Special Edition
Vol.15

Jones Bay Wharf, Sydney

A Celebration
of Australian Deep Tech

10th September 2025

Global Innovations
Made in Australia

Cicada x Tech23
2025

Join the Deep Tech
Movement

Australia's biggest deep tech celebration

Welcome to Cicada x Tech23 2025

Every generation faces the same question: will you inherit the world as it is, or lead in shaping what it becomes?

The 23 founders stepping onto the stage at Cicada x Tech23 today have already made their choice. They are building technologies that could reshape our food systems, transform our cities, reinvent industry, and change how we care for human health and the environment. But leadership does not end at the edge of this stage. It belongs to everyone in this room to decide whether these ideas will grow here in Australia or be forced to flourish elsewhere.

For 25 years, Cicada Innovations has worked to create the conditions where ventures like these can take root. Building an ecosystem that nurtures not just ideas, but the leaders with the courage to pursue them.

This moment matters because deep tech is not a distant abstraction. It is the food on our plates, the medicines in our hospitals, or the energy that powers our homes. These are the technologies that will decide whether Australia remains dependent on others for critical capabilities, or whether we build a sovereign, resilient future.

History reminds us that progress rarely arrives in calm, certain times. It emerges in moments of disruption, when old systems strain and friction builds, demanding something new. Today, the world feels unsettled. Old certainties no longer hold, and the future arrives faster than most are ready for.

But friction is not failure. It is information - a signal of where systems are weak, and where new ones must be built. Deep tech doesn't avoid friction; it embraces it. That is how real progress is forged.

And that is exactly what the 23 founders you'll meet today are doing. Each one has chosen to lean into the hard problems - to take on the challenge of turning breakthrough science and engineering into reality, and wrestle with it until something new emerges. This stage is not about frictionless ideas; it is about real technologies, built to endure.

The legacy of Tech23 has always been about more than pitches or presentations. For over 15 years, it has often been the spark behind ventures that have created new industries, generated jobs, and attracted global investment. And it always begins with individuals bold enough to try, and communities brave enough to back them.

That is why Tech23 matters. Because it brings together founders, investors, policymakers, and partners in one room, the people who can turn possibility into progress. Every person here