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.

ISSN 2663-9076
9 772663 907002

TAiWAN TECH ARENA

## NSTC Minister Cheng-Wen Wu

An Exclusive Interview with Minister Wu on his Insights and his Vision Going Forward

## The PEST Environmental Analysis for AI Development Trend

Analyzing key AI trends to provide insights for industries looking to develop or adopt AI-related services.

TAiWAN TECH ARENA

TTA

DEC. 2024

16

# Transforming Taiwan into an AI island

Committed to transforming Taiwan into an AI island by advancing AI research, developing AI industries, promoting AI tool adoption, and positioning Taiwan on the global stage through AI innovation.

# Empowering Startups Through TTA for Taiwan's Technological Future

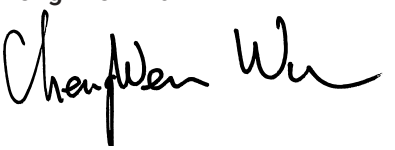
As the Minister of NSTC, I recognize the pivotal role that Taiwan Tech Arena (TTA) plays in driving innovation. Each year, TTA supports and nurtures between 100 and 200 startups, and to date, it has successfully fostered over 900 startups.

By fully leveraging TTA's resources, we can help startups overcome obstacles like supply chain limitations and market access. Our strategy focuses on generating local demand for AI-driven solutions, enabling startups to thrive within Taiwan. We aim to bridge the gap between our strong hardware capabilities and the need for innovative software and services, positioning Taiwan as a hub for technological innovation.

We are also committed to guiding these startups through the critical 'valley of death,' ensuring they achieve sustainable growth. By fostering a supportive environment and encouraging collaboration between startups, industry, and academia, we can elevate Taiwan as a leader in AI and other cutting-edge technologies. Our vision is to make Taiwan not just a center of innovation, but a global beacon of technological advancement and international collaboration.

To achieve this vision, NSTC has announced the "Action Plan to Empower Southern Taiwan toward an AI-Based Industrial Innovation Ecosystem" and will launch the "Smart Technology Rainforest Program: Toward an AI-based Industrial Innovation." We invite everyone to join us in creating the future together.

**Cheng-Wen Wu**



**Minister Without Portfolio, Executive Yuan**
**Minister, National Science and Technology Council**

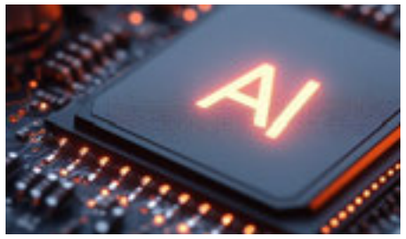
# CONTENT

DEC 2024 16


004 IN FOCUS

**Taiwan Provides Dual Incentives to Help Startups Cross 'Valley of Death'**

Exclusive Interview with NSTC Minister Wu Cheng-wen




08 GLOBAL TECH TRENDS

**PEST (Political, Economic, Social, and Technological) Analysis of AI Development Trends**

TTA BLACK CARD COMMUNITY

**BRUCE BATEMAN**

Tech Pioneer Bruce Bateman on Blending Cultures, AI, and Taiwan's Energy Challenges

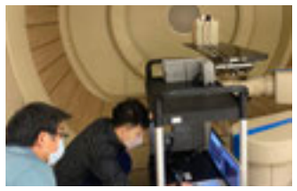
016

**ARTHUR CHEN**

Betting Big on Taiwan as Global Medical Innovation Hub and Gateway to Asia

020





026 STARTUP STORY I VEHICLE TECH

**AEGIVERSE**

Aegiverse's fiber optic gyroscopes for use in airplanes, drones and underwater vehicles catch global attention


028 STARTUP STORY I AI

**eNEURAL**

eNeural introduces AI-Craft, a slimmed-down high-performance solution for edge AI

030 STARTUP STORY I HEALTH TECH

**MECO TECHNOLOGY**

Meco Technology targets the self-pay healthcare market with three innovative solutions

032 STARTUP STORY I SEMICONDUCTOR TECH

**PHOTONISOL**

Startup Set to Disrupt the Silicon Photonics Market with Breakthrough Optical Isolator Chip


034 STARTUP STORY I AI

**ROSETTA.AI**

Synergizing AI and image analysis, Rosetta.ai creates a traffic diversion and shopping guide system for fashion e-commerce companies

036 STARTUP STORY I HEALTH TECH

**STREAMTECK**

StreamTeck's MmWave Enables Accurate Non-Contact Physiological Monitoring


038 STARTUP STORY I MARTECH

**TELLIT NOW**

Map-based matchmaking platform Tellit Now creates a triple-win situation for stores, micro-influencers and consumers

040 STARTUP STORY I AIOT

**VALTEC AI**

Valtec AI Revolutionizes Commercial Fishing with Drone and AI Technologies

042 TTA EVENTS

**TAIWAN TECH ARENA EVENT SUMMARY**

TTA and accelerator partners organize events on a regular basis to provide startups with the opportunity to present themselves and build the networks they need to thrive.

# Taiwan Provides Dual Incentives to Help Startups Cross ‘Valley of Death’

## Exclusive Interview with NSTC Minister Wu Cheng-wen

**In the previous issue, Minister Wu shared his vision for transforming Taiwan into an AI Island, emphasizing the need to enhance AI development, supply chain integration, and societal adoption of AI tools. He also highlighted the importance of creating local demand for AI technologies to fully realize Taiwan’s potential. This issue, Minister Wu will continue to share his insights and expectations for Taiwan’s industry and startups.**

When asked by the TTA Magazine on how to popularize sovereign AI across Taiwan’s various industries, Minister Wu Cheng-wen emphasized that the National Science and Technology Council (NSTC) will not only encourage the development and manufacturing of Taiwan’s sovereign AI systems from the supply side but will also create market demand through providing incentives from the demand side.

“Today, with a population of over 20 million and an economic strength in terms of Gross Domestic Product (GDP) that ranks among the top 20 in the world, Taiwan should not see itself as a small country,” Minister Wu said, “We should no longer view Taiwan as a small market but should shape the local market with its vast consumption capacity. For example, at the recent Elderly Health Industry Expo, many startups and research institutions showcased excellent applications.”

Minister Wu, however, is worried that without sufficient government support, these startups may not be able to sustain their expansion, which would be a great pity.

Taiwan is not short of innovative and creative young people, but the key to realizing their dreams lies in how to implement these designed systems. In the coming years, the NSTC’s governance focus will be on the development of sovereign AI, or systems that are designed, manufactured to leverage local data to provide AI services. Minister Wu promises that the government will assist startups in developing applications using local data. “We hope the startups seeking development abroad are not doing so due to insufficient market access,” said Minister Wu.

This is a pressing challenge. In addition, the government hopes to leverage the accumulated national health database in the deep cultivation plan of the health industry but will protect data from being migrated by cloud to foreign countries. Building autonomous cloud data systems and AI service application systems is already being undertaken by companies with potential on the TTA platform. The government’s goal is to create market demand for these startups, becoming their

customers for AI services development, and using the budget to support the growth of startups, creating a virtuous cycle.

Minister Wu mentioned that the Taiwan Chip-based Industrial Innovation Program (Taiwan CbI) initially targeted the semiconductor industry and focused on encouraging advancement in cutting-edge technology, but now NSTC hopes to also support small and medium-sized semiconductor companies and assist other industries in realizing AI.

This means not only the NSTC will subsidizing large enterprises but also small and medium-sized enterprises, helping them to grow and expand markets. In other words, the government will provide incentives to both the supply and demand sides.

**Sovereign AI also solves labor shortage problem**

Moreover, there is significant market demand for AI applications and services development in various fields in Taiwan, including the healthcare sector and the hospitality industry, are severely in want of young people's participation. Minister Wu expects that in the future, technology will solve labor shortage issues in the service industry with robotic solutions. It also takes innovative startups continuously developing digital customer service and AI applications that will meet the need of the domestic users. The popularization of AI will balance national income and improve the living standards of the people, becoming a new era option.

In the future, the NSTC will not only accelerate the construction of cloud data center and supercomputers but will also invite foreign companies to invest in the data centers that local hardware industry firms help build up. Taiwan will serve as a pilot market, and once application services are developed, TTA will help the developers expand into international markets.

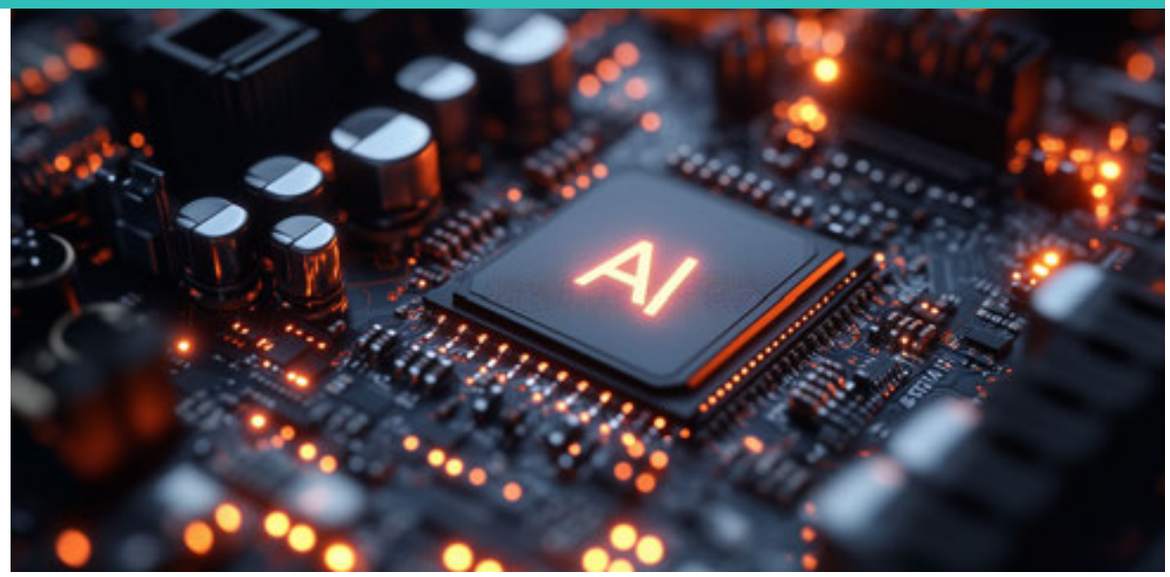
Additionally, the Ministry of Education will be invited to provide manpower assistance, allowing many students and teachers from vocational and technical universities to collaborate with technology companies to integrate software and hardware, consolidating various resources to design and build sovereign AI systems. "Students from vocational and technical education institutions do not need to conduct forward-looking cutting-edge research. They can make significant contributions in practical work such as system integration. Such collaboration also helps cultivate talent for traditional industries," said Minister Wu.

Minister Wu also stated that TTA has achieved significant success and international recognition in assisting startups through seamless cooperation with the  major accelerators. In the future, through the efforts of the NSTC, it is hoped to assist these startups by combining the technology budget allocated by the NSTC and connecting the manpower from the education system to implement these plans, realizing software and hardware integration, and with the support of the Digital Development Department, constructing Taiwan's autonomous AI system. He envisions TTA not just as a startup platform but as an enabler helping startups cross the valley of death and achieve success.

Minister Wu believes President Lai's vision of building Taiwan into an "AI Island" is not only a policy direction but also an important guide for Taiwan's long-term development. Minister Wu hopes that through these concrete measures, the policies can be achieved step by step, making this beautiful vision a reality. The future AI Island will not only be technologically advanced but also a wonderful country in which all Taiwanese people participate and enjoy the benefit together.

# PEST (Political, Economic, Social, and Technological) Analysis of AI Development Trends

IEK Consulting
Yun-Chung Wang




## 1. AI Development Trends

Artificial Intelligence (AI) technology is flourishing, with various industries investing heavily in AI applications for innovative transformation in recent years. The AI boom triggered by ChatGPT has led to the emergence of advanced AI assistants utilizing Large Language Models (LLM) to achieve greater versatility, autonomy, and application scope. These assistants provide flexible and realistic interactive AI experiences, aiding users in decision-making, automating tasks, and optimizing workflows, thereby enhancing productivity and sparking innovative ideas. However, as AI assistants become more capable and autonomous, the likelihood of accidents due to misinterpretation or incorrect instructions increases, as does the potential for highly impactful misuse. Discussions on the technological disruptions and societal issues brought about by AI include the authenticity of information, the risk of large-scale dissemination of false information, algorithmic bias, the accuracy of AI-generated data, model security, and privacy protection. Governments worldwide are increasingly focusing on AI, leveraging it to stimulate industrial innovation and transformation while managing the associated risks to develop trustworthy AI technology. This article will observe AI development trends from political, economic, social, and technological perspectives for readers' reference.

