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Japan External Trade Organization

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Pioneering Soft Brain Interfaces for Neurological Care

Interview with Ludovic Serex, COO and co-founder of Neurosoft Bioelectronics

<u>Neurosoft Bioelectronics</u> is advancing the frontiers of healthcare through innovative bioelectronic technologies designed to enhance patient care. For this issue of our newsletter, we had the opportunity to talk to *Ludovíc Serex*, the COO and one of the co-founders of Neurosoft Bioelectronics.

Could you briefly introduce *Neurosoft Bioelectronics* and the company's mission?

Neurosoft Bioelectronics is a pioneer in the development of soft neural implants that closely interact with the brain by mimicking its mechanical properties. Unlike current stiff technologies, our softer implants provide enhanced biointegration and allow for more precise treatment of neurological disorders. We focus on advancing solutions for complex conditions, starting with epilepsy, where our implants are used for around 30 days to accurately pinpoint the epileptic focus. This enables surgeons to remove the faulty brain tissue and can potentially cure about 30% of patients with drugresistant seizures. Our second key project targets tinnitus, expanding our mission to improve outcomes for patients with unmet medical needs through innovative brain interface technologies.

What inspired you and your cofounders to transition from research to entrepreneurship in this advanced medtech niche?

My co-founder Nicholas and I studied together and shared a deep passion for



Ludovic Serex © Neurosoft Bioelectronics both research and entrepreneurship. We pursued PhDs on different subjects but remained strongly connected by our scientific interests. What truly inspired us to transition into entrepreneurship was the groundbreaking technology developed at EPFL involving advanced electrodes, which at the time were only used in animal models. We felt a strong drive to push this technology into clinical applications so its benefits could reach human patients. However, we also understood that navigating the complex regulatory pathways and other challenges required to bring such innovations to the clinic is not the primary mission of a university. These hurdles can only be addressed effectively by a dedicated company. In essence, the technology was too promising to remain confined to research, and the practical challenges of clinical translation led us to start Neurosoft Bioelectronics.

Neurosoft Bioelectronics develops minimally invasive brain interfaces using soft bioelectronics. What sets your products apart from existing solutions?

It's primarily by the advanced material we use, which is around a thousand times softer than what is currently employed in clinical devices. This exceptional softness significantly improves bio-integration, allowing our electrodes to be much better accepted by the body and reducing the foreign body reaction that often leads to device rejection. Another major advantage is the scalability of our interfaces: unlike competitors, which cover only small brain regions ranging from a few square millimeters to a few square centimeters, our technology can cover much larger areas, up to half of a brain hemisphere with full cortical access, while maintaining reasonable resolution. This combination of superior material biocompatibility and extensive brain coverage sets our braincomputer interfaces apart in the field.

Switzerland is known for its strong innovation ecosystem. How has this environment helped accelerate your company's growth and development?

Switzerland's innovation ecosystem has been essential to *Neurosoft Bioelectronics*' growth and development. We have benefited greatly from various support programs such as those offered by Innosuisse, accelerators like FONGIT in Geneva, and FIT in the canton of Vaud, as well as from close collaboration with research institutions like EPFL and the Wyss Center. These resources have

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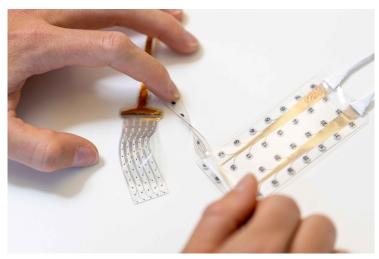


provided us not only with funding but also with invaluable coaching that helped us avoid many early mistakes. The Swiss system is well-structured to support entrepreneurship, especially in the initial stages, through courses like La Forge at EPFL, which connect founders with the right contacts and support networks. However, it is incumbent on entrepreneurs to actively seek help, engage with these programs, and clearly present their projects. Building a strong network from the outset is crucial, as it becomes an advantage as the company grows.

