT devices installed on their production lines.

Focusing on Edge Computing Security and Protecting Computing Processes and Data Privacy

The explosion in the ubiquity of IoT devices has accelerated the rapid development of edge computing and changed the nature of data processing in industries such as smart manufacturing, smart healthcare, smart transportation, and social media. Against this backdrop, Dr. John K. Zao, a former Principal Member of Technical Staff of the Internet pioneer BBN Technologies and the founding chairman of the IEEE 1934 & 1935 International Standard Working Group on Edge/Fog Computing and Networking Architecture, teamed up with Professor Ching-Yao Huang of National Yang Ming Chiao Tung University, as well as senior managers from Foxconn, Hewlett-Packard, KPMG, and ARM to establish FiduciaEdge Technologies in early 2021. FiduciaEdge focuses on the development of trusted edge computing and data privacy protection technologies. The company has been providing data security and privacy protection platforms as well as AIoT edge computing solutions to domestic and foreign government agencies, large enterprises, and medical institutions.

Dr. Zao pointed out that FiduciaEdge is betting on the booming AIoT market, and thus deployed its flagship product, FiduciaEdge Computing Platform (fECP), on the NVIDIA Jetson Edge AI platforms. The patented Trusted Rich Execution Environment (T-REE) instantiated by fECP in the Edge AI nodes that can protect both the raw data and the AI programs and models in GPU and DLA from disclosing to other programs running on the same machine. The computing processes running in the T-REEs are also protected from cyberattacks while conducting secure and private information exchanges only with authorized peers.

Deployed among the 5G Smart Lampposts in Taiwan and Hong Kong, FiduciaEdge's Trusted Edge Computing technology has become an information security benchmark for the critical infrastructures in the smart cities.

At the International Security Conference West Trade Show (ISC West 2023), FiduciaEdge and its strategic partner Vecow announced the release of the VHub Trusted Edge AI Computing System. This system integrates the FiduciaEdge Computing Platform (fECP) with Vecow's EAC-5000/EAC-3000/EAC-2000 industrial computers to provide a turnkey, trusted Edge AI computing solution. The system can run Cloud-Native AI applications on the NVIDIA NGC Catalog on Vecow's NVIDIA Jetson Xavier/Orin series industrial computers, providing users with AI model confidentiality and user data privacy protection from the cloud to the edge. The VHub systems aim at helping their customers to improve their information security capabilities and to comply with the EU GDPR and the US Cybersecurity Act.

Diversifying Capital Sources to Lay Down the Foundation for Long-Term Development

FiduciaEdge has also been very successful in its fundraising. The company has already attracted capital from the National Development Fund and the Taiwan Venture Capital Association. It also entered into a strategic partnership with a well-known Taiwan industrial computer manufacturer.

Dr. Zao said that FiduciaEdge aims at taking advantage of the endless opportunities in the Edge Computing Security market by forming strategic partnerships with key players in this field. In addition, FiduciaEdge maintains an operational presence in the Taiwan Tech Arena (TTA) and regularly participates in TTA's information security-related events to identify strategic partners for potential collaboration opportunities.

In the future AIoT applications, data will be owned by its creators, while analytics will be performed under usage control through authorization. In the face of this emerging digital economy, FiduciaEdge is actively transforming itself from a solution provider to a service provider to seize the market opportunities and lay down the foundation for long-term development.