## 2. Focusing on AI Risk Management and Sovereign AI Deployment

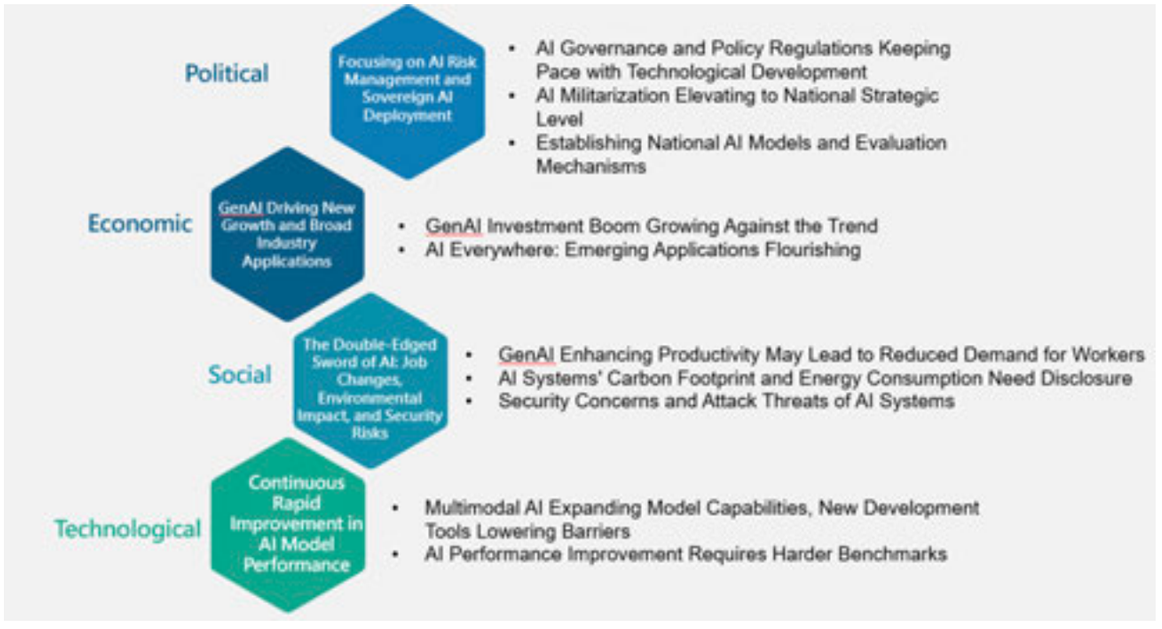
According to the Organization for Economic Co-operation and Development (OECD), 69 countries have issued over 1,000 AI-related policies and guidelines, making AI a national competitiveness indicator. Countries continue to announce AI policies to accelerate the development of AI application technologies, simultaneously leveraging AI for industrial innovation and transformation while managing its risks. With the rapid growth of generative AI technology in recent years, new opportunities and risks have emerged, prompting governments and industries to pay more attention to the proper use of emerging technologies and to establish certification standards and accountability.

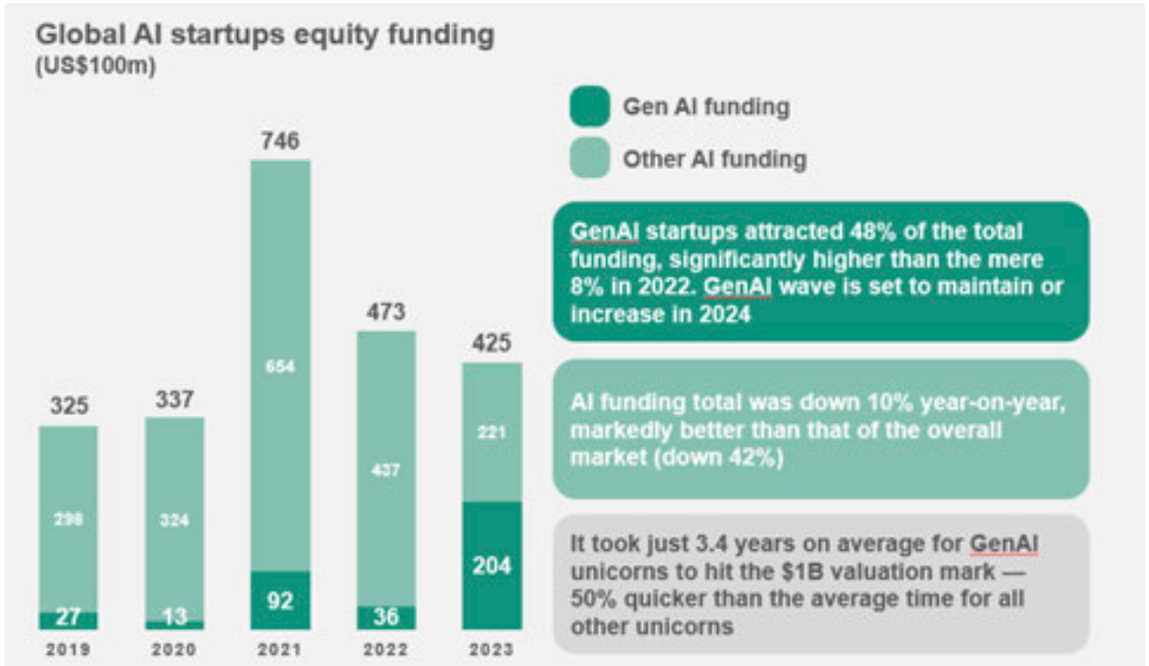
**(1) AI Governance and Policy Regulations Keeping Pace with Technological Development**

In April 2021, the European Union announced the draft "Artificial Intelligence Act," clearly defining AI risk levels and strictly limiting high-risk AI applications, such as remote biometric systems, which can only be used under limited conditions. As traditional AI governance models struggle to address the risks posed by general-purpose, cross-modal, and emergent generative AI (Gen AI), legislators are increasingly focused on mitigating the potential harms of AI integration into society. In June 2023, the EU AI Act added transparency obligations for generative AI. The same year, the United States issued the AI Risk Management Framework and an AI Executive Order, the UK released the AI Regulatory Framework, and China issued the Measures for the Administration of Generative AI Services. Countries are also seeking policy feedback on generative AI and actively establishing international cooperation. In April 2024, the United Nations passed the first AI resolution to monitor risks and bridge development gaps, establishing an inclusive governance framework and comprehensive regulatory system through international cooperation. For government departments, AI governance and policy regulations must keep pace with technological development. Enterprises and users must also be aware of the bottlenecks and risks of generative AI applications to ensure their reasonable use.

**(2) AI Militarization Elevating to National Strategic Level**

The AI militarization power was demonstrated in the Russia-Ukraine war in February 2022 and the Israel–Hamas war in October 2023, with lethal autonomous weapons like drone bombings changing the nature of warfare. The North Atlantic Treaty Organization (NATO), the United States, and the UK have posi-






tioned AI as a technology to change global defense and maintain military superiority. NATO's AI strategy formulates AI engagement rules to enhance the alliance's asymmetric military capabilities and prevent AI misuse, investing 1 billion euros in AI, space, and robotics defense technologies. The UK released the Defense AI Strategy and established the Defense AI Research Center, aiming to transform the defense organization into "AI Ready" to gain a defense advantage and strengthen the UK's defense and security AI ecosystem. The US Department of Defense has also proposed a series of AI militarization research, including using computer vision systems to assist in airstrike missions, identifying enemy targets, and collaborating with startup Scale AI to develop a generative AI system for the US military, aiming to reduce mission reception time from two days to within ten minutes. The technological applications in warfare highlight the high-risk hazards of technology misuse, prompting countries to discuss and implement relevant technology policies or strengthen technology regulation, advocating responsible AI use principles and developing certification standards. AI militarization has elevated to the national strategic level, advocating responsible use principles and developing AI weapons and defense applications.

**(3) Establishing National AI Models and Evaluation Mechanisms**

Recognizing the importance and impact of AI on national security, governments are beginning to invest in AI infrastructure, establishing "Sovereign AI" to manage AI independently and safeguard national interests. Under the premise of protecting sovereignty, security, economic competitiveness, and social welfare, they plan and promote AI development strategies. By developing AI technology domestically, using national culture as the foundation, and training large language models with national data and language, they create AI models that align with national values. In addition to building the necessary computing power and service platforms, they also develop testing standards and evaluation tools to create a sound AI development environment.

### 3. Generative AI Driving New Growth and Broad Industry Applications

The global AI industry development focuses on key software such as machine learning, deep learning, or AI modeling, while also beginning to develop core AI components like semiconductor chips, sensor modules, and AI application services in healthcare, biotechnology, manufacturing, retail, robotics, mobility, cybersecurity, and system integration. International platform giants like Google, Microsoft, and Amazon are actively deploying key software in machine learning, image recognition, and natural language, combining their cloud computing platforms to rapidly develop various AI application tools, covering global markets. In recent years, the rise of generative AI has become a new wave of transformative power. IDC predicts that by 2025, 35% of enterprises will use generative AI to co-develop digital products and services, doubling their revenue growth compared to competitors. By 2027, global AI software revenue will reach $307 billion, with a compound annual growth rate of 31.4%, and generative AI platforms and applications will account for $55.7 billion.

**(1) Generative AI Investment Boom Growing Against the Trend**

According to the 2024 CB Insights venture capital market research report, in 2023, global AI startups raised $42.5 billion through 2,500 equity rounds, a 10% decline from 2022. However, generative AI startups accounted for 48% of the total financing amount, significantly higher than the 8% in 2022, indicating a growing investment boom in generative AI, expected to continue in 2024. The US AI venture capital market also benefited from the development of generative AI, sawing AI funding jump 14% YoY in 2023. Large language model companies like OpenAI, Anthropic, and Inflection achieved massive funding. Additionally, the average time for generative AI unicorns to reach a $1 billion valuation was only 3.4 years, 50% shorter than the average time for all other unicorns. Meanwhile, the number of AI startup exits through mergers and acquisitions rose to 317 in 2023, a record high, indicating a wave of consolidation as existing companies seek to quickly integrate AI capabilities. The generative AI startup market continues to thrive.

**(2) "AI Everywhere" Emerging Applications Flourishing**

The Consumer Electronics Show (CES) 2024, hold in January in Las Vegas, USA, was themed "AI Everywhere," showcasing various AI ecosystems and application scenarios. The AI computer industry is set to take off, with generative AI driving personal computing device innovations, human-machine interaction experiences in electric vehicles, diverse sensing for physical and mental health, and sustainable consumer behavior development. The Mobile World Congress (MWC) 2024, held in February in Barcelona, Spain, many communication service providers focused on AI, investing in hybrid operations from cloud to end for new AI experience models. As generative AI technology applications develop, they will support more application modernization IT services, with AI-driven transformations continuing to expand, leading to flourishing cross-industry applications.

Benefiting from pre-trained models and open-source resources provided by major international tech giants, enterprises and startups are developing more diverse application services. Vertical domain applications and cross-industry solutions are flourishing, whether in automated code writing, creative tools, and search solutions across industries, or in vertical domain applications focused on gaming, healthcare, education, and manufacturing. A few AI startups are investing in emerging niche applications, such as text-to-game generation, lip-sync dubbing for the film industry, or mold generation for manufacturing.

