imec xpand

YOUR BLUEPRINT
FOR SUCCESS

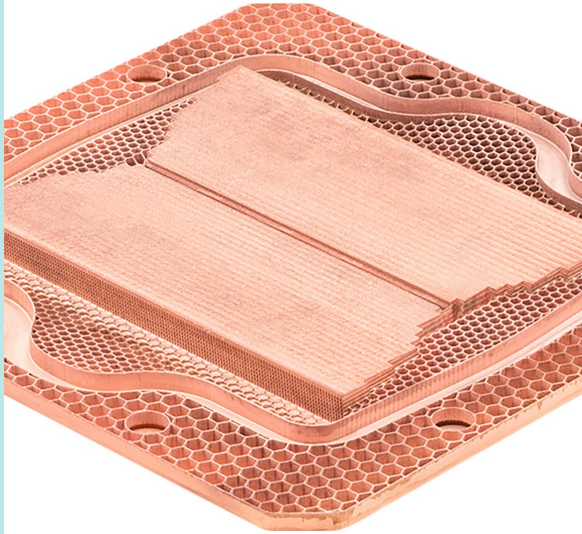
A NEW APPROACH TO 3D METAL PRINTING WITHOUT USING LASERS, POWDERS OR HEAT

Fabric8Labs

TECHNOLOGY / PRODUCT
Additive manufacturing technology to fabricate complex metal parts at the atomic level, enabling superior feature resolution and enhanced material properties.

TARGETED UNMET NEED
The technology represents a fundamental shift in additive manufacturing technologies, enabling high-volume manufacturing of parts via an energy-efficient process that utilizes cheap starting materials.

BUSINESS MODEL
Operation of manufacturing site delivering printed metal parts to customers.



San Diego, CA - USA

Growth stage, revenue generating.

fabric8labs.com

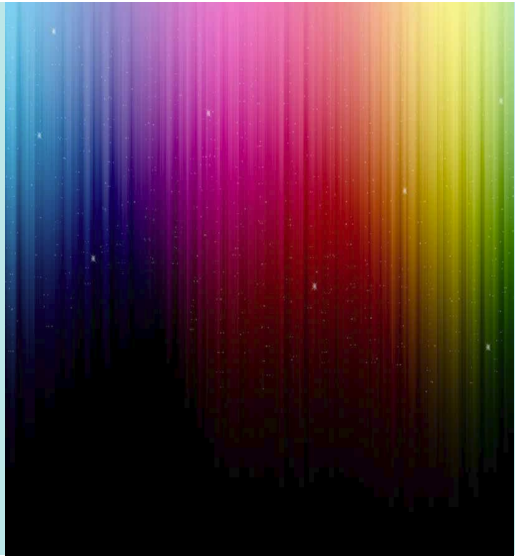
USD 50M Series B2 raised in Q1 2025.

THE WORLD'S SMALLEST HYPERSPECTRAL IMAGER FOR HIGH-VOLUME MOBILE APPLICATIONS

TECHNOLOGY / PRODUCT
Low-cost, high-volume hyperspectral imagers for use in consumer and mobile devices.

TARGETED UNMET NEED
Enabling a whole new set of applications in mobile devices (smartphones): advanced auto white balancing for super-accurate colour photography, skincare and skin health applications, plant care, …

BUSINESS MODEL
Fabless semiconductor model: chip sales (hyperspectral imagers) to OEMs (smartphone manufacturers).



Mechelen, Belgium

spectricity.com

Product development, sampling to customers.

Series B round of EUR 14M in July 2021.

THE FIRST USEFUL QUANTUM COMPUTER

TECHNOLOGY / PRODUCT
PsiQuantum is building the first utility-scale Quantum Computer.

TARGETED UNMET NEED
Quantum computing (QC) promises to be a world changing technology. With applications across climate, energy, healthcare, industry, high tech and government, QC will tackle some of the most urgent practical challenges we face.

BUSINESS MODEL
Operation of Quantum Computers and delivering compute services to customers in climate, healthcare, finance, energy, and beyond.

Palo Alto, CA - USA

psiquantum.com

Growth stage, revenue generating.