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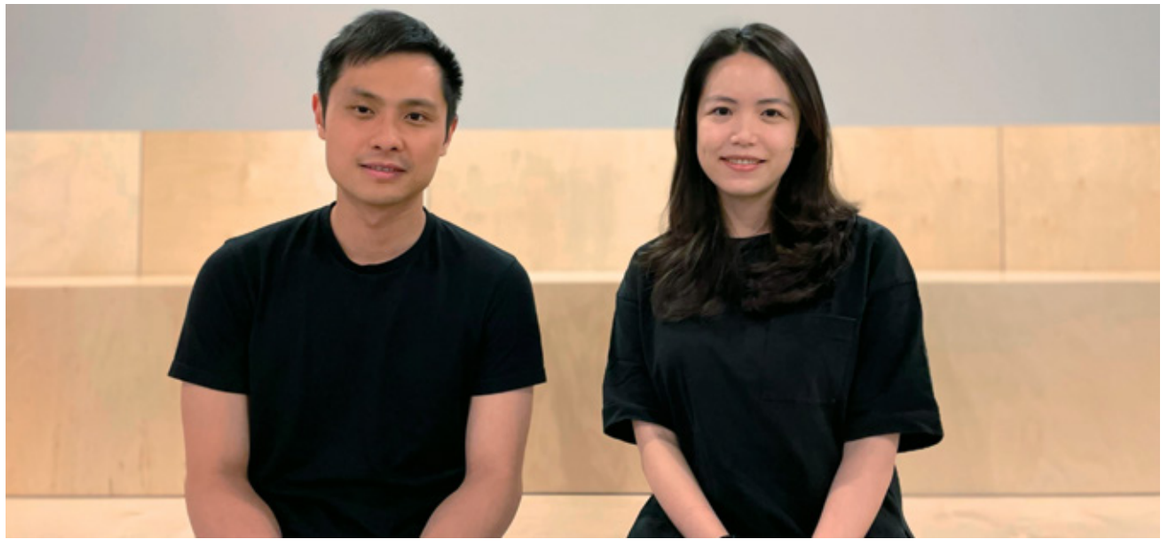

LYPID

The making of a new juicy plant-based meat Lypid creates a spectacular new dining experience

Vegetarianism has become a dietary choice for some Taiwanese people, due to religious beliefs or health concerns. While Taiwan's plant-based food industry is more robust compared to other countries, with a wide variety of different products available on the market, "taste" remains to be the biggest challenge for people to try plant-based products. In 2020, two young Taiwanese entrepreneur, Jen-Yu Huang and Michelle Lee, co-founded Lypid in Silicon Valley in the U.S. to fix this problem through their professional knowledge and skills. They developed PhytoFat™, a plant-based fat that can be tuned to precise melting points, allowing plant-based meat to have almost the same mouthfeel and flavor as animal meat. Lypid has already been collaborating with Taiwanese food and beverage companies in introducing plant-based meat products using PhytoFat™, which have been highly praised by consumers.

Jen-Yu Huang pointed out that environmental impact, animal welfare, and health issues are the three main drivers that motivated the food industry to focus on plant-based meat in recent years. Compared to the traditional livestock industry, the production of plant-based meat requires less land, water, while generating fewer greenhouse gas emissions making it much more environmentally friendly. Since plant-based meat also omits the process of raising and slaughtering livestock, it offers an alternative choice for consumers who have specific religious beliefs, care about their own well-being, or are concerned about animal welfare.

While plant-based meat provides more options for these consumers, most existing products on the market are still very different from animal meat when it comes to texture and aroma. Although most consumers who opt for a vegetarian diet already have these differences in mind, it would definitely help expand the market if improvements could be made. Jen-Yu Huang points out that the current global meat market has an approximate value of 1 trillion US dollars annually, while the vegetarian market is around 20 billion, accounting for only 2%, according to market research done by research institutions. He believes that if the sensory experiences plant-based meat can be improved, the plant-based meat market could grow to 10%, representing a five-fold growth potential and astonishing commercial prospects.

Jen-Yu Huang further analyzed the technical challenges faced in creating plant-based meat. He explains that the making of plant-based meat involves the extraction of vegetable proteins, followed by adding vegetable oils, seasoning, and other ingredients, before the final processing and combination into a product similar to meat. Commonly used plant proteins include various types of legumes and root vegetables. These vegetable proteins can achieve very similar textures and mouthfeels to animal meat through processing. From the above mentioned process, it's plain to see that the current approach primarily involves combining plant oils and proteins. However, all plant oils are in liquid form and will melt out of the meat matrix when cooking, resulting in a dry texture of plant-based meat. Lypid's PhytoFat™ can solve this issue.

Lypid's co-founders Jen-Yu Huang and Michelle Lee both graduated from Cornell University. Michelle's academic focus had been food sciences from undergraduate through PhD, and both of them had gained a lot of attention within the industry for their research projects during their undergraduate years. After attaining their PhD degrees, they founded Lypid and created PhytoFat™. PhytoFat™ is made from 97% vegan oils and water, with lower calories and saturated fat ratio than animal fats. Making it much healthier and more sustainable compared to the coconut oil and palm oil that are commonly found in the plant protein market. Furthermore, Lypid uses its proprietary microencapsulation technology to encase PhytoFat™. This prevents the vegan oils from degrading in high temperatures. Instead, the fats are slowly released while being cooked to create juicy, succulent plant-based meat dishes.