### 4. The Double-Edged Sword of AI: Job Changes, Environmental Impact, and Security Risks

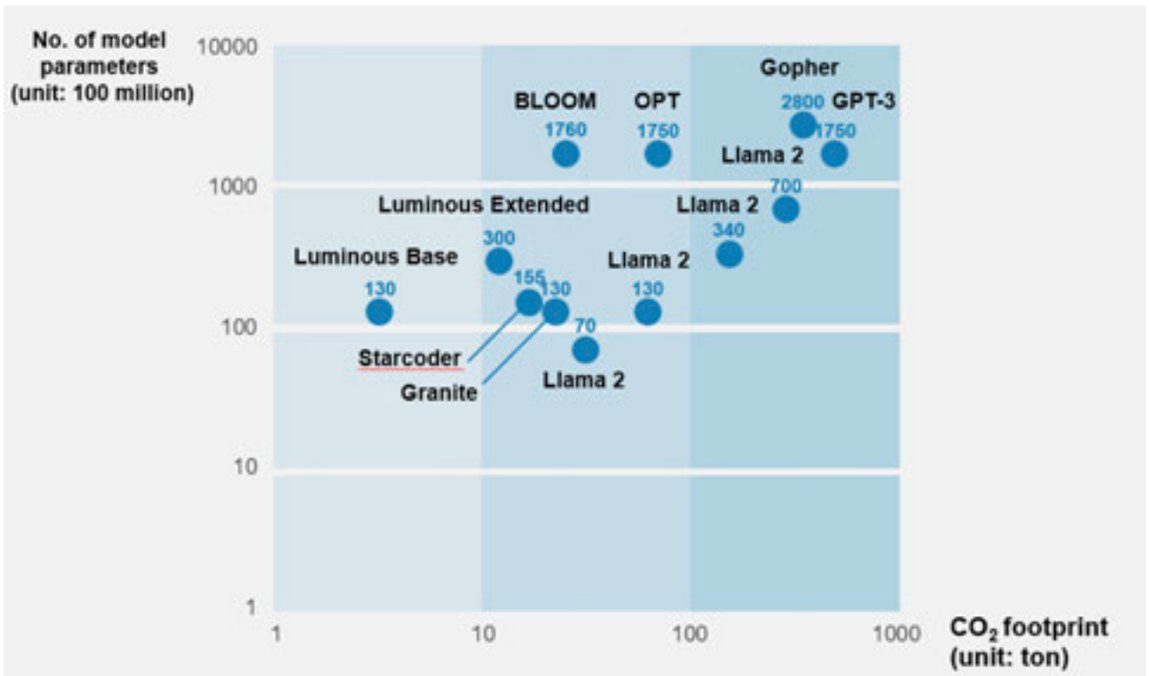
The rapid development of AI, with its powerful capabilities, also raises various social and ethical issues, including data bias, privacy protection and security, system transparency, and explainability. This prompts governments and industries to consider the human ethical and moral values of AI technology when developing or evaluating AI and to find AI's role in environmental sustainability, leading global development towards human-centric AI. In recent years, generative AI applications like ChatGPT can be used as learning and productivity tools to enhance individual capabilities, also sparking discussions on talent cultivation and job replacement.

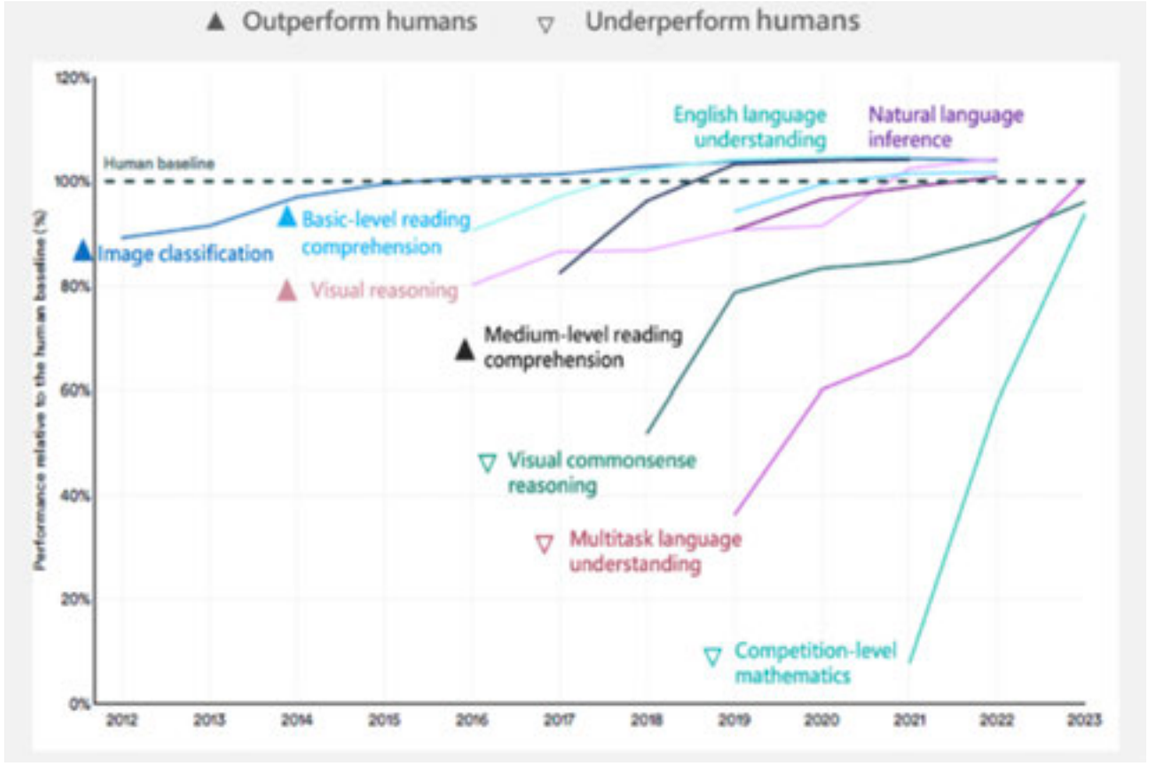
**(1) Generative AI Enhancing Productivity May Lead to Reduced Demand for Workers**

With the significant enhancement of generative AI's ability to drive diverse application services, generative AI will broadly impact the work content of various professions, raising concerns about whether new technology will replace jobs. In 2023, MIT researchers published a paper quantifying ChatGPT's impact on content generation work, targeting marketers, writers, consultants, data analysts, human resources, and general managers. Experiments on tasks such as writing press releases, short reports, analysis plans, and emails showed a 37% reduction in working hours and a 19.8% improvement in work quality. Another experiment by Harvard Business School showed that consultants using generative AI completed 12% more tasks on average, with a 25% increase in completion speed and a 40% improvement in outcome quality compared to those not using it. For relatively simple and independent tasks, using ChatGPT can significantly narrow the skill gap between junior and mid-level workers. However, the productivity gains mainly come from directly "replacing" parts of the work content rather than "complementing" human efforts, potentially leading to reduced demand for workers. Additionally, using ChatGPT for text content generation significantly saves time on idea generation and drafting, shifting the focus to editing AI-generated text. For enterprises, training employees to effectively use AI tools can significantly enhance productivity.

**(2) AI Systems' Carbon Footprint and Energy Consumption Need Disclosure**

As AI models continue to scale and gain wider application, monitoring and mitigating the environmental impact of AI systems has become an unavoidable environmental issue and a crucial cost consideration for governments and enterprises when evaluating AI training and deployment. The 2024 AI Index Report by Stanford University's HAI Institute points out that model size, data center energy efficiency, and grid impact affect the carbon emissions of model training. Larger models have higher carbon emissions, but smaller models powered by less efficient grids can still have high carbon emissions. On the other hand, the carbon emissions of model inference are much lower than training, but when models are queried thousands of times daily, the total impact can exceed that of training. However, a major challenge in assessing AI models' environmental impact is the lack of transparency, as most model developers do not provide carbon emission reports, hindering thorough and accurate evaluations of sustainability issues.




**(3) Security Concerns and Attack Threats of AI Systems**

AI systems face security risk challenges such as data poisoning, malicious tampering, model theft, and adversarial attacks. Enterprises must prevent sensitive data leaks or critical AI systems from being compromised. Ensuring the security of the entire machine learning lifecycle, from data to models, is an essential issue for enterprises. The rapid integration of generative AI applications into daily life, while impressive in their generative capabilities, also brings a slew of negative news, from generating incorrect content that is hard to distinguish from the truth, potentially generating discriminatory speech, infringing intellectual property rights, to data leakage concerns. Governments, enterprises, and users must carefully evaluate the risks of new technologies.

**5. Continuous Rapid Improvement in AI Model Performance**

AI technology is advancing rapidly, with model performance surpassing human capabilities in some tasks by 2023, including image classification, visual reasoning, and English comprehension. However, in complex tasks like competition-level mathematics, visual common sense reasoning, and planning, AI still lags behind humans. Generative AI accelerates the accumulation of large and diverse data and the simultaneous advancement of AI algorithms. The development of multimodal AI model technology expands model capabilities, and new development tools help developers evaluate, improve, and monitor AI model performance in production. The progress in AI performance requires the development of stricter benchmarks.

**(1) Multimodal AI Expanding Model Capabilities, New Development Tools Lowering Barriers**

The development potential of large language models is highly valued by major international

companies and organizations, which are investing in and developing new models and related generative AI applications. For example, Meta released the LLaMA series of large language models, Google released the Gemini series, and OpenAI launched GPT-4, DALL-E2, CodeX, and Sora, which generate text, images, code, or videos. Major international companies are rapidly updating model versions to showcase more powerful features, forming a new round of technological development competition. The generative capabilities of AI are also rapidly growing, with multimodal models like Google Gemini and OpenAI GPT-4 demonstrating flexibility in handling images, text, and even audio, showcasing more possibilities for AI generation.

At the same time, new development tools and frameworks are rapidly evolving, lowering the barriers for developers. LLMOps development tools and new application frameworks help developers evaluate, improve, and monitor AI model performance in production. Model fine-tuning is also becoming easier, with transfer learning techniques like Reinforcement Learning from Human Feedback (RLHF) and fine-tuning allowing developers to adjust foundational models for specific domains and improve them based on user feedback to achieve high-quality performance. To address the risk of AI hallucinations, AI companies are developing Retrieval-Augmented Generation (RAG) technology, combining generative AI with relevant business or user background information to reduce hallucinations and enhance the authenticity and practicality of conversations.

**(2) AI Performance Improvement Requires Harder Benchmarks**

In preparing for the launch of large language models, AI companies should test these models against popular benchmarks in the field to inform the AI community about the model's technical performance. However, in recent years, AI models have reached performance saturation on established benchmarks like ImageNet, SQuAD, and SuperGLUE, prompting researchers to develop more challenging tests for AI. New benchmarks in 2023 include SWE-bench for coding, HEIM for image generation, MMMU for general reasoning, MoCa for moral reasoning, AgentBench for agent-based behavior, and HaluEval for hallucinations.

Moreover, evaluating models now considers not only their functionality but also their performance related to responsibility, reflecting the growing importance of AI and the need for AI accountability. For example, TruthfulQA assesses the truthfulness of model answers, RealToxicityPrompts and ToxiGen track the extent of toxic outputs generated by models, and BOLD and BBQ evaluate model biases. However, there is currently a significant lack of standardization in responsible AI reporting. Leading AI model developers like OpenAI, Google, and Anthropic test models against different benchmarks, making it difficult to compare models. Efforts are needed to reach a consensus on standardized benchmark testing to improve the transparency of AI model capabilities and foster a healthy AI development environment, enhancing public trust.

**IEKView**

AI technology is advancing rapidly, with model performance surpassing human capabilities in some tasks by 2023, including image classification, visual reasoning, and English comprehension. Its powerful capabilities also raise various social and ethical issues, including data bias, privacy protection and security, system transparency, and explainability. This prompts governments and industries to consider the human ethical and moral values of AI technology when developing or evaluating AI and to find AI's role in environmental sustainability, leading global development towards human-centric AI.

In recent years, Taiwan's AI development has been diverse, with many industries emerging to provide new application services, and key software companies solving cross-industry general problems are also flourishing. Facing the current situation where international giants dominate various system platforms and developer ecosystems, Taiwan's platform companies are not as large as global giants. However, Taiwan has manufacturing advantages in ICT hardware, with AI semiconductor chip and sensor module companies developing specific application AI algorithms to enhance product advantages, leading to rapid market growth and a flourishing landscape.