Your company won the Top Startup Award at this year's Global Healthcare Challenge co-organized by JETRO and Japan's Ministry of Economy, Trade and Industry. How did it feel to receive this recognition, and what does this award mean for your team and your technology? Quite frankly, receiving the Top Startup Award at this year's Global Healthcare Challenge was truly an honor. This prestigious recognition means a great deal to us because it reflects the collective hard work and dedication of our entire team. Such an award is not only rewarding for the company itself but also deeply motivating for everyone involved. Winning this prize has significantly boosted our team's morale and serves as a meaningful acknowledgement that our technology is making a positive impact on the world. This recognition encourages us to continue advancing our mission to improve the lives of people affected by neurological disorders.

Could you tell us more about your plans and strategies for entering and expanding in the Japanese market?

Our interest in Japan has been present form the get-go and stems from its advanced healthcare system and rising



Neurosoft's electrodes are soft and offer high density

aging population. While detailed plans are not yet set, our first business visit through the Global Healthcare Challenge allowed initial exploration. Holding Japanese patents, we see strong potential but have yet to decide how and when to enter. Collaborating with JETRO helps prepare for future expansion. As we complete U.S. 510(k) approval, we intend to use that regulatory groundwork to enter Japan and others.

How effective have JETRO's services been so far in helping you reach your goals in Japan? Our collaboration with JETRO has just begun, but it has already proven valuable. One of our investors and board members is currently visiting Japan to explore the local ecosystem, and his insights will help guide our strategy for expanding into the market. We expect JETRO's services to be crucial in connecting us with the key stakeholders in Japan and introducing us to the right partners and companies will be essential. Having this support early on will hopefully enable us to approach the market more effectively and establish the right relationships from the start.

How do you see collaboration opportunities between the Swiss and Japanese neurotech ecosystems?

neurological disease challenges linked to an Our current priority is building strong clinical partnerships. We have developed a stable technology platform through engineering and consulting, now ready for clinical trials. Our next step is collaborating with clinical partners to test and validate our brain interface, with promising interest already from partners in Japan. Beyond this, opportunities exist in manufacturing and industrialization for wider use. While we understand some brain mechanisms like tinnitus, the brain's complexity requires ongoing exploration and collaboration. Our clinical strategy is highly focused. We are targeting epilepsy as a strategic entry point to the market, while advancing our flagship application in tinnitus, where our technology uniquely answers the needs for such a BCI. The platform is then built to expand into functional brain mapping for tumor resection, neurological biomarker detection, and BCI treatments for motor, anosmia, and auditory functions, to name a few. In the future, we even see possibilities for enhancing human brain capabilities

Thank you for the interview!

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Key Findings of JETRO's 2025 Global Trade and Investment Report

JETRO's 2025 Global Trade and Investment Report looks at major shifts in global trade driven by recent US tariff measures. Rising costs, changing demand, and geopolitical tensions are restructuring supply chains and investment strategies, while intensified competition and protectionist policies prompt like-minded countries to deepen cooperation. Amid these changes, companies are actively seeking strategies to adapt.

Some key takeaways of this year's edition: In 2024, global trade saw growth in both value and volume, but prospects for 2025 are clouded by uncertainties largely originating from the United States. Rising geopolitical tensions in the Middle East and efforts by the U.S. to exert greater control over maritime shipping pose additional risks to international transport.

Since April 2025, U.S. imports of smartphones and laptops from China have dropped sharply, shifting to India and Vietnam. China is redirecting exports to Hong Kong, the EU, and ASEAN, reflecting U.S.-China trade tensions and impacting global supply chains, including those of Japanese firms. Challenges include higher procurement and sales costs, growing competition with Chinese

products in markets outside the U.S., intensified rivalry for local markets and talent as Chinese companies expand overseas, and a restructuring of supply chains within North America. Global direct investment activity, including greenfield projects and cross-border mergers and acquisitions, hit record lows in the first half of 2025 due to weakening investor confidence amid policy uncertainties and capital market instability linked to reciprocal tariff increases.

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In 2024, investment was mainly driven by sectors such as renewable energy, communications infrastructure, semiconductor production, and electric vehicle manufacturing, supported by government subsidies and industrial policies. Competition is intensifying in emerging markets as geopolitical tensions and policy interventions by major powers increase uncertainty. Japanese firms are responding with stronger information gathering, training, and export control compliance. U.S. protectionism and China's restrictive export measures challenge Japan, making cooperation with the EU and Global South vital to uphold multilateral trade.