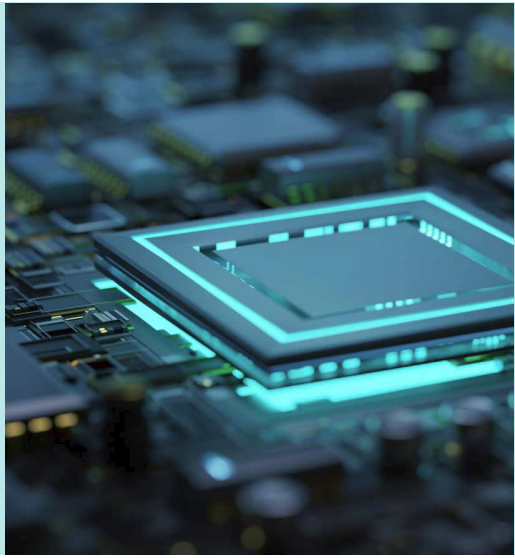
USD 500M Series D raised in 2021. Received USD 1B government funding in 2024.

FERROELECTRIC MEMORY FOR THE AGE OF AI AND BEYOND

TECHNOLOGY / PRODUCT
Novel memory technology using ferroelectric effect enabling low power, low voltage and fast read/write.

TARGETED UNMET NEED
Potential to overcome limitations of cost, scalability, and speed of other memory technologies currently used in semiconductor chip manufacturing.

BUSINESS MODEL
Fabless chip development of random-access memory to deliver solution to solid state hard drive manufacturers.



Dresden, Germany

Early stage, proof of concept.

ferroelectric-memory.com

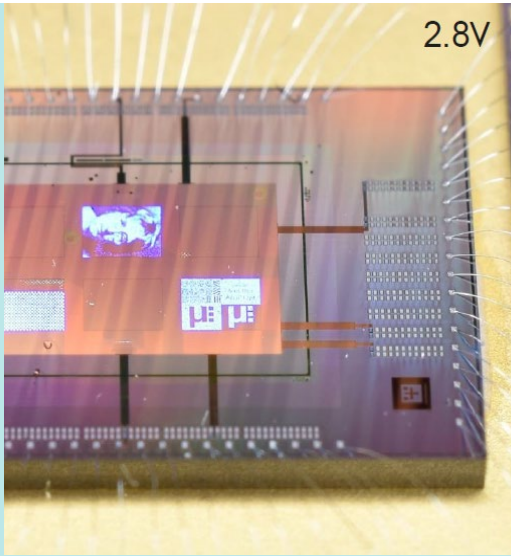
Series C of EUR 13M in Oct 2023.

ULTRA-BRIGHT, HIGH-RESOLUTION MICROLED DISPLAYS FOR FUTURE AR GLASSES

TECHNOLOGY / PRODUCT
An emissive MicroLED display for next-generation Augmented Reality (AR) headsets with very high brightness and resolution and low power consumption.

TARGETED UNMET NEED
Ideal process flows of MicroLED for AR displays with very high brightness and very high resolution.

BUSINESS MODEL
Fabless displays manufacturing and sales to AR headset manufacturers.



Leuven, Belgium

https://micledi.com/

Early stage, proof of concept.

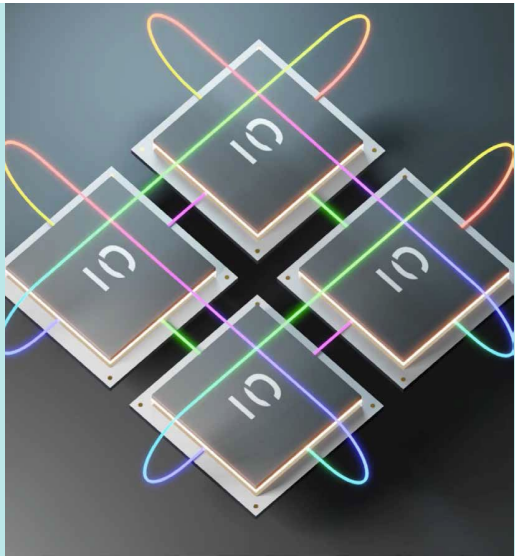
Series A of EUR 13M in 2024.

PROVIDING AI AT THE SPEED OF LIGHT

TECHNOLOGY / PRODUCT
Celestial AI's mission is to fundamentally transform the way computing is done with their proprietary technology that uses light for data movement both within chip and between chips.