This technology, unprecedented in the market, has put Lypid under the spotlight within the start-up circle. Jen-Yu Huang and Michelle Lee received industry financing while still in the research phase at university, and raised 4 million US dollars in seed funding in 2022. Plant-based meats made using PhytoFat™ then won 3 major awards at the 2023 World Food Innovation Awards held in London, U.K., successfully launching Lypid into the market with ample funding and the industrial and academic sectors' endorsement.

Jen-Yu Huang states that Lypid's initial market strategies will focus on North America and Asia. In 2022, he returned to Taiwan to set up a Taiwan office responsible for research and development, as well as mass production. The US headquarters focuses on marketing and international partnerships. Lypid has already launched plant-based meat made with PhytoFat™ in the Taiwan market. Louisa, a leading coffee chain store in Taiwan, has used it as an ingredient in items such as sandwiches and rice burgers, which have become best sellers in their burger product category. Aside from restaurant chains, other food and beverage businesses have also been utilizing the "plant-based pork belly" developed by Lypid, creating diverse dishes, such as braised pork belly rice and meatballs. The plant-based pork belly combines PhytoFat™ and special plant protein, creating textures and aromas that have been proven popular in the market.

The reason why Lypid's products have had such smooth sailing since their launch is not simply due to their particular technologies. Jen-Yu Huang believes that the government's start-up policies have also been key. He pointed out that the start-up environment in Taiwan has gradually matured with the government's support. Investors are now significantly more willing to invest in early-stage start-ups, and TTA has become a key startup hub in the international startup community, becoming more and more attractive to overseas companies and investors. This will aid in connecting Taiwan start-up teams with the world. In the future, Lypid will leverage these advantages to actively collaborate with local and international businesses to explore more possibilities for plant-based meat.

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CuboAi

CuboAi Strives to Build Product Ecosystem in Wake of Baby Tech Boom

For new parents, caring for a newborn can be a daunting challenge. Research has shown that the incidence of sudden infant death syndrome (SIDS) is about 0.1 to 1 percent, with the highest prevalence occurring between 2 and 4 months of age. Up until around 12 months of age, babies' bodies are still developing and can typically only express discomfort through crying. The risk of SIDS occurring may be greater if parents are unable to hear or respond to the baby's cries. To help new parents prepare for their parenting journey, they can learn from family members, other parents, or even make use of technology to help them monitor their baby. This, ultimately, is one of the reasons for the rapid development of baby tech.

Baby tech has since evolved from its early days with the introduction of information technology. Previously, parents had limited options for remotely monitoring their baby's well-being during the night, primarily relying on the detection of crying sounds. However, with technological advancements, parents now have the ability to use smartphones to remotely track their child's sleep patterns and movement. Given the rapid development of AI technology, countless manufacturers have recently begun to launch smart AI-powered baby monitors. These devices are advertised as having the ability to detect when a newborn's mouth or nose is covered by clothing or blankets or when a baby rolls over or cries, and will immediately send a notification to parents that their baby needs their care.

According to Brian Lin, CEO of CuboAi, each brand of smart AI-powered baby monitors on the market offers its own unique features. Since consumers' needs will vary, he recommends choosing baby monitors based on their AI detection capabilities, accuracy, and technical support offered by the manufacturer. "It is worth noting," he added, "that smart AI-powered baby monitors are most common in Europe, the U.S., Taiwan, Korea, Japan, Singapore, and other countries due to their higher unit price." These countries are also where most of the major brands of smart baby monitors are produced.

Challenges of Newborn Care Give Birth to World's First Smart AI Baby Monitor

Recognizing that traditional baby monitors cannot solve the many problems of newborn care, a group of tech-savvy parents, AI experts, and pediatricians came together to form CuboAi in 2017. They conducted thorough research of the challenges faced by new parents, aiming to establish a benchmark for the future development of baby monitors. CuboAi started by interviewing and surveying thousands of parents to understand the key challenges in childcare. Through considerable dedication, the world's first baby monitor with AI technology, CuboAi Plus Smart Baby Monitor, was launched. This innovative device prioritizes the safety and peaceful sleep of infants, offering parents peace of mind. It also serves to capture and save precious memories of the children's growth.