Source: **IETRO**

2025 World Trade Organization (WTO) Public Forum

From 17 to 18 September 2025, the World Tade Organization (WTO) held its annual <u>Public Forum</u>, which this year had the theme "Enhance, Create, and Preserve". Taking place against a backdrop of evolving geopolitical tensions and transformations in the global trade order, the Forum hosted policymakers, experts, and stakeholders to explore critical themes shaping the future of international trade cooperation.

The Forum's working sessions addressed pressing and timely topics, reflecting the intersection of technology, diplomacy, and economic development. Among these were the emerging relationship between AI and trade, underscoring opportunities for enhancing multilateral cooperation through technological innovation. Another session probed the implications of the WTO's current dynamics in the absence of active participation by the US, highlighting challenges and potential



The WTO in Geneva © JETRO Geneva

pathways forward. The transformative power of digital trade in driving development was also a session theme, showcasing how digital commerce can foster growth and inclusion on a global scale.

The sessions featured distinguished speakers drawn from diverse sectors, including trade negotiators, diplomats, leading academics, and business leaders. Their insights contributed to the discussions

on how the WTO can adapt and remain relevant in a rapidly changing world economy.

The background to the Forum was shaped



by increasing scrutiny of the WTO's role amid a shifting global order. Analysts noted the organization's ongoing crisis as a reflection of broader changes in international relations, where geopolitical rivalries and new economic alignments challenge traditional multilateral frameworks. This context deepened the conversations at the Forum, urging participants to rethink the

WTO's mandate and strategies considering

Sources: WTO website; Agefi

these evolving realities.

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RIVR Robots Begin Food Delivery Trials in Zurich



Swiss robotics company <u>RIVR</u> has launched a pilot program in Zurich, partnering with food delivery platform Just Eat Takeaway.com to deploy autonomous four-legged delivery robots in European cities. The robots combine wheels for efficient travel with legs for climbing stairs and curbs, allowing them to navigate complex urban environments while carrying up to 20 kilograms of cargo.

The deployment in Zurich marks the first real-world application of RIVR's Physical AI technology, which enables the robots to understand and adapt to their surroundings while avoiding obstacles like rubbish bins, grass, and pedestrians. Operating at speeds of up to 15 km/h, the robots are designed to function reliably in various weather conditions including rain, snow, heat, and wind. The handover process mirrors traditional courier delivery, with orders secured inside the robot by restaurant staff and customers notified upon arrival to unlock the cargo compartment. Each robot is monitored in real-time from RIVR's operations center, with the pilot program beginning on 19 August 2025 and scheduled to run for two months.

According to 'Kyodo News', *RIVR* is also in talks with Japanese companies *SoftBank Robotics* and *Yamato Transport* to deploy its four-legged robot in Japan as well. Through potential partnerships with these major Japanese logistics and technology companies, *RIVR* aims to address labor shortages in Japan's food and logistics industries. *RIVR CEO Marko Bjelonic confirmed that discussions with Yamato Transport* are ongoing and talks with *SoftBank Robotics* are progressing.

The company secured \$22 million in seed funding in August 2024, with backing from notable investors including Jeff Bezos's Bezos Expeditions. Beyond its European expansion plans, RIVR has already established partnerships in the US with Veho for last-mile parcel delivery services. The company's long-term mission involves deploying one million delivery robots globally, leveraging general physical AI to scale urban robotics where needed most.

Sources: Kyodo News; RIVR website

Agenda 1



√ EXPO 2025 in Osaka

Dates: 13 April - 13 October 2025

Theme: Designing Future Society for Our Lives

Find more information here

Agenda 2



√ Invitation to the Japan Pavilion at International Industrial Fair (MSV 2025) in Brno, Czech Republic

Dates: 7 - 10 October 2025

Venue: Brno Exhibition Centre, Brno, Czech Republic

Find more information here

JETRO is a government-related organization that works to promote mutual trade and investment between Japan and the rest of the world. Originally established in 1958 to promote Japanese exports abroad, JETRO's core focus in the 21st century has shifted toward promoting foreign direct investment into Japan and helping small to medium size Japanese firms maximize their global export potential.

The JETRO Switzerland Newsletter can also be viewed and/or downloaded online: http://www.jetro.go.jp/switzerland/newsletter





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