TARGETED UNMET NEED
Ever-increasing amounts of data require new compute architectures. Celestial AI targets to speed up computation beyond of what is currently possible with state-of-the-art chip technology.

BUSINESS MODEL
Disaggregated memory system provider to hyperscalers and data centers.



Santa Clara, CA - USA

https://celestial.ai/

Growth stage, revenue generating.

Series C of USD 250M Q1 2025.

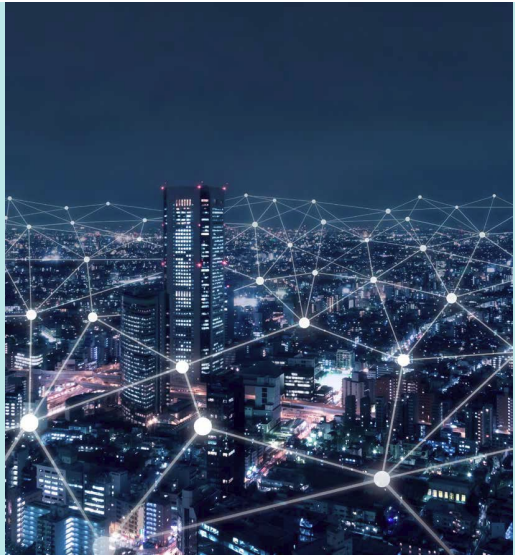
HIGH SPEED WIRELESS, EVERYWHERE

PHARROWTECH

TECHNOLOGY / PRODUCT
Low-cost RF chips for next-generation high bandwidth communication in the unlicensed bands: 60-72GHz.

TARGETED UNMET NEED
Ultra high-capacity wireless links in communication infrastructure, wireless internet access to homes or businesses without laying fiber and cables to provide last mile connectivity, communication for XR goggles.

BUSINESS MODEL
Fabless semiconductor model: sell chips (antenna and RF transceivers) to system integrators.



Leuven, Belgium

https://pharrowtech.com/

Product development, sampling to customers.

Series A of EUR 15M in April 2022.

FIDIMEC

CHIPS CUSTOM-MADE FOR AI COMPUTATIONS

TECHNOLOGY / PRODUCT
Axelera AI is designing the world's most powerful and advanced solutions for Artificial Intelligence in devices such as security cameras, manufacturing lines, and robots.

TARGETED UNMET NEED
Accessible, powerful and user-friendly chips to enable computer vision applications.

BUSINESS MODEL
Sell AI chips to system integrators in physical security, industrial manufacturing, and retail.

Eindhoven, Netherlands

https://axelera.ai/

Growth stage, revenue generating.

Series B Round of EUR 70M in 2024.

SOLID-STATE BATTERY TECHNOLOGY

TECHNOLOGY / PRODUCT
An intrinsically safe battery cell based on imec's patented nano-Solid Composite Electrolyte combined with a lithium nano-anode providing a unique mix of high energy density and fast charge.

TARGETED UNMET NEED
Improve energy density, charging speeds and most importantly, increase safety combined with an environmentally friendly manufacturability.

BUSINESS MODEL
Make and sell batteries and eventually license the technology to automotive manufacturers.

EnergyVille, Genk, Belgium

Early stage, proof of concept.

https://solithor.com

Seed Round of EUR 10M in 2022.

BRINGING THE METAVERSE TO LIFE

TECHNOLOGY / PRODUCT
Sub-wavelength diffractive optics enable gigapixel chip technology delivering high-resolution, life-like holographic projections.

TARGETED UNMET NEED
Life-like high-resolution 3D visualization with applications in XR goggles, freestanding 360-degree projections, and 3D wall projections.

BUSINESS MODEL
Fabless semiconductor model: sell diffractor chips to system integrators.

Leuven, Belgium

Early stage, proof of concept.

www.swave.io

Series A of EUR 27M in Q4 2024.