The features of the CuboAi Plus Smart Baby Monitor focus on three main areas – safety, sleep, and memories. In addition, the device offers covered-face and rollover detection, danger zone detection, true cry detection, cough detection, and other features. For example, with the true cry detection feature, the AI technology developed by CuboAi can automatically distinguish between ambient noises and cries of the baby. When the baby's cries are detected, parents are immediately notified through the CuboAi App. Furthermore, the product is certified with professional-grade security protection, and equipped with a 1080p HD lens that is twice as sensitive as traditional night vision lenses and displays clear images even at night.

"To further enhance the practicality of the CuboAi Plus Smart Baby Monitor and address the challenges associated with newborn care, we are dedicated to continuously conducting parent interviews. In response to valuable feedback from parents who highlighted doctors' inquiries about the frequency, timing, and duration of their baby's cough during medical visits, we incorporated the world's first cough detection feature into our product," Lin explained, "CuboAi can monitor a baby's coughs throughout the day and proactively send a 20-second video clip of the most recent cough so parents can monitor their baby's health in real time."

CuboAi is actively building an entire product ecosystem in response to the increasingly busy modern parent life. For example, the company has also launched the CuboAi Sleep Sensor Pad, which can be paired with the CuboAi Plus Smart Baby Monitor to detect baby's breathing motion when they're sleeping, helping parents monitor their newborns' sleep with precision and accuracy.

Taiwan's Start-up Environment Gradually Improves, Attracting More Young People to Pursue their Dreams

CuboAi began its journey in 2018 by raising funds on Taiwanese crowdfunding platform, Zeczec. After successfully building brand awareness, the company entered the markets in the U.S., Canada, the U.K., and Australia the following year. Its products are currently available in 11 countries worldwide, with total sales volume exceeding 100,000 units. The company's four main sources of revenue are the markets in the U.S., Taiwan, Japan, and Australia. Since its establishment, the company has received investment from the National Development Fund and participated in the CES trade show with the help of Taiwan Tech Arena. CuboAi was awarded the CES Innovation Award in 2020 and 2022.

Lin pointed out that in recent years, with the help of the government and corporations, the overall start-up environment in Taiwan has increasingly improved, encouraging more young people to participate. In the past three to four years, Taiwan's start-up landscape predominantly focused on technology-driven ventures, where start-ups emphasized their technological prowess to attract investment companies. However, a noticeable shift has occurred in recent times: an increasing number of start-ups pivot towards presenting innovative ideas and concepts as their primary pitch to secure investments.

CuboAi will continue to improve the AI detection capabilities and accuracy of its products, as well as gather more information about the challenges parents face for future product development in response to the fierce competition in the AI-powered baby monitor industry worldwide. In 2023, CuboAi plans to launch a medical-grade temperature patch specifically designed for babies aged 0 to 36 months. The wearable patch will assist parents in monitoring their babies' health post-vaccination and simultaneously contribute to strengthening CuboAi's brand recognition and market presence in the baby tech industry.

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ible Technology

Wearable device meets negative ion cleaning technology; the result: a new era for the health industry

Heated development of global industry coupled with rapid growth in volume of automobiles and motorcycles have made life more convenient, the cost has been increasingly serious air-pollution problems. That is why more consumers are placing air purifiers in homes and offices to reduce allergies and coughing caused by airborne particles. In recent years, thanks to the advances in semiconductor manufacturing, wearable air purifiers are now on the market. These products allow consumers to enjoy good, clean air and reduce the discomfort caused by airborne allergens no matter where they are. Many brands have launched products directly in response to the pandemic that claim to filter or remove COVID-19 viral particles, so as to reduce the chance of infection.

If you look at wearable air purifiers from a technical point of view, these products can be divided into two categories: those that use traditional high-efficiency particulate air (HEPA) filtration and those using negative-ion purification technology. Products using traditional HEPA technology rely on high-efficiency motors so as to draw in and filter a large amount of air in a short period of time. That means that such products are not very small volume-wise; it also means vibration and noise problems that are difficult to ignore. And besides having those basic issues, HEPA products may not be able to achieve instant air purification around the face.