On the other hand, recognizing the importance and impact of AI on national security, the government is also beginning to invest in AI infrastructure, building the necessary computing power and service platforms, and developing testing standards and evaluation tools to create a sound AI development environment. In the future, more attention will be paid to the quality of AI output, focusing on linking with international standards, and accelerating the use of policies, regulations, and business models to address issues such as data analysis and data bias, privacy protection and security, system transparency, and explainability, ensuring that AI is endowed with ethical, safe, fair, inclusive, trustworthy, and robust characteristics. This will leverage AI to stimulate industrial innovation and transformation while managing the risks associated with AI use.



**IEK CONSULTING**

**https://ieknet-eng.iek.org.tw/**
**Direct Line: (886) 3-5912340**
**Fax Line: (886) 3-5820302**
**Email: iekconsult@itri.org.tw**


# Tech Pioneer Bruce Bateman on Blending Cultures, AI, and Taiwan's Energy Challenges

**Bruce Bateman, Senior Technical Advisor at Cold Electric, brings over 45 years of experience across various sectors and regions, from the dawn of IBM mainframes to today's AI innovations. A serial entrepreneur, Bateman has been involved in over 25 startups, both successful and unsuccessful, and has mentored more than 100 startups across Taiwan, Malaysia, and Thailand. His current focus is advising Cold Electric, a battery company, driven by his deep concern about the future of energy.**

Bruce Bateman
https://www.linkedin.com/in/brucewbateman

"I'm MIT—Made in Taiwan," Bateman jokes. Having grown up in Taiwan, he attended international schools and learned Chinese at home, as his missionary parents arrived in Taiwan in 1952, shortly after Chiang Kai-shek's retreat to the island. Over the past 65 years, Bateman has witnessed Taiwan's transformation from an agricultural society to a global tech powerhouse.

Despite the evolving nature of technology, Bateman believes that the core principle of building a successful company remains unchanged: fostering a sense of family and community within startups. He's observed that companies with a family-like environment tend to have better chances of long-term success.

Cultural Challenges in Taiwan's Startup Scene
Bateman emphasizes the stark cultural differences between Silicon Valley, where failure is seen as a stepping stone, and Taiwan, where failure carries stigma. In the West, venture capitalists often ask, "What did you learn from your failures?" In Taiwan, failure is often seen as disgraceful, making it harder for startups to experiment and take risks. Bateman argues that this mindset must change if Taiwan hopes to sustain its innovation trajectory.

The challenge of blending innovative and task-oriented cultures is particularly significant in Taiwan's international work environment in startups. Bateman notes that aggressive, opportunity-seeking foreign talent often clashes with Taiwan's more conservative work culture, leading to frustration. Bateman finds European firms prioritize cultural integration, and are more experienced in dealing with the issue.

In Taiwan's rapidly evolving tech landscape, especially with the shift from electrical engineering to AI, matching expertise with the right roles

**"The AI industry requires diverse skills, from data analysts to product specialists and algorithm experts"**

is vital. The AI industry requires diverse skills, from data analysts to product specialists and algorithm experts, and thus the ability of attracting international talents to work alongside with local ones are important. With the right support, Bateman believes Taiwan's talent pool can adapt and thrive in cutting-edge fields, as demonstrated by companies like Google, Facebook, Apple, and Nvidia, which have all invested heavily in local talent.

A prime example of cultural integration success, Bateman explains, is Google's acquisition of HTC mobile development team which was in charge of Pixel hardware. Google-trained executives familiar with both cultures were able to revitalize the company, launching Pixel smartphones. This blend of doers and thinkers, he argues, is crucial for any startup or company aiming to succeed in competitive markets.



**From Liteon to Cold Electric: Solving Taiwan's Energy Problem**

After retiring from Liteon Corp, where he spent seven years advising on the future of technology, Bateman found Taiwan's focus on monthly rather than quarterly profit-and-loss statements stifling to innovation. Recognizing energy as the world's next major challenge, Bateman left Liteon to dive into the energy sector, founded a startup called "Zero Carbon Future" in June 2023, and joined Cold Electric in August 2024 as Chief Technical Advisor.

Bateman's initial exploration of hydrogen energy revealed that Taiwan lacked the necessary clean energy resources for hydrogen production. Shifting his focus, he began exploring ammonia as a potential energy source.

Taiwan is currently grappling with a significant energy challenge, as the decommissioning of nuclear plants has left a gap that solar and wind power, which provide only 10% of the island's energy needs, cannot fill. The island still heavily relies on coal and imported liquefied natural gas (LNG), which creates dependence on foreign energy sources. With the power grid operating at 103% capacity, Taiwan is vulnerable to disruptions that could cause widespread blackouts and threaten essential services and digital infrastructure.

As a short-term solution, Bateman advocates for distributed energy storage, particularly batteries. These systems could store excess energy generated during off-peak hours and release it during peak times, helping balance Taiwan's strained grid. In the long term, he sees potential in ammonia-burning fuel cells as a more scalable, sustainable energy source for the island—though the technology is still in its early stages.

**Global Competition and Taiwan's Green Energy Challenge**

On the global stage, Bateman warns that Taiwan's slow transition to green energy could impact its competitiveness, particularly in manufacturing. With regions like the European Union pushing for carbon neutrality by 2030, Taiwanese companies may find themselves struggling to meet international environmental standards, risking the loss of business to greener competitors.

Taiwan's tech and manufacturing sectors must confront this challenge if they want to remain competitive in an increasingly eco-conscious global market. For Bateman, the road ahead involves both technological innovation and a cultural shift in how Taiwan approaches energy and entrepreneurship.

# Betting Big on Taiwan as Global Medical Innovation Hub and Gateway to Asia

**Arthur Chen, a serial entrepreneur and the founding partner and managing director of BE Health Ventures, is deeply committed to medical innovation investments. A TTA Black Card member, Chen shared insights into how Taiwan can play a role as a gateway for medical innovation startups into Asia in a recent interview with TTA Magazine.**

Arthur Chen
https://www.linkedin.com/in/arthur-yen-yu-chen-29155394/

Raised in Taiwan, Arthur pursued material science and electrical and electronic engineering at National Yangming Chiaotung University and National Taiwan University, respectively, before starting his career at Texas Instruments. His journey took a significant turn after he read an article about impoverished communities in Africa, which sparked his desire to make a difference. In response, he founded Kenyataa Light World, a social enterprise that provides solar-power lighting solutions across Africa, where he spent five years as CEO.

His second venture was AlumVest, an online equity-based platform connecting entrepreneurs with alumni and peer investors. AlumVest aimed to create a trusted, smart investment network, especially for angel investors seeking new ventures through established connections. This venture was later acquired in 2017.

Arthur's decision to establish a venture capital firm specializing in medical innovations was driven by three key factors: first, his experience at Texas Instruments taught him that companies need to lead their industries to succeed; second, his background in social entrepreneurship fueled his interest in impact investing; and third, he believes that strong returns enable sustainable investments. Medical innovation in Taiwan aligns perfectly with these principles, as Taiwan ranks among the top globally in medical systems and information technology, and medical advancements profoundly improve health and well-being. There are also sufficient supplies of talent in medical engineering, ICT, and business in Taiwan.

### Making significant progress

The training in medical innovation at Stanford Biodesign, where Arthur learned Stanford's systematic methodology in medical device design

> "Taiwan's advantages in medical technology stem from its data resources and supply chain."


thinking, is helpful not only in identifying startups with strong potential but also in facilitating international networks. This methodology has trained global talent who bring it back to their countries, influencing medical innovation in places like NTU Hospital, Cheng Kung University Hospital, Kaohsiung Medical University, and TMU. Due to the growing interest in this approach, Tohoku University, one of Japan's top medical schools, invited Arthur as specially appointed visiting professor to regularly share insights with its startups. Arthur hopes that his Japanese network will facilitate market entry for startups into Japan.

Asia presents an enormous opportunity for medical startups due to its talent and capabilities. However, entry into major markets like China and Japan can be challenging. BE Health Ventures-encourages startups to launch in Taiwan, which has positioned itself as a unique ecosystem within Asia. While the U.S. has models like Mayo Clinic's investment in medical ventures, Taiwan stands out in Asia for pioneering a similar approach, with strong backing from institutions such as TMU, KMU, and Show Chwan Hospital.

To date, BE Health Ventures  has supported over 150 startups, with 40% being Taiwanese medical device companies. Successful cases including Aesop Technology, which harness cutting-edge AI to pioneer a unique Clinical Diagnostic Reasoning Network model.The product has also launched in the United States, further collaborating with Harvard and Mayo.. The other one is Health2Sync, a platform now helps millions of diabetic patients across Asia monitor their blood sugar and blood pressure levels.

Point Robotics, another company invested by BE Health, advances minimally invasive care through advanced robotics systems, end-to-end learning, and value-added services with innovations such as 6-axis robotic arms for spine surgery.

### Attracting startups from 30 countries

The applicants of latest cohort include startups from 30 countries, including France, Italy, Lithuania, the U.S., Canada, Japan, Korea, and Singapore. Chen's selection criteria center on potential and alignment with Taiwan's strengths, focusing on three core areas:

AI: Taiwan's National Health Insurance (NHI) database is the world's largest single-payer dataset, covering 23 million people with records spanning 30 years. This unified data, unique compared to fragmented data systems like those in the U.S., attracts international teams that rely on large datasets for AI development. Each year, BE Health partners with TMU to bring in numerous AI-focused teams.

Surgical Instruments: Show Chwan Hospital hosts Asia's largest minimally invasive surgery training center, attracting 2,000-3,000 doctors annually, 70% from abroad. BE Health's strategy leverages this influx, providing doctors with training on medical devices that they will likely use in the future, driving sales. Chen also sees potential for Taiwan's information and communication technology (ICT) industry to transition into medical device manufacturing.

Aging and Telemedicine: Partnering with Kaohsiung Medical University, BE Health addresses the need for community care, especially in southern and rural Taiwan where medical resources are limited.

Taiwan's advantages in medical technology stem from its data resources and supply chain. This ecosystem, along with the high concentration of multidisciplinary talent in a small geographical area, has attracted startups from around the globe. Chen sees Taiwan as a "Gateway to Asia," where startups can complete product validation before expanding to other Asian markets.

Despite these advantages, Taiwan faces regulatory challenges, including the need to expedite TFDA (Taiwan Food and Drug Administration) approvals. Medical devices require regulatory compliance across countries, each with unique standards, such as Japan's Pharmaceuticals and Medical Devices Agency (PMDA). BE Health is working to link these regulatory frameworks, fostering cross-border partnerships.

Building connections with global medical device leaders such as Medtronic, Boston Scientific, and Stryker should also be a priority, as over 90% of medical device startups are eventually acquired. Pharmaceutical companies are increasingly interested in digital healthcare, underscoring the need for strategic partnerships—a goal TTA and BE Health are actively pursuing.

Finally, the issue of insurance reimbursement is critical, involving collaboration with Taiwan's Ministry of Health and Welfare. Interagency efforts are essential to explore NHI coverage for domestically produced innovative medical devices, paving the way for Taiwan to remain a leader in medical innovation.

# STARTUP STORY

Founded in June of 2018, TTA has to-date supported over 1,300 startups through our accelerator partners and exhibitions. Our alumni startups have raised over US $1 billion in funding and won numerous local and international awards.

# AEGIVERSE

## Aegiverse's fiber optic gyroscopes for use in airplanes, drones and underwater vehicles catch global attention

People today cannot live without their digital devices, especially, not without their GPS devices to help them navigate. However, GPS navigation has its limitations. For example, it does not work in tunnels or other areas with poor signal reception. To circumvent GPS navigation limitations, military weapon systems, aircrafts and large commercial drones are generally equipped with fiber optic gyroscopes (FOG) that are unaffected by environmental interferences. Combining inertial navigation and GPS navigation ensures that the aircraft stays on course and lands safely even without GPS signals.

According to Aegiverse CEO Dr. Hung-Pin Chung, GPS navigation that many people are familiar with relies on satellites. When signal reception from satellites is blocked by buildings, it affects GPS precision or even causes GPS failure. A FOG calculates the rotation speed by measuring the phase difference caused by the rotation when light waves travel in a coil of optical fiber. Boasting superior precision and durability to traditional mechanical gyroscopes, FOGs, commercialized in the 1980s, have become important equipment used in military devices, aircrafts, ships and space probes for inertial navigation.