Flanders Future Tech Fund

ACCELERATING THE TRANSITION TO NEXT-GENERATION OPTICS

TECHNOLOGY / PRODUCT

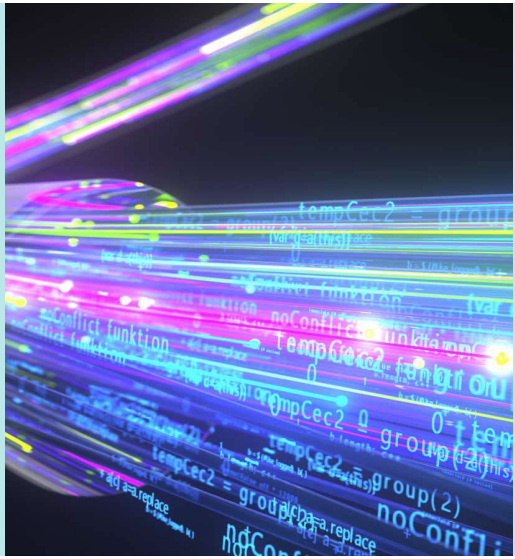
Industry's highest density and lowest power optical interconnect technology. Their technology enables customers to build the networks they need to unleash the full processing power of Machine Learning compute clusters in datacenters.

TARGETED UNMET NEED

Machine learning workloads continue to grow at a staggering pace, doubling more than twice each year. Nubis' technology alleviates the bandwidths bottlenecks for AI and machine learning.

BUSINESS MODEL

Sale of electro-optical engines for data communications applications.



New Providence, NJ - USA

https://www.nubis-inc.com

Product development, sampling to customers.

Series B closed in Q1 2022, additional close of USD 9M in 2023.

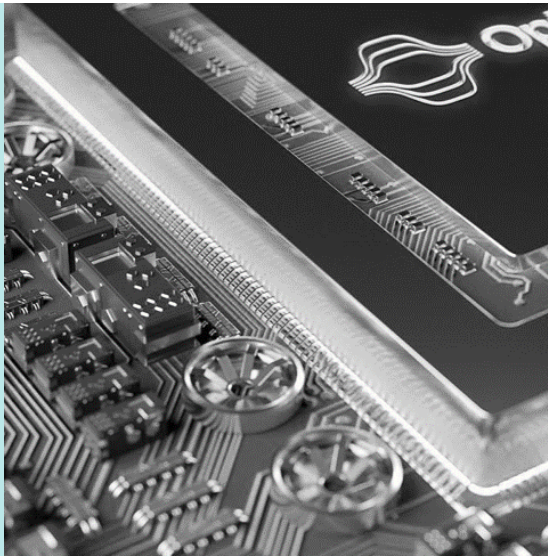
ENABLING PRIVACY-PRESERVING DATA EXCHANGE AT SCALE WITH ENCRYPTED COMPUTING AT THE HEART OF THE CLOUD

Optalysys

TECHNOLOGY / PRODUCT
Developing an accelerator for fully homomorphic encryption (FHE) based on fundamental innovation in optical computing.

TARGETED UNMET NEED
FHE is a next-generation encryption technology that makes it possible to process data shared between institutions without compromising on data privacy and confidentiality.

BUSINESS MODEL
Enabling chip technology for secure data centers by combining photonics and electronics in a system-in-package module.



Leeds, UK

Early stage, proof of concept.

imec xpand

https://optalysys.com/

Raised GBP 21M Series A round in 2023.

Exor NORTHERN GRITSTONE VERVE VENTURES

AFFORDABLE NANOPATTERNING BY MEANS OF NANOIMPRINT LITHOGRAPHY

SCIL Nanoimprint solutions

TECHNOLOGY / PRODUCT
Nanoimprint lithography equipment that allows for manufacturing of nanostructures on 300mm wafers by means of advanced stamps and resist materials.

TARGETED UNMET NEED
Emerging markets like AR/VR/MR glasses require cheap patterning of photonic nanostructures. Classical optical lithography has limitations in shapes, materials and overall cost.

BUSINESS MODEL
Lithography equipment and unique imprint and stamp making materials.

Eindhoven, NL

Growth stage, revenue generating.

https://scil-nano.com/

EUR 9.5M seed round in 2023.

ULTRA-SLIM & COMPACT GAN CONVERTERS WITH ADVANCED DIGITAL CONTROL

TECHNOLOGY / PRODUCT
The ingenuity of integrated GaN circuits is combined with high-performance digital control to optimize the power of GaN for ultra-miniaturized objects.

TARGETED UNMET NEED
The technology enhances the performance of digital control for GaN AC/DC applications in consumer markets, e-mobility, industry and datacenters.

BUSINESS MODEL
A Power GaN Integrated circuit (WiseGan®) combined with a GaN digital control (WiseWare®).

Hyeres, France

Product development, sampling to customers.

https://wise-integration.com/

EUR 12.5M Series A round in 2024.

4D PHOTONIC RADAR SYSTEM ENABLING AUTONOMOUS DRIVING VEHICLES

Xavveo

TECHNOLOGY / PRODUCT

Innovative radar system that leverages distributed photonics technology, characterized by low costs, discreet integration and high resistance to weather and external environmental influences.

TARGETED UNMET NEED

Safe perception of the surroundings is essential for modern driver assistance systems and future automated driving. Xavveo's radar system achieves unmatched precision and reliability in detecting obstacles and navigating complex environments.

BUSINESS MODEL

Xavveo expects to position itself as a Tier 2 for the automotive sector, selling the hardware (chips and modules) to the Tier 1 manufacturers, which will then further integrate the full solution with the OEMs.

Berlin, Germany

Early stage, proof of concept.

https://www.xavveo.com/

EUR 7M seed round in 2024.

GAME-CHANGING VERTICALLY-INTEGRATED MEMORY TECHNOLOGY

TECHNOLOGY / PRODUCT

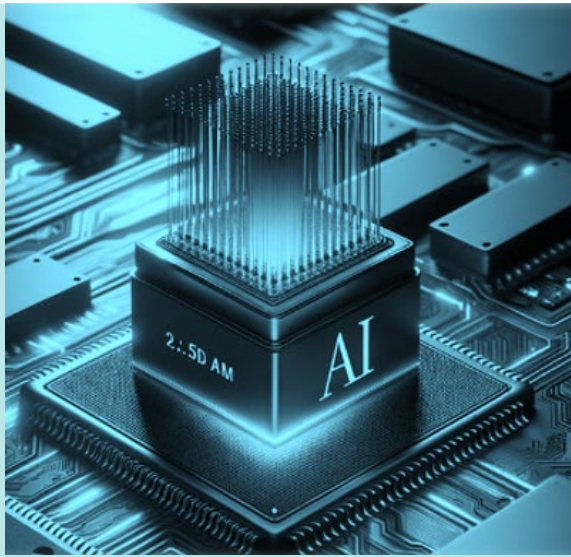
Vertical Compute's innovative approach integrates vertical data lanes directly above computation units. This breakthrough drastically reduces data transfer distances from centimeters to nanometers. It has the potential to outperform DRAM in terms of density, cost and energy.

TARGETED UNMET NEED

Large language models and generative AI models face bottlenecks due to the "memory wall". The scaling limitations of current memory technologies prevent them from keeping up with the demands of AI workloads.

BUSINESS MODEL

The first commercial activity of Vertical Compute will be to co-integrate memory chiplets with system integrators like AMD, NVIDIA or Broadcom.



Louvain-La-Neuve, Belgium

Early stage, proof of concept.

https://verticalcompute.com/

EUR 20M seed round in Q4 2024.

REVOLUTIONIZING CAMERA RESOLUTION AND PERFORMANCE UNDER LOW LIGHT CONDITIONS

TECHNOLOGY / PRODUCT

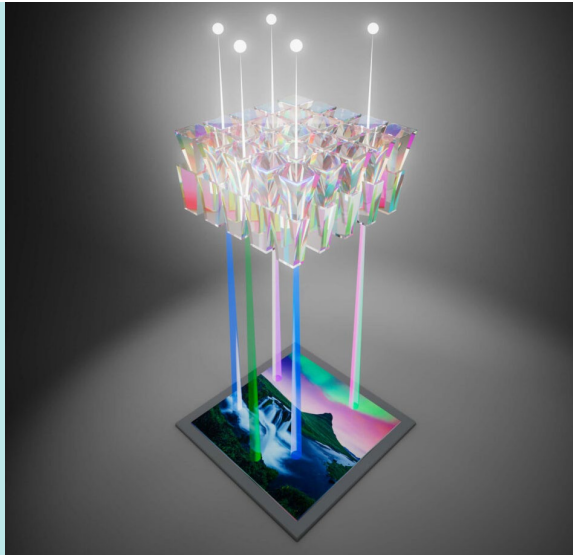
Eyeo is pioneering the next generation of image sensors through its proprietary color splitting technology. The approach utilizes nano-photonic structures to split light, efficiently directing different wavelengths to the appropriate pixels without the loss associated with conventional filters.