Fred Chien, CEO of ible Technology, said that current mainstream technology of wearable air purifiers is negative ion purification technology. Negative ions are atoms, atomic groups, or molecules carrying a negative charge, whereas most of the harmful suspended particles in the air carry a positive charge. When the two meet, the harmful suspended particles in the air quickly fall before they are able to be inhaled and harm and impact human health. While it is true that negative-ion generation technology differs by brand, the real key is the transmission distance. If the negative ions cannot reach the mouth and nose, purification cannot be achieved as intended. And if the negative-ion generation method is not optimized, it can generate a large amount of ozone, which may in turn pose potential risks to human health.

The world's first lightweight purification product was created in response to real air pollution problems

ible Technology was founded in 2015. When the team members were on a business trip in China, some team members experienced serious physical discomfort due to the local air pollution. It was then that they had the idea of developing a wearable air purifier. A number of enthusiasts entered the IoT and smart wearable product fields through the establishment of ible Technology, and they launched the world's first lightweight wearable air purifier, "Airvida," in 2016.

Airvida has won the highest award in the National Biotechnology and Medical Care Quality Award & Symbol of National Quality (SNQ)* for four consecutive years, offering more than enough proof that it has the ability to remove COVID-19 virus, pollen, and air pollutants. Airvida has also earned the recognition and attention of the "2020 and 2023 CES Innovation Awards," "2022 Taiwan Excellence Award," and the 2021 Japan "Good Design" award.

"In our entrepreneurial process that year, the team started from the concept of minimizing the size of in-car air purifiers, so the product originally used HEPA filtration technology. But it did not take long to see the problems with HEPA, such as large volume, noise, vibration, and filtration effects. Existing technology was just not up to the job." Fred Chien explains: "So the team invested in R&D for negative ion technology, which would be the core of development of wearable air purifiers. It took a total of 18 months and 23 internal revisions and restarts before the first Airvida was successfully launched."

Outstanding international achievements in Germany and Japan

In the early stage of Airvida product design and development, ible Technology, familiar with the global market, decided first to enter flagship markets such as Germany and Japan. The German government has one of the strictest product review processes in the world. If a product can be sold there, it will be far easier to sell that product in the Japanese and Southeast Asian markets. As expected, just as Airvida passed the German review and went on the market, its review time in Japan dropped from the 18 months, which is common, to just about 3 to 6 months. Airvida is currently sold in more than 10 countries, including Germany, Japan, Taiwan, Singapore, Switzerland, and Thailand. In 2023, ible Technology is set to officially enter the North American market.

In the startup process, ible Technology received assistance from many sources, such as R&D subsidies from the Taipei City Government; it also participated in CES in the US with the assistance of TTA and won the recognition of two CES Innovation Awards. When entering the Japanese market in 2017, the company had the assistance of the Bureau of Foreign Trade (under the MOEA) to place product advertisements on electronic billboards on the outer wall of the Shibuya Building. This greatly helped to enhance company exposure and product popularity.

In light of the fact that Bluetooth headsets have become indispensable in consumers' lives, ible Technology will launch two wearable air purifiers that combine Bluetooth headset functionality in 2023, these being the Airvida E1 & Airvida T1. The Airvida T1, which is expected to be launched in the second half of the year, was also recognized by the "CES (Consumer Electronics Show) 2023 Innovation Awards". This award places extra emphasis on the incredible R&D capabilities of ible Technology.

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Kamee

Pandemic drives health care industry, leads to rise of personalized health supplement services

For more than three years, the COVID-19 pandemic has brought an unprecedented impact on the global economy. But also, it has led to more consumers realizing that health care starts from day-to-day care. This realization has also driven rapid development of the health care industry. And it has led to substantial growth in health supplement and nutritional supplement. According to research by Euromonitor, the global health and nutrition supplement market will amount to US$869.7 billion in 2022, with a compound annual growth rate (CAGR) of 5.5%. It also expects that by 2026, market size will exceed US$1 trillion. Growth in the Asia-Pacific market looks the most impressive. It is estimated that the Asia-Pacific market share in 2026 will exceed 30% of the global market.