However, conventional FOGs are bulky and costly. In view of this, many manufacturers are making efforts to develop next-generation FOGs that are smaller and cheaper. Aegiverse is among the few companies that have successfully achieved the goal. Its FOGs have entered commercialization and are being used in drones, underwater vehicles and satellites.

### Multi-layered design realizes both footprint and cost reduction

Founded in 2022, Aegiverse is a startup incubated by National Central University. Its in-house developed FOGs have been awarded multiple patents both at home and abroad. The Aegiverse team is completely capable of developing a product from concept to market. Aegiverse supplies FOGs and FOG inertial measurement units for use in mobility vehicles as an inertial attitude sensing solution.

Conventional FOGs are generally based on a discrete design integrating all functions. Such a design offers a complete range of functions but it also makes the product bulky and costly. In contrast, leveraging its experience and R&D strength, Aegiverse combined some function modules into a single chip and introduced a multi-layered FOG architecture. The approach allows Aegiverse to design circuit modules purpose-built for industrial, military, aerospace and other applications. Not only does it effectively reduce the cost to replace an internal element but it also significantly slims down the product.

As opposed to the round shape of conventional FOGs, Aegiverse's FOGs have a cubic shape and cost 50% to 70% less, making them extremely competitive on the market. Comprehensive customization services are also available.

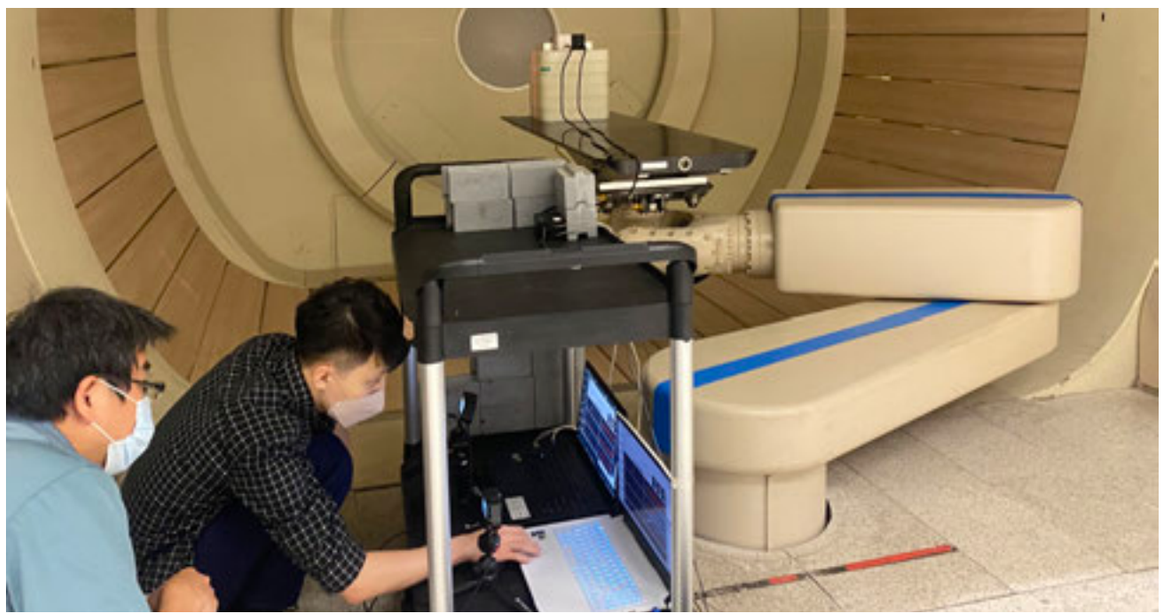
### Foraying into the U.S. and India, Aegiverse looks for multi-sector partnership opportunities

The first-generation FOG that Aegiverse brought to existence was as big as a tabletop. With mechanical engineering specialists joining the team, Aegiverse was able to scale down the product to its marketable size today, allowing Aegiverse to secure more partnership deals. So far the company has more than 20 patents or patent applications and is working with partners to deploy its products in drones, submarines and satellites.

Dr. Chung co-founded Polaris Photonics with several industry veterans in 2016. In reminiscence of the experience, he said Taiwan's startup environment was more conservative at that time. Startups generally did not pursue angel investment, which was a big challenge to them. Taiwan's startup scene has significantly improved now with support from National Development Fund and a large increase in the ratio of venture capital firms joining A round financing. Aegiverse's application for the Ministry of Economic Affairs' Proof of Business (POB) program and participation at multiple Taiwan Tech Arena (TTA) events proved to be beneficial to the company's development.

Going forward, Aegiverse will actively expand into U.S. and India while staying committed to next-generation product R&D. It plans to introduce an FOG that is the size of a business card and expects to grab market shares with the product.

Support@aegiverse.com
Aegiverse.com




# eNEURAL

## eNeural introduces AI-Craft, a slimmed-down high-performance solution for edge AI

Continuing advances in AI technologies are driving a rapid expansion of AI applications into areas such as smart factory and smart city. Coupled with widespread popularity of 4G and 5G communication, GPU performance boosts and increasing data processing speeds, these developments are spurring burgeoning edge AI market growth. According to GII, the global edge AI hardware market was already valued at US$2.62 billion and is projected to grow at a CAGR of 19.85% over the next five years to US$7.52 billion.

According to eNeural Chairman Jiun-In Guo, although edge AI applications are rapidly expanding, device developers and system solution providers face the challenge of high costs. Without small-scale and high-precision AI models, edge devices need to have GPUs with sufficient computing power. However, not only do GPUs come with high price tags in the range of hundreds of U.S. dollars but they also have high power consumption and thermal management challenges, making the miniaturization of edge devices very difficult. This leads to increased development costs and more importantly, it curbs the growth of edge AI applications. As such, having small-scale and high-precision AI models is critical to developers that strive to keep edge AI device cost and footprint under control.

The market already has a slew of neural-network processing units (NPU) supporting AI tasks, for example, Sunplus C3V, iCatch V37/V57, Ambarella CV2, Realtek AMB82 MINI (RTL8735B), NXP IMX8M+ and Kneron KL series. In view of the market trend, eNeural is dedicated to building small and precise AI models to support customer needs. Its solutions have been adopted by multiple strategic partners.

### eNeural builds AI models specifically for NPU platforms, offering unique customization services

Founded in March, 2022, eNeural was a spin-off from Intelligent Vision System Lab, National Yang Ming Chiao Tung University (NYCU). The team has more than a decade of experience in AI vision. Its independently developed AI modeling tool, AI-Craft, accelerates the time-to-market of AI models, bringing AI application products to market six times faster while the boosting the precision level. Incorporating fast labeling and model compression techniques, AI-Craft enables partners to develop edge AI devices featuring lightweight, small footprint, low power consumption, high performance and high precision.

Guo emphasized that AI models running on NPU platforms on the market are generally developed through open-source projects. They are available in standard versions or manually scaled-down solutions with limited optimization for NPUs. AI-Craft, on the other hand, enables customizable optimizations for various NPUs. Not only can AI-Craft maintain a certain level of recognition precision, but it also makes the AI model up to 90% smaller (depending on the application and requirement). Furthermore, in the case that the precision drops after the AI model is slimmed down, AI-Craft can be used for re-training to raise the precision. This allows eNeural partners to offer a variety of hardware devices suited to different market needs based on only one AI model without the hassle of AI model training and subsequent optimization and scale-down efforts.

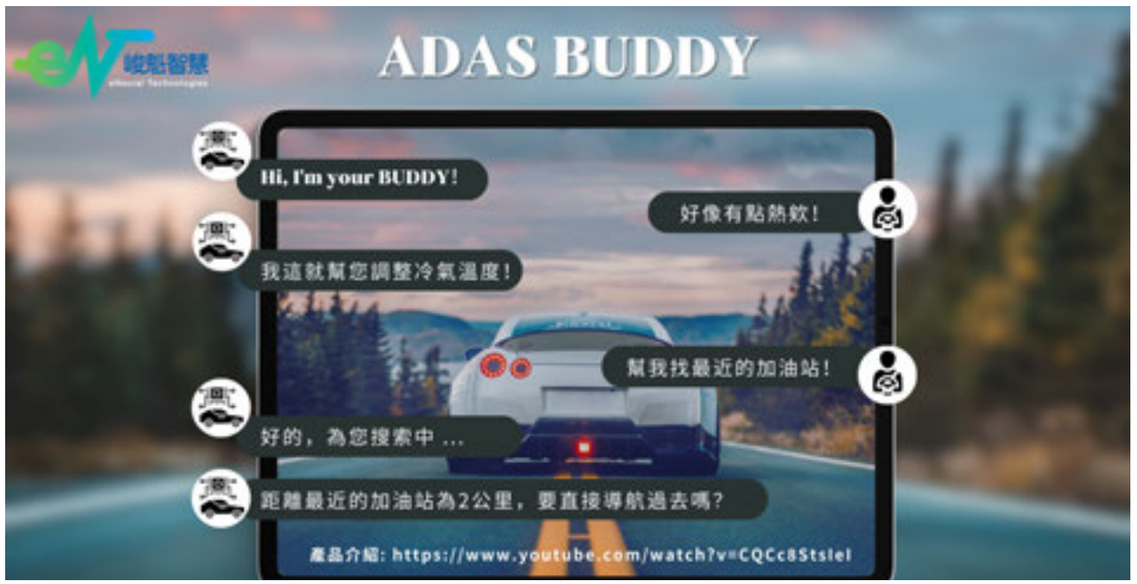
### eNeural participation at CES caught market attention, successfully expanding AI model applications

In collaboration with strategic partners, eNeural's AI-Craft is being used in advanced driver assistance systems (ADAS), mobile robotics, and AIoT. A leading Taiwan-based manufacturer integrated sensors and cameras on top of AI-Craft, which is the smart core, and introduced QBOX, a vision-based commercial vehicle assistance solution that combines a lane departure warning system (LDWS), forward collision warning system (FCWS), blind spot detection system and blind spot information system (BSD & BSIS) and driver monitoring system (DMS). Apart from this, eNeural is also in talks with potential partners in the healthcare and AIoT sectors while planning to further expand the application scope of AI-Craft.

Guo pointed out that the establishment of eNeural was a result of a program initiated by former Minister of Science and Technology Liang-gee Chen to create four AI innovation and research centers. Under the guidance of Center of Industry Accelerator and Patent Strategy (IAPS), NYCU and Taiwan Tech Arena (TTA), eNeural participated at CES 2019 and CES 2023, which boosted the startup's visibility. Taiwan's startup ecosystem has made great strides. With the wealth of opportunities and resources made available by incubators, startups today grow at a faster pace.

Aside from AI-Craft, eNeural has obtained NPU certifications. Going forward, it is able to provide hardware software integrated AI solutions suited to customer needs, helping them capture tremendous edge AI market opportunities.

service@eneural.ai
https://www.eneural.ai/



# MECO TECHNOLOGY

## Meco Technology targets the self-pay healthcare market with three innovative solutions

Taiwan's national health insurance system is well known in the world for its unparallelled quality and services. It allows equal access to healthcare for all citizens. Even the economically disadvantaged enjoy comprehensive coverage and need not worry about unaffordable medical bills. However, national health insurance budget constraints limit the scope of medical services that can be made available to patients. For example, if a patient is diagnosed as requiring rehabilitation or physical therapy, the national health insurance system covers up to six follow-up therapy sessions with only a NT$50 self-payment for each session. Due to limited resources, each therapy session may be short and ineffective in relieving the patient's affliction amid the lack of a tailored one-on-one care plan. Patients therefore end up seeking self-pay treatment solutions.

According to Meco Technology Chairman Joseph Chang, muscle or joint pain can mostly be treated with a series of well-planned rehabilitation or physical therapies and without the need for surgeries. However, this is hardly achieved with the current national insurance coverage. In fact, many physical therapy clinics now offer self-pay services but most of them do not provide comprehensive care plans that include physicians, physical therapists, and athletic trainers to alleviate patients' pain. Meco Technology was founded with an aim to provide patients needing self-pay physical therapies a comprehensive treatment plan that makes their musculoskeletal pain go away.

### A team of diverse talent targets the self-pay healthcare market

Established in 2019, Meco Technology is dedicated to providing services including medical consultation, business operation, integrated marketing and digital healthcare solution development. Combining the capabilities to operate a business and develop technologies, Meco Technology aims to introduce innovative breakthroughs to the medical sector. The Meco Technology team comprises over 130 physical therapists, 15 medical specialists and over 50 exercise coaches, allowing it to provide all-in-one physical therapy treatments and optimized healthcare services to self-paying patients.


Chang noted that there are three pillars to Meco Technology's business operation - AI Care, which provides self-pay physical therapy treatments; healthcare information systems (HIS) and customer relationship management (CRM) systems designed for franchise self-pay clinics; Youdon, which is a smart physical therapy platform offering a home exercise treatment app and prescription system. AI Care operates pain treatment clinics and physical therapy clinics with a comprehensive and innovative muscle and joint pain treatment model. Already running 11 physical therapy clinics and two pain treatment clinics as of 2023, it plans to increase its number of physical therapy clinics to 26 and pain treatment clinics to four by year-end 2024.

More and more healthcare institutions are exerting efforts toward self-paying patients. In view of this, Meco Technology offers HIS solutions to such institutions. Its HIS solutions can connect with CRM tools and official Line accounts to help healthcare institutions manage customer data, find target audience using filters and achieve digital transformation goals.

The biggest problem hindering the effectiveness of physical therapies is that patients do not follow doctor's orders and do at-home rehab exercises. The Youdon smart physical therapy platform can work with the AI Care system and provide more than 1,500+ videos for users to continue doing rehab exercises at home, enabling extended rehabilitation effects.

### Meco Technology makes all-out efforts to add branch offices in Taiwan while expanding its app services to markets abroad

Meco Technology may be a young startup, but each of its founders has more than 20 years of experience in healthcare. Not only are they keen on market trends, but they are also well aware of hospitals' pain points and patients' needs. In the early-stage development, the company chose to work with BE Accelerator, which helped boost its revenue performance, accelerate the expansion of branch offices and secure funding from two venture capital firms, allowing it to maintain steady and healthy growth.

Chang commented that in 2024, apart from establishing a base in Startup Terrace Kaohsiung, Meco Technology was also awarded a project by the Industrial Development Administration, Ministry of Economic Affairs, which will benefit the company's long-term development. Moreover, thanks to the assistance from Taiwan Tech Arena (TTA) and BE Accelerator, Meco Technology will have several branch offices in operation in central and southern Taiwan this year and enter into partnerships with multiple medical universities. It is hoped that by exerting efforts through a diversity of channels, Meco Technology will secure a share of the enormous self-pay healthcare market in Taiwan. On top of that, it also plans to introduce Youdon to Indonesia, Singapore and other overseas markets so as to build a solid foundation for the company's long-term development.

service@mecotech.com.tw
https://www.youdon.com.tw

# PHOTONISOL

## Startup Set to Disrupt the Silicon Photonics Market with Breakthrough Optical Isolator Chip

Spun off from a laboratory at Inha University in South Korea, PhotoniSol, a dynamic startup, is leading the charge in silicon photonic integrated devices. The company focuses on commercializing a groundbreaking optical isolator chip that promises to reshape the silicon photonics landscape.

Silicon photonics, a technology designed to overcome the bandwidth limitations of traditional electrical I/O systems, has become vital for the development of high-speed optical interconnects, which are essential for AI computing and next-generation high-performance computing systems. PhotoniSol's innovative optical isolator chip addresses a long-standing technical challenge, potentially revolutionizing the field.

A Rising Market Star Born from Academic Research

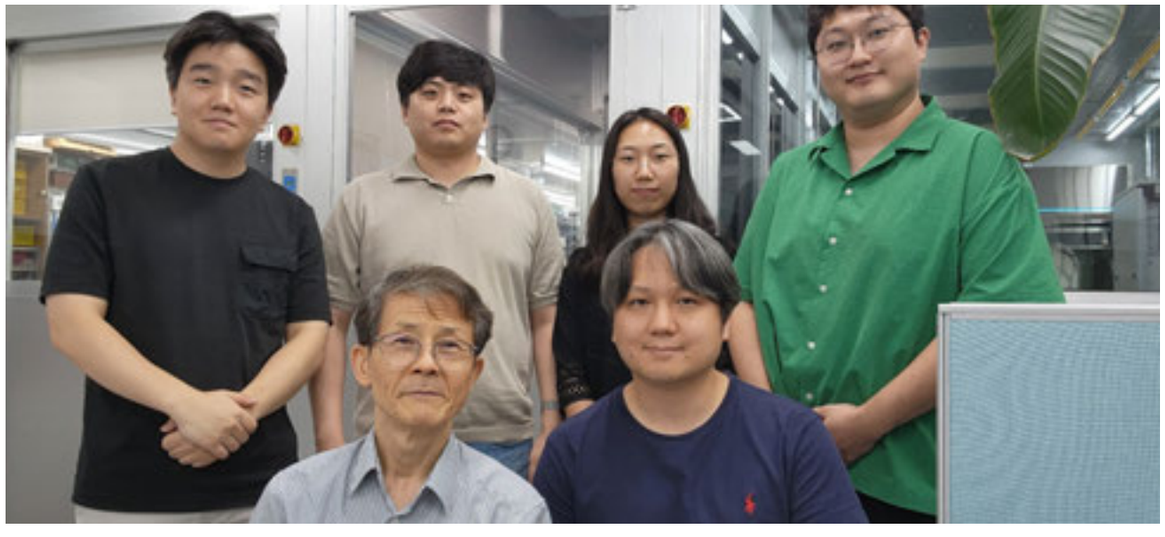
PhotoniSol was founded in July 2020 by Kyong Hon Kim, who now is the company's CEO. During his early technical career period, Kim was a researcher at NASA Langley Research Center developing spaceborne lasers for solar-power transformers and LiDAR applications, and then a technical member and director at a research institute, ETRI, Korea developing optical communication devices for 14 years. He also served as one of the key members of a government planning committee for photonic technology R&D projects. About a decade ago, Kim taught and researched silicon photonics at Inha University.

According to Kim, optical isolators are critical components that protect laser sources from destabilizing back-reflections, which are essential for applications like data centers, LiDAR systems, and photonic biosensors. With PhotoniSol, he aims to bring his decade-long research to the market with products that optimize these applications.

### Breaking Barriers to Commercialization

"The development of optical isolator chip technology has been a focus of global research groups for decades," Kim noted. "While many significant technical papers have been published, none of the advancements have led to commercially viable devices."

PhotoniSol's approach is unique: it utilizes conventional CMOS fabrication lines to mass-produce optical isolator chips, enabling the hybrid integration of silicon photonic devices with existing silicon IC technologies. To achieve this, PhotoniSol has partnered with Singapore's Advanced Micro Foundry (AMF), a dedicated silicon photonics foundry, for the trial production of its chips.



The startup plans to release the world's first commercial-grade optical isolator chips within the next year, a move expected to drive market growth for silicon photonic devices and accelerate the development of photonic integrated circuits.

### Aiming to Replace Existing Market Solutions

"We are working to refine the optical insertion loss characteristics of our isolator chips and expect to have market-ready specifications soon," Kim explained. Once finalized, PhotoniSol plans to distribute samples to potential customers for technology licensing or sales.

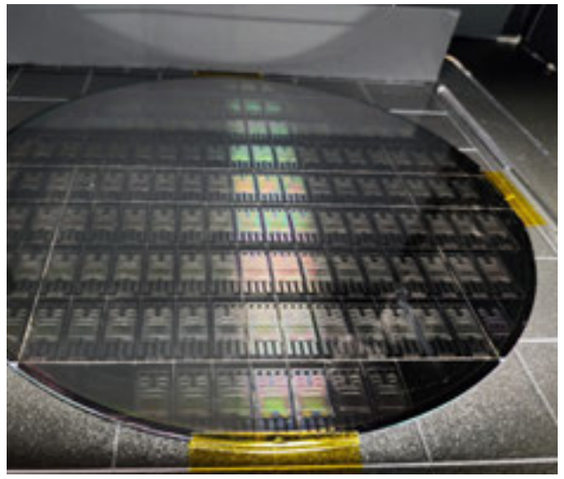
The company's optical isolator chips are designed to replace the bulkier isolators currently used in optical transceiver applications. "Intel and Cisco hold significant market shares in optical transceiver modules for data center equipment," Kim said, "and our goal is to win their support as we bring these chips to market."

The development of PhotoniSol's optical isolator chips comes at a time when hyperscale AI computers, data centers, and high-performance computing systems are pushing the limits of current interconnect technologies. Optical isolators, traditionally bulky, need to be miniaturized to enable further advances in photonic integrated circuits.

PhotoniSol is on track to release the world's first commercial-grade optical isolator chips, using fabrication methods compatible with standard CMOS processes. This compatibility allows for the hybrid integration of photonic and electronic devices, promising scalability in production and cost-efficiency.

### Applications Across Multiple Industries

PhotoniSol's optical isolator chip has numerous applications across several industries. In data centers, these chips are crucial for optical transceivers, replacing bulkier counterparts and improving system

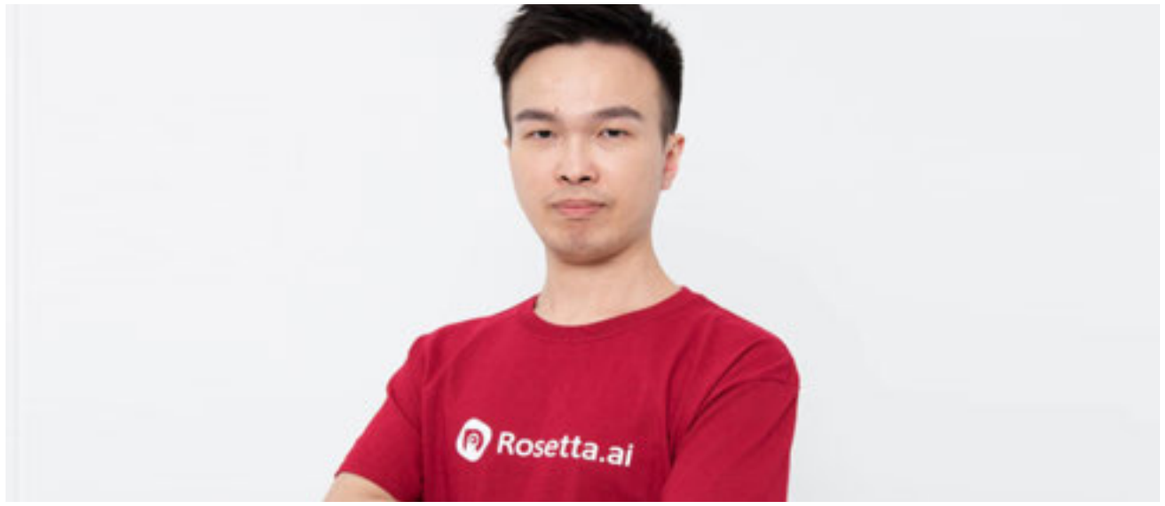


efficiency. Furthermore, its technology could enable advances in LiDAR systems, used in autonomous vehicles and high-speed optical scanners, as well as in biosensing applications that demand highly sensitive and stable laser sources.

By adopting a multidisciplinary approach, that encompasses device physics, semiconductor fabrication technology, material science, and engineering, PhotoniSol has made significant strides in refining its optical isolator chips to meet market standards. The ability to mass-produce optical isolator chips using existing semiconductor manufacturing infrastructure gives the company a competitive advantage in a rapidly expanding market.

With strong support from South Korea's deep tech startup programs, PhotoniSol has successfully transitioned from academic research to commercialization. Kim expressed confidence in entering the global market and is eager to collaborate with Taiwan's industry players who share the same optimism for silicon photonics.

ceo@photonisol.com
https://www.photonisol.com/




# ROSETTA.AI

## Synergizing AI and image analysis, Rosetta.ai creates a traffic diversion and shopping guide system for fashion e-commerce companies

Taiwan's e-commerce platforms have enjoyed leaping revenue growth since the COVID-19 outbreak as consumers increasingly shop online instead of going to brick-and-mortar stores. According to the Ministry of Economic Affairs, online retail sales reached NT$503.5 billion in 2023, of which NT$284.2 billion or 56% was generated by pure-play e-commerce companies. To optimize shopper experience, e-commerce operators have begun to use AI to analyze customers' purchase history so as to make recommendations when they browse the shopping site and thereby increase the likelihood of a transaction.

According to Rosetta.ai CEO Daniel Huang, e-commerce operators connect customers with products using tracking and recommender systems to predict buyer behavior. These systems growingly adopt AI to more accurately capture consumer preferences as AI technologies continue to advance. Rosetta.ai's solution is unique in that it matches the characteristics of both people and products. On top of that, it has the capability to understand images and texts, making it especially suitable for fashion e-commerce platforms. It is being used by multiple e-commerce companies.

### More than 3,000 use cases with no need for a single line of code

Founded in 2016, Rosetta.ai started out with a focus on developing tracking and recommender systems for e-commerce platforms. As it builds up its capability in AI and machine learning, Rosetta.ai has created a unique merchandise tagging database for fashion e-commerce companies that can be used throughout every stage of the shopping journey to realize automated marketing, including precisely redirecting target traffic, enabling diverse personalized interactions and increasing the repurchase rate.

In line with the no code or low code trend, the use of Rosetta.ai's recommender system requires no coding. With only simple drag-and-drop operations, users can have personalized recommendations displayed anywhere on the shopping site, whether it's the home page, a merchandise page, a category page or the shopping cart page. Seven recommendation scenarios are available to significantly increase the hit rate. Since its establishment, Rosetta.ai has helped more than 3,000 e-commerce brands grow their revenue.

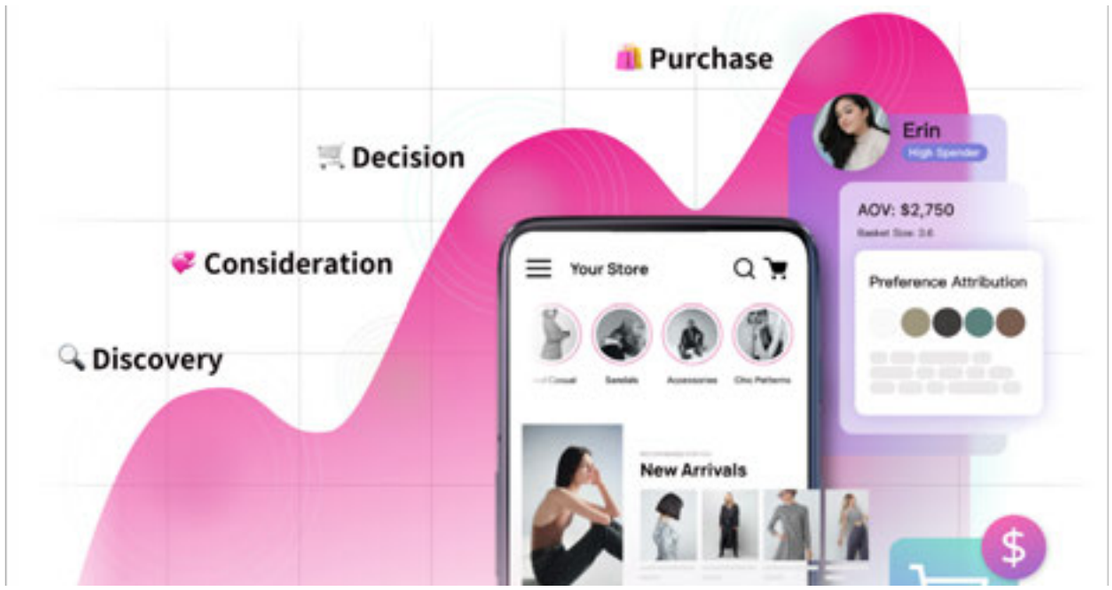
Huang mentioned that fashion e-commerce companies often use a large quantity of images to show how well clothes and accessories go together. Cosmetics retailors do the same to demonstrate how good their products would make consumers look. Traditional recommender systems are generally not capable of performing in-depth analysis and often tend to over recommend similar products. For example, the system will keep recommending black clothing to a shopper who has purchased a black item. Rosetta.ai, on the other hand, recommends items that go with what the shopper has bought based on his or her purchase behavior. For example, it will recommend pants, skirts, handbags or hats that go with the black top the shopper has bought. Its unique deep learning based image analysis has attracted many fashion e-commerce companies.

Using AI-powered precision recommendation algorithms, Rosetta Engage gains insights into every shopping journey touchpoint and offers intelligent recommendations through three interactive experiences. By accurately identifying moments of interaction between shoppers and website products, it is able to precisely recommend items shoppers love and want to buy, thereby raising the conversion rate.

### Expanding into Japan, Rosetta.ai's globalization efforts are generating impressive results

Looking back at his entrepreneurship journey, Huang said that Taiwan's startup environment was not yet mature when he founded Rosetta.ai. There were no accelerators to offer guidance and limited sources of funding. Luckily, Rosetta.ai was subsidized by the Ministry of Economic Affairs' Small Business Innovation Research (SBIR) program. Taiwan Tech Arena (TTA) also helped Rosetta.ai plan marketing strategies and secure funding. Rosetta.ai now has a team working in Japan to strengthen collaborations with local fashion e-commerce companies. It also plans to incorporate a Japan-based subsidiary sometime between late 2024 and early 2025 as part of its all-out efforts to foray into Japan. Huang noted that apart from the recommender system, Rosetta.ai has launched Rosetta Traffic, a whole-new ad model that leverages AI to create a personalized shopping environment and drive high-spending consumers to the shopping site. It also enables product exposure on complementary brands' websites to increase traffic and improve the average order value. Rosetta.ai expects Rosetta Traffic to become its growth engine in the future.

alice@rosetta.ai
Rosetta.ai



# STREAMTECK

## StreamTeck's MmWave Enables Accurate Non-Contact Physiological Monitoring

As the world gradually enters an era of aging populations, the demand for healthcare resources is rapidly increasing. Coupled with labor shortages caused by declining birth rates, this has become a challenge faced by many countries.

Founded in 2018, Taiwan-based startup StreamTeck is leveraging mmWave technology combined with IoT solutions to develop a non-contact physiological monitoring system for chronic patients and the elderly. The goal is to alleviate the pressure on nursing staff while avoiding the inconvenience and discomfort associated with traditional monitoring devices.

The company's first product, SmartCaring T60 Intelligent Remote Care System, has already received Taiwan FDA Class II medical device certification, and its market outlook is promising.

"The other co-founder of the company and I both experienced situations where elderly family members needed healthcare, which led us to hope for more effective technological solutions," said Ken Hsieh, Co-Founder of StreamTeck. They also heard from the nephrologists that many chronic kidney disease patients undergoing dialysis, which lasts three to four hours, resist or refuse to use traditional wired physiological monitoring devices, due to discomfort or inconvenience.

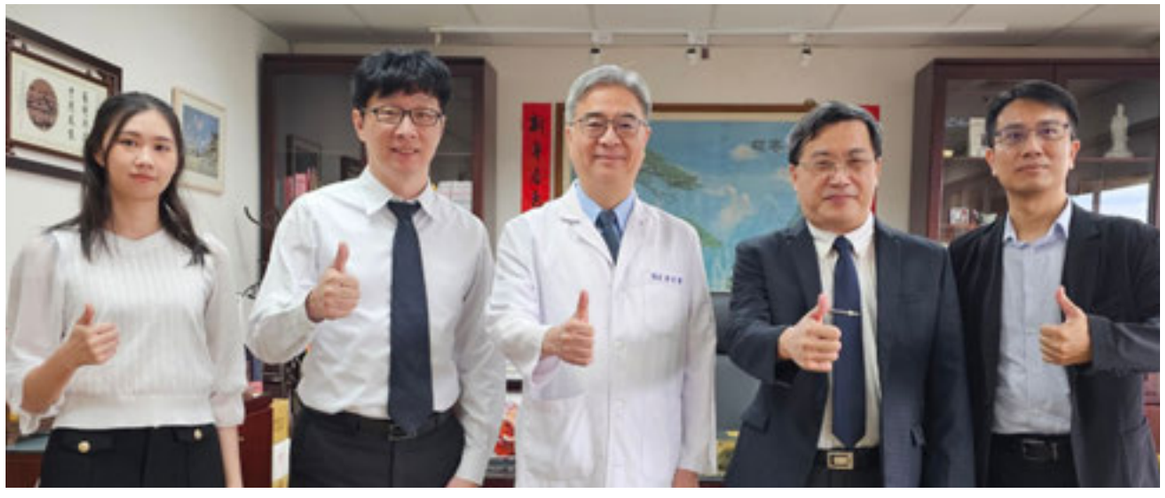
Additionally, nursing staff shortages made it difficult to respond promptly to patients' emergencies. All these were the driving forces behind the founding of StreamTeck.

### Based on 60GHz MmWave and Proprietary AI Algorithms

StreamTeck's solution is based on high-precision 60GHz mmWave and infrared sensors, including the hardware, proprietary AI algorithms, and applications installed on PC or mobile devices.

A wireless monitoring device installed above the hospital bed collects data on vital signs, including the patient's breathing, heart rate, and body temperature. The data is transmitted via Wi-Fi and processed by StreamTeck's AI algorithms. If any data anomaly or incidents, such as a patient fall, are detected, the system immediately triggers an alert, allowing medical staff to respond to emergencies in real-time.

Hsieh said that compared to traditional monitoring devices, the non-contact monitoring method significantly enhances patients' comfort, especially in environments like dialysis centers, isolation wards, or palliative care units, where minimizing personnel contact is crucial. At the same time, this system greatly reduces the burden on medical staff.



StreamTeck possesses strong technical capabilities and can provide customized solutions to meet various needs, whether in hardware or software development, terminal system deployment, or AI model optimization.

### TFDA Certified and Successfully Entered Healthcare

Hsieh previously worked in the electronics industry, where servers, laptops, and consumer devices could be mass-produced as soon as they passed the testing process. However, the medical field requires a strict certification process for product specifications and quality, it's a significant challenge for startups. Any medical device must meet stringent standards on both hardware and software, and the manufacturing process also has to get an official certification. Additionally, extensive clinical trials are required in collaboration with hospitals. For a startup team with no medical background, this poses a completely new challenge.

With confidence in their technology, StreamTeck persistently submitted testing applications and, in the meantime actively worked closely with medical institutions. After a challenging process spanning a year and a half, they became the first company in Taiwan to receive TFDA certification for mmWave technology, successfully entering the medical market.

### Enhancing Tech Strength and Expanding Globally with Partners

Obtaining the official certification of medical devices is just the first step for StreamTeck. Hsieh said that the company will continue to enhance its solutions, aiming for non-contact blood pressure monitoring and more accurate patient posture assessment.


StreamTeck's system has been implemented in over ten large teaching hospitals and public regional hospitals in Taiwan, such as Tri-Service General Hospital, Mackay Memorial Hospital, and Taipei City Hospital. Additionally, through collaboration with the Industrial Technology Research Institute, the SmartCaring Intelligent Remote Care System is being introduced into long-term care facilities, with plans to expand services into the home healthcare market.

By collaborating with ecosystem partners like Intel to participate in global smart healthcare exhibitions actively, StreamTeck is extending its reach into international markets. The company has established a presence in the United States, and its products are currently undergoing FDA certification.

Additionally, medical institutions in Southeast Asia have expressed strong interest in the company's system. Looking ahead, StreamTeck is confident in its plans to gradually expand its market footprint and hopes its technology will benefit a wider user.

sales@streamteck.com
www.streamteck.com

# TELLIT NOW

## Map-based matchmaking platform Tellit Now creates a triple-win situation for stores, micro-influencers and consumers

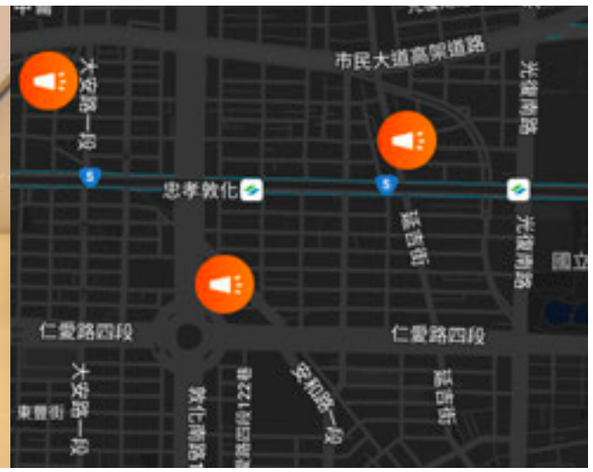
Smartphones becoming an indispensable digital tool in our daily lives is driving flourishing developments of social media platforms and the influencer economy. This has changed the way businesses advertise. They have primarily been running ads with Google and Meta but are now increasingly working with influencers as a way to boost their revenue at physical stores. However, not every business can afford the cost for partnerships and agencies with top influencers. As such, influencer economy transition has happened to shift to phase two wherein some businesses choose to partner with micro-influencers with a smaller follower count but higher engagement. Nevertheless, businesses looking to leverage micro-influencers might still find the back-and-forth communication tedious and time-consuming with traditional influencer matchmaking platforms. This remains a challenge that businesses attempting to harness the power of influencer marketing need to overcome.

Tellit Now CEO Kai-Hsiang Yang commented that the back-and-forth communication with either top influencers or micro-influencers about the upfront cost, time and campaign details can be a real hassle. Worse yet, something unexpected such as the influencer not showing up onsite could still happen. There are plenty of platforms on the market that manage micro-influencers, but they are unable to help eliminate all these problems. Tellit Now provides an automated software as a service (SaaS) that matches influencers with businesses in real time with LBS. It simplifies the online marketing process and creates a win-win situation for both businesses and influencers, leading influencer economy into phase three.

### Map-based exploration shortens the preparation process

To address the pain points of influencer marketing, Tellit Now has launched its unique SaaS platform for innovative social media word-of-mouth marketing that effectively connects businesses and content creators. It helps physical stores or brands leverage influential content creators to increase their visibility and revenue. Integrating all services, the Tellit Now platform enables one-stop management of everything on users' mobile phones, for example, allowing businesses to generate push notifications to advertise their needs, search for nearby content creators and process online payments.

Yang explained that Tellit Now uses map-based exploration and works in connection with various social media such as Instagram. Using the map mode on the Tellit Now app, content creators can check in real time whether a business in the vicinity needs influencer marketing and get information on the campaign budget and requirements. The content creator, if eligible, can choose to participate in the campaign. There is no need for cumbersome communication and confirmation. For businesses, all they have to do is enter their marketing budget and campaign details which will be broadcasted in the app. The system will allow interested influencers to browse this information. Compared to the traditional approach, Tellit Now significantly shortens the time it takes to kickstart a social media marketing campaign.





### Lowering the threshold for digital marketing and harnessing the power of influencers

Before founding Tellit Now, Yang worked for another startup that was based in Taiwan Tech Arena (TTA) so he was well aware of the startup ecosystem in Taiwan as well as all the services made available by TTA and accelerators. When establishing Tellit Now, he received help and guidance from Foodland Venture and food service industry consultants. He was also introduced to a number of venture capital firms. These have greatly benefitted Tellit Now's development. The startup is also considering applying for subsidies from the National Development Fund and the Ministry of Economic Affairs' Small Business Innovation Research (SBIR) program.

According to Yang, although influencer economy has been around for many years, many businesses lack marketing know-how and only care about views and ratings. With Tellit Now, not only do businesses have an easy-to-use digital marketing tool to increase their visibility, but they can also effectively shorten the time it takes to engage with influencers. Going forward, Tellit Now plans to incorporate CRM functionality and offer traffic analysis to further help businesses leverage digital tools to drive revenue growth.

ryan@tellitapp.ai

https://tellitapp.ai/

# VALTEC AI

## Valtec AI Revolutionizes Commercial Fishing with Drone and AI Technologies

Valtec AI, a tech startup co-founded by John Keh, has recently gained significant attention for its innovative use of artificial intelligence (AI) and drones in the fishing industry. The company's technological approach targets a market traditionally underserved by modern tech solutions—commercial fishing vessels.

Keh graduated from UC Berkeley and later joined the U.S. Air Force, where he gained extensive experience in geospatial analysis and drone applications. During his service, he was stationed in South Korea and the Middle East, completing over 250 missions. After leaving the military, he transitioned into the startup world. Over the past decade, he has had successful experiences as a serial entrepreneur. During the pandemic, he found his way back to Taiwan with his family and, by chance, shifted his military drone operations expertise toward fishing applications.

### Game-Changing Solution for Commercial Fishing

Commercial fishing is a high-stakes, high-reward industry where efficiency in locating and capturing fish can mean millions of dollars in revenue per vessel. Traditionally, fishing vessels use helicopters to locate schools of tuna within a 100-kilometer radius. "The helicopters are very high maintenance, very cumbersome to take care of, and it takes up a lot of space. Not only are drones cheaper, but with multiple drones, you can now search 3 to 5 times the area, reducing your time to catch, thereby saving a lot more gas from the ship," Keh said.

Valtec AI's drones are particularly tailored for purse-seine fishing vessels, a type of ship that targets tuna schools. The company's core technology allows for multi-drone command and control, as well as AI-powered object identification. Their system can operate several drones simultaneously, collecting real-time data about fish locations, estimated sizes, and even environmental factors like the current direction, which can tear fishing nets. By eliminating the need for helicopters, Valtec AI's drones reduce operational costs and risks while improving search efficiency.

In terms of competition, Valtec AI's primary rivals are helicopter companies, but the company's technology is likened to the replacement of horses by cars. The advantages in cost, safety, and efficiency make drones a clear disruptor in the market. Moreover, as the fishing industry deals in a commodity (tuna), any tool that improves yield and efficiency is likely to be rapidly adopted across the board, making Valtec AI a strong player in the space.

### A Service-Based Business Model

Valtec AI operates on a service-based business model, providing a "system as a service." This includes not only the drones and software but also ground control stations and operators. The company's revenue stream is built on offering an all-in-one service, reducing the burden on fishing vessels to maintain and operate their drone systems independently.

"We buy the drones from the hardware providers, then provide the drones to the fishing vessels, to our customers, and provide the software, provide that ground control station that handles the whole system. We even provide an operator," Keh said. "We're creating a new profession. Originally there were no drone operators on fishing vessels or boats. Now we will provide the trained personnel to be able to operate our system and the multi-drone capability, and that way the customer does not have to worry about if this drone breaks or whatever."

Valtec AI's drones have already been deployed to gather data from fishing vessels in Taiwan and the Philippines, with plans to expand globally. Keh emphasizes the potential to scale this system as more fishing companies see the clear cost and time savings from drone adoption. By cutting down the time required at sea from one month to two weeks, Valtec AI's system can significantly boost revenue for fishing companies, turning what is typically a slow, labor-intensive process into a streamlined operation.

### Future Expansion and Strategic Focus

While the current focus is on the fishing industry, Keh sees future applications in other maritime industries, such as surveillance for shipping. However, the company is cautious about entering more complex sectors like defense, where factors such as weight limitations and operational range present new challenges for drone technology.

In the short term, Valtec AI aims to perfect its solution for the fishing industry, expanding its customer base and proving its value proposition. The company recently closed a $2 million seed round, with investments facilitated through its close connections with Taiwan's startup ecosystem, including investment from Spark Labs Taiwan. The funds will help Valtec AI deploy its technology on 40 vessels of current customers, focusing on proving the system's effectiveness in reducing fishing time and increasing revenue for them.

info@valtec.ai
valtec.ai

# TAIWAN TECH ARENA Event Summary

From August – November, 2024


8/23-24

## TTA Showcases 20 AI Startups at Meet Greater South Expo

This year, TTA led 20 AI startups at the Meet Greater South expo, showcasing innovations in semiconductors, biomedicine, net-zero solutions, sports tech, and industry transformation. These startups have expanded into the U.S., Singapore, Europe, and Southeast Asia. Over 35 international startups from 11 countries participated, fostering new business opportunities.

9/6

## IC Taiwan Grand Challenge with SEMICON TAIWAN

To boost the second batch of the IC Taiwan Grand Challenge, TTA hosted a startup pitch at SEMICON Taiwan 2024 with teams from France, the UK, Germany, and India. The event aims to attract more international talent to Taiwan for their entrepreneurial dreams.

9/24

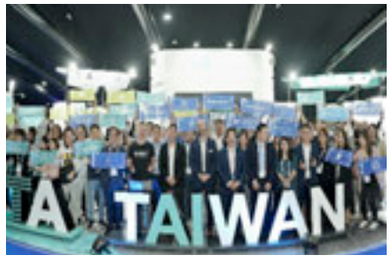
## TTA South: AI Sovereignty and the Future of Computing Power

TTA South hosted a panel discussion titled 'The Era of AI Sovereignty: Co-creating the Future of Computing Power.' The event brought together distinguished guests from industry, government, academia, and startup teams to engage in in-depth discussions on how to establish digital sovereignty through the autonomous development of computing power and AI technologies.

10/7

## Austrian Commercial Office in Taipei Visits TTA

On October 7, the Austrian Commercial Office in Taipei led a startup delegation to visit TTA for the first time. A pitch session between Taiwanese and Austrian startups focused on AI, green energy, and smart cities, opening doors for future collaboration.




10/13-16

## TTA x Gitex 2024

For the first time, NSTC's TTA is heading to Dubai to participate in GITEX 2024 Expand North Star. Accompanied by various government agencies, the delegation will lead nearly 30 Taiwanese tech startups, primarily in AI and green energy, to exhibit and initiate business exchanges and international expansion in the Middle Eastern market.

10/18

## TTA Talk- Sustainability with Innovative Life

Two startups spun off from UC Berkeley SkyDeck were invited to share their entrepreneurial stories and technologies. They also joined local scholars and experts to discuss the opportunities that energy transition brings to the startup industry, sparking innovation and collaboration opportunities.


11/12

## Colorado Lt. Governor Visits TTA to Boost Collaboration in Tech and Sustainability

Lieutenant Governor of Colorado, Dianne Primavera, led an 18-member delegation to visit TTA on November 12. The purpose of the visit was to gain insights into Taiwan's startup ecosystem, establish bilateral connections, and jointly promote economic and startup development. The delegation seeks further collaboration opportunities in aerospace, quantum technology, and sustainability.

11/18

## Czech Delegation Makes First Visit to TTA for Bilateral Startup Exchange

On November 18, a business matchmaking event was co-hosted by TTA, CzechInvest, and the Czech-Taiwanese Business Chamber, bringing together a delegation of 16 members from Czech startups and accelerators. This marked the Czech delegation's first-ever visit to TTA. The event also expanded its reach by inviting Taiwan's startup ecosystem, including startups and VC investors, to participate and exchange ideas.

TTA
TEL. +886-2-2570-0202
ADD. No.2, Sec. 4, Nanjing E. Rd., Songshan Dist.,
Taipei City 105037, Taiwan (R.O.C.)

TTA South
TEL. +886-6-303-2369
ADD. 6F., No. 6, Sec. 1, Guiren 13th Rd., Guiren Dist.,
Tainan City 711010 Taiwan (R.O.C.)

## EDITORIAL TEAM

Editor-in-Chief | **Betty Hsu**
Managing Editor | **Phoebe Lu**
Art Director | **Alen Yang**
Senior Editor | **Tenniel Liu**
Copy Editor | **Digitimes**

## DIRECTOR TEAM

**Dr. Lewis Chen, Hubert Chen, Betty Hsu**

## PROJECT MANAGEMENT TEAM

**Carol Huang, Cynthia Hsu, Rick Chen, S.R. Liu**

## PARTNERSHIP TEAM

**Carl Chiu, Danny Lin, Jessi Fu, Steven Wang,**
**Vic Fan, YS Chen, Zach Chen**

## BRAND MARKETING TEAM

**Chiki Lin, Emily Tseng, Jennifer Chao, May Chiu**

## OPERATION TEAM

**Chami Chang, Cindy Yu, Jessie Chu, Karei Huang,**
**Vivian Chen**

## TTA SOUTH TEAM

**CH Lee, Jaco Lin, Jenny Tsai, Sandy Hsu,**
**Wisdom Hsu, Zea Chen**

EMPOWERING GLOBAL TECH STARTUPS