TARGETED UNMET NEED

In today's smartphones, image sensors in cameras rely on color filters which lead to reduced sensitivity and image quality. Eyeo's imager triples light sensitivity and breaks sensor resolution limits for a new era of imaging.

BUSINESS MODEL

Eyeo will develop and sell imager sensors into security cameras and to consumer electronics markets like smartphones.



Eindhoven, The Netherlands

Product development stage.

https://eyeo.tech/

EUR 15M seed round in Q2 2024.

REDEFINING SLEEP DIAGNOSTICS AND MONITORING

TECHNOLOGY / PRODUCT
World's first patient-applied, no-wire medically graded sleep diagnostic (polysomnograph) solution.

TARGETED UNMET NEED
Sleep disorders are on the rise, long waiting lines to get a sleep test. Polysomnography today is cumbersome to use and does not give an accurate representation of your sleep.

BUSINESS MODEL
Polysomnography-as-a-Service. Onera will offer an end-to-end solution enabling sleep monitoring and diagnostics in the comfort of your own home.

Eindhoven, Netherlands

Growth stage, revenue generating.

https://onerahealth.com

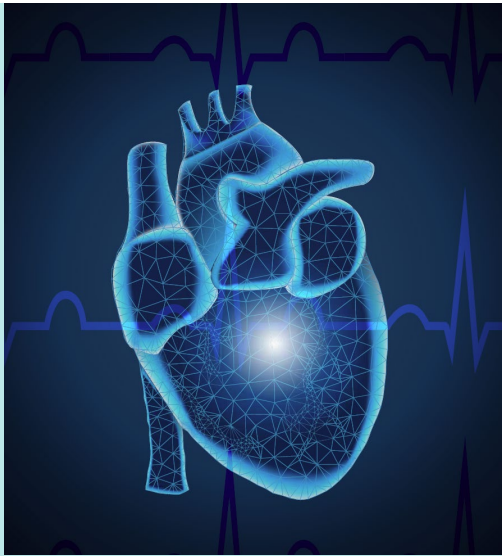
EUR 30M series C in Dec 2023.

A PARADIGM SHIFT IN GUIDING MINIMALLY INVASIVE CARDIAC INTERVENTIONS

TECHNOLOGY / PRODUCT
Ultra-fast catheter-based imaging system with data analytics that delivers unprecedented quality and real-time measurements from within the heart

TARGETED UNMET NEED
Increase success rate procedure, decreasing the high health cost linked to side effects.

BUSINESS MODEL
Luma Vision will sell their platform technology to hospitals, a disposable catheter, interface unit and system console and software platform.



Dublin, Ireland
Munich, Germany

Product development, customers engaged.

https://lumavision.com

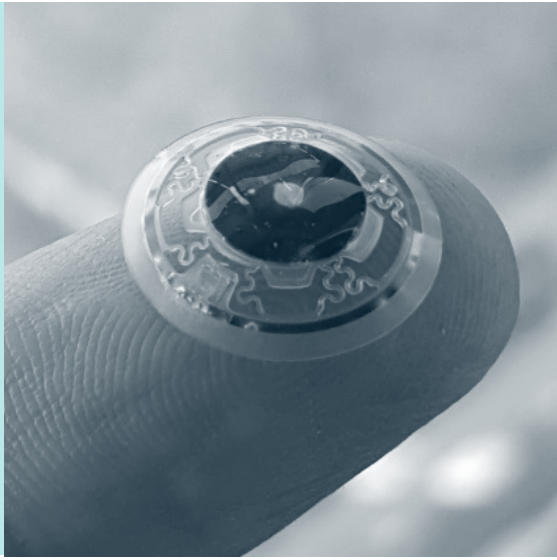
EUR 20M series A.

IMPROVE PEOPLE'S QUALITY OF LIFE THROUGH BETTER VISION

TECHNOLOGY / PRODUCT
Smart contact lens platform that will function like an artificial iris, actively filtering the light.

TARGETED UNMET NEED
Offering a solution for people with photophobia (light sensitivity), poor visual perception and light sensitivity (migraine).

BUSINESS MODEL
Azalea will select specific distributors in different geographies, for the production and commercial activities. The will be prescribed and fitted by eye care practitioners (ophthalmologists, optometrists or contact lens fitters).



Ghent, Belgium

Early stage, proof of concept.

https://azaleavision.com

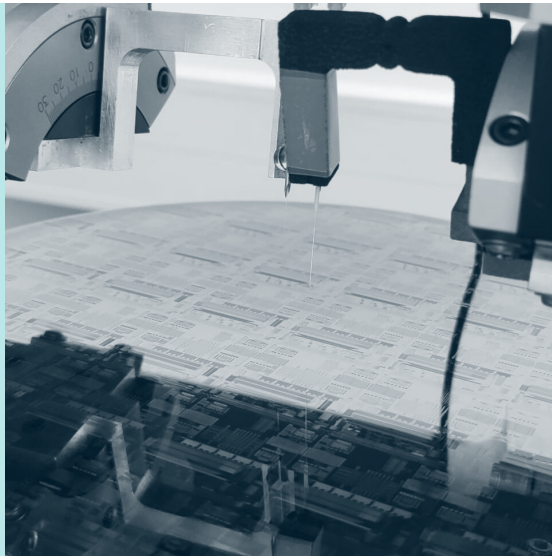
EUR 6M seed round.

A SHIFT IN THE TREATMENT PARADIGM TOWARDS PERSONALIZED MEDICINE

TECHNOLOGY / PRODUCT
Chip-based Raman spectroscopy solution for actionable therapeutic drug monitoring (TDM) in patients.

TARGETED UNMET NEED
Initial focus will be on antibiotics which play a life-saving role in the treatment of critically-ill patients in intensive care units (ICUs), who are frequently fighting against severe infections.

BUSINESS MODEL
The company's platform is based on proprietary optical and photonics technology and will allow physicians to optimize patient care by enabling personalized treatments.



Gent, Belgium

Early stage, proof of concept.

https://axithra.com

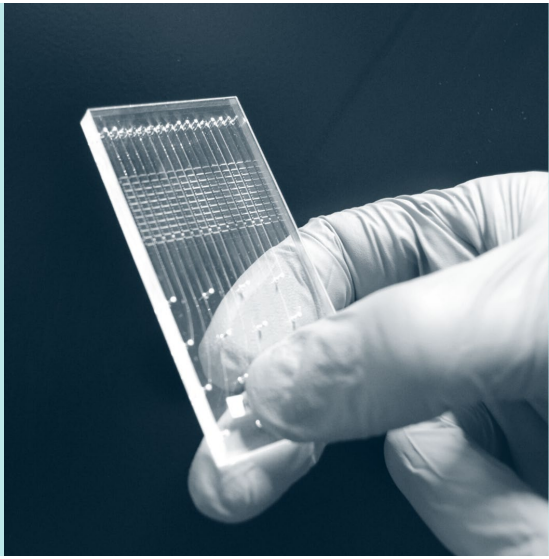
EUR 10M seed round.

FASTER, MORE EFFICIENT, SCALABLE AND ANIMAL-FREE BIOLOGICAL TESTING

TECHNOLOGY / PRODUCT
The “Sydlab” is an all-in-one benchtop device using robotics, innovative imaging and data analytic capabilities allowing to follow drug effects in vivo in 4D.

TARGETED UNMET NEED
Initial focus is on Caenorhabditis elegans, which will be used for high-throughput drug screening and safety testing.

BUSINESS MODEL
Benchtop device with disposable microfluidic cartridges that allow multiday evaluation for applications in pharma, agro, food and cosmetics.



Saint-Sulpice, Switzerland

Product development, customers engaged.

https://nagibio.ch/

CHF 12M series A round in 2023.

ADVANCED DIAGNOSTIC PLATFORM FOR PROTEIN RECOGNITION AND PROTEIN SEQUENCING

TECHNOLOGY / PRODUCT

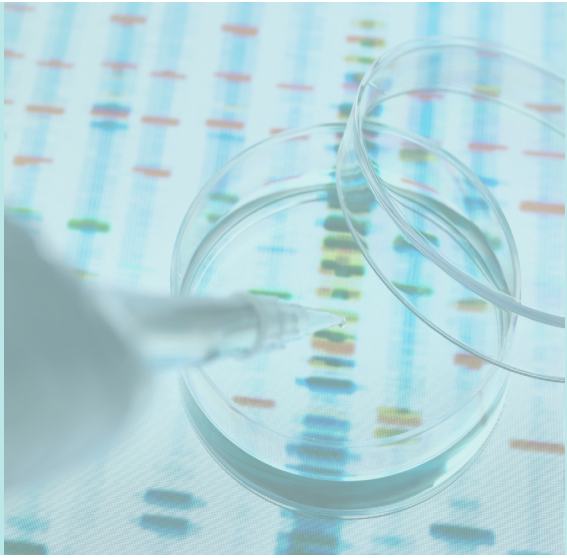
Genopore is developing a novel, single-molecule, whole protein identification and quantification technology based on a nanopore sensor array embedded in a silicon chip.

TARGETED UNMET NEED

Proteins hold the critical information regarding cellular functions. Precise mapping of protein content in samples offers valuable insights in multiple fields from pharma and biotech to the food industry as well as agriculture.

BUSINESS MODEL

Genopore's business model will rely on 4 main sources of revenue: 1) instruments, 2) software/data processing license, 3) consumables and 4) maintenance services as well as 5) drug target identification projects.



Yavne, Israel

Early stage, proof of concept.

https://www.genopore.com/

USD 11.5M seed round in 2024.

BREAKTHROUGH NEUROELECTRONIC THERAPIES TO HELP MANKIND SOLVE THE NEURAL CHALLENGE

INBRAIN NEUROELECTRONICS

TECHNOLOGY / PRODUCT

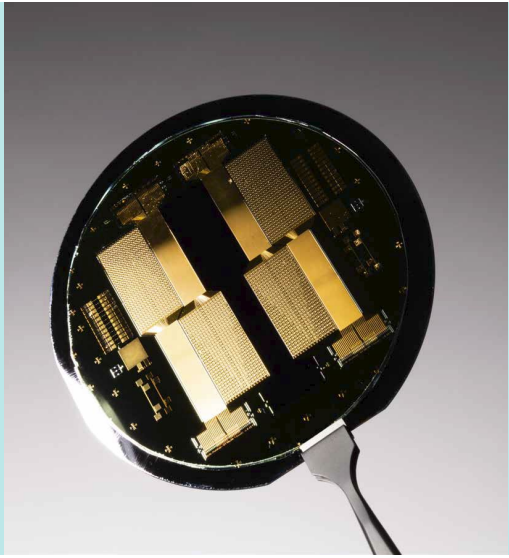
End-to-end neural platform that combines brain-computer interfaces and data analytics to decode & modulate neural networks, maximize time on therapy and effectively restore function or mobility for patients.

TARGETED UNMET NEED

30% of the world population is affected by neural disorders, which are the leading cause of disability and the 2nd cause of mortality worldwide. Current neuroelectronic therapies are invasive, low-resolution and generic.

BUSINESS MODEL

Inbrain Neuroelectronics will start with selling cortical electrodes for brain mapping in the next 2-3 years and will later add to this with their intelligent network modulation systems for brain-computer interfaces and deep-brain stimulation.



Barcelona, Spain

Early stage, proof of concept.

https://inbrain-neuroelectronics.com/

EUR 46M series B after first closing in 2024.

REVOLUTIONIZING DRUG DISCOVERY THROUGH ULTRA-HIGH THROUGHPUT SCREENING

Zafrens

TECHNOLOGY / PRODUCT

Zafrens has conceived an ultra-high throughput drug discovery platform that excels in the number of drug candidates that can be tested using a sophisticated, semiconductor-based readout that provides deep insights in the functional and molecular impact of these candidates.

TARGETED UNMET NEED

The platform can create and test hundreds of thousands of different potential medicines in one go, which is orders of magnitude larger than the state-of-the-art. This dramatically accelerates the early phases of drug discovery while significantly reducing costs.

BUSINESS MODEL

Zafrens offers their platform as a service to mainly pharma and biotech companies. In a next step, larger projects involving larger libraries can then be initiated. Furthermore, Zafrens will develop proprietary drugs that have been identified through their platform.

San Diego, US

Product development stage.

https://www.zafrens.com/

USD 22M series A in 2024.

Prime Movers Lab

Kofa Healthcare