This massive market has attracted many manufacturers and companies. It has even created a wave of personalized nutrition supplement. “Personalized nutrition supplement services” refers to the industry providing supplement personalized according to the needs and conditions of individual consumers, which means less hassle for consumers purchasing the supplements on their own. For example, consumers not knowing which products to choose, or having trouble with bottles and containers. In recent years, companies in the United States and Taiwan have launched smart personalized health supplement services. These services let consumers use the smart evaluation system to conduct their own analyses and then order the health supplements they need based on the analysis results.

Ray Ku, CEO and co-founder of Kamee, who is also a certified pharmacist, said that consumers usually face two problems when purchasing health supplement on their own. First: not knowing which health supplements are suitable for them and what nutrients they need to supplement. Each person’s physical condition and lifestyle are different, and experiences of relatives and friends can really only be used as a rough reference. Second: traditional health supplement is packaged in traditional packaging. It is not just a hassle to eat, but also easy to forget to eat altogether. Products are purchased through separate channels, and packages of different sizes need to be purchased at different times. Often, they are out of date and thrown away. The popularity of personalized health supplement services among modern people is due to personalized content and the health supplement needed for a single day being pre-packaged conveniently, so buying, storing, and eating health supplement is easier. This has driven the growth of global sales of personalized health supplements by more than 20% every year, which is several times higher than the industry overall.

Creates a KIHAS evaluation system; Complete personalized services in just three steps

People’s bodies and lifestyles are all different. Kamee, which employs pharmacists, physicians, nutritionists, and software engineers, is committed to promoting technology combined with health professions. Through algorithms, data analysis, and medical experts, Kamee focuses on creating unique health solutions for each person. In addition to investing heavily in the R&D of the KIHAS assessment system, the company offers it to the public for free. Consumers can conduct assessments on the official website without registering, out of the hope that the public will better understand their own health conditions and needs.

Ku pointed out that Kamee’s personalized health supplement service mainly requires only three steps: assessment, recommendation, and personalization. First, body and health needs are analyzed through the KIHAS smart assessment system. Second, the system recommends a unique health supplement combination based on the smart analysis results. Third, via an all-in-one small pack, the personalized health supplement is automatically delivered every month, with 30 Kamee packs per delivery (month) and each daily pack supplying the nutrients that individual needs for the day. The combination of products and delivery cycle can also be adjusted according to current needs at any time.

It is worth mentioning that Kamee’s startup team has experienced pharmacists and nutritionists on its roster. In addition to that strong base in professional knowledge, it also has solid medical industry and supply chain resources. Altogether, it has a considerable competitive advantage in terms of cost and can provide top-quality products on the market at a more affordable price.

Taiwan’s active startup environment offers more venture capital and accelerators

Since inception, Kamee has continuously expanded its overall business model through cooperation with the startup accelerator and VC fund SparkLabs Taiwan, located in Silicon Valley, and it has won many awards. For example, it was selected as a partner of the 2022 Google Project Hatcher and for the FINDIT 2022 Taiwan early-stage investments of the MOEA, all proving that Kamee’s smart personalized health supplement service possesses great development potential.

Ku said that early venture capital companies in Taiwan were less involved in the investment activities of early-stage startups, and did not become more involved until the mid or late stage. However, a lot has changed in recent years. Not only are there more venture capital companies, they are now more willing to be involved in early-stage investment. Along with strong guidance from the government, it has gained massive energy into Taiwan’s start-up. In addition, the rapid development and increase from startup accelerators also assists startup teams in fundraising, management, productization, and other areas, which helps shorten time to market. The overall environment is much more active now than in the past, so they are more optimistic about Taiwan’s new companies.

Seeing such great results in Taiwan, Kamee continued to work on the Taiwan market in 2023. It also plans to enter overseas markets, such as Japan, South Korea, Singapore, and the United States, and looks to capitalize on the unlimited business opportunities in the personalized health supplement service market.

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TAIWAN TECH ARENA Event Summary
From Jan. - Jun. 2023

Taiwan high-tech startups shine at CES 2023

Taiwan Tech Arena (TTA) champions entrepreneurship and innovation to build a vibrant global startup ecosystem in Taiwan. This year at CES 2023, the National Science and Technology Council (NSTC) together with TTA, led a delegation of 96 high-tech startups to showcase their innovations to the world. Attendees visiting the TTA Pavilion had the opportunity to experience cutting-edge technology in the areas of AI, cybersecurity, sports technology, green energy, smart living, smart medicine and etc. The TTA Pavilion drew attention of several countries, such as Canada, Japan, South Korea, Sweden, Switzerland, and the U.S, which enthusiastically participated in business-matching sessions. Over 32,000 people visited the TTA Pavilion and Taiwan startups received over 5,000 inquiries from firms representing 29 different countries.

Among the delegation startups, 10 Taiwanese startups were awarded the CES Innovation Award, an annual competition honoring outstanding design and engineering in consumer technology products. The list of winners included: Artificial Intelligence Co., CytoAurora Biotechnologies, DeCloak Intelligences Co., ible Technology Inc., Mbran Filtra Co., Ltd., Mindtronic AI, NeuinX, Neurobit Technologies Co., Ltd., PanelSemi, and Quantum Music Co., Ltd.

TTA Talk invites NTU entrepreneurs shared Key to Interdisciplinary Innovation and International Markets

TTA Talk encourages professors and students to apply research technology to industry and exert influence in changing society. TTA partnered with NTU and invited two inspirational speakers, including the Co-Founder of PicSee, Ray Wei, and RelaJet's CEO, Blue Chen, who shared their motivation for entrepreneurship, challenges, and insights into entering the international market.

TTA Talk invites talents in various fields and shares their experiences and journeys in innovation and entrepreneurship; each session goes to different campuses in Taiwan to drive the multiple possibilities of scientific research and innovation in Taiwan and presents the journey of entrepreneurship achievements.

TTA x La French Tech Celebrated Women's International Day

Taiwan Tech Arena (TTA) partnered with La French Tech Taiwan (FTT) to organize the "Women in Tech XYZ Forum" to celebrate International Women's Day to make an assessment of women entrepreneurship in the French and Taiwanese innovation ecosystems. Rose Tzou, the former chairman of World Vision Taiwan, believes the promotion of women's status, and protection of girls' rights and interests should be the first thing to be paid attention to ensure that girls can receive a complete education and help their families get rid of poverty, and called on the general public to pay attention to girls' issues and make society a better place.

TTA Accelerator x Academic Entrepreneurship Community Matching Event

TTA held "TTA Accelerator x Academic Entrepreneurship Matching Events," the two events involved professor-level entrepreneurship teams and researchers and had in-depth discussions with TTA Accelerators. The event attracted even more enthusiastic physical and online participation numbers, with diverse teams including agricultural technology, advanced semiconductor processes, and online language learning.

Masters Gathering: AI & Smart City

Masters Gathering: AI and Smart City, speakers sharing insights on urban analytics and the potential of AI innovation, including an urban analytics expert Dr. Dani Arribas-Bel, President of Cloud Service and Big Data Business Group at Galaxy Software Services Flora Hu, President of SYSCOM Group Steve Huang, Senior VP of Pegatron Corporation James Liu, and VP of Taiwan Mobile Paul Wang. The speakers emphasized the need for collaboration between startups and enterprises to meet human needs and tackle global challenges through AI in the new era of smart cities.

Masters Gathering: The Business Opportunity in Space Industry

Masters Gathering: The Business Opportunity in Space Industry invited notable speakers to share their insights about the combination of LEO satellite networks, and 5G technology holds immense potential for global connectivity, enabling widespread coverage, low latency, and enhanced communication capabilities in remote areas and underserved regions.

SparkLabs Taiwan DemoDay 8

TTA accelerator SparkLabs Taiwan hosted its DemoDay 8 in the afternoon of May 9th at TICC Plenary Hall. Cohort 8 Startups included Coherence Biotech, GeneOnline, Jmem tek, Kamee, MedFluid, Mediot (FarHugs), Nex, Showwcase, Sustaihub. Through interacting with over 400 venture capitalists, startups gained a deeper understanding of how venture capitalists think and how to demonstrate their competitive edges and gained exclusive insights from prominent and esteemed fireside panel speakers.

TTA Le Bon Moment: Green Economy x Recycle

TTA South invited Yihe Li, the co-founder of Goodtogo, and Mingzhe Wu, the business development manager of Mbranfiltra, to share their stories and experiences about the green circular economy. TTA aims to increase awareness about green tech, and all members and partners have more opportunities to exchange ideas while having fun, thereby fostering a strong startup community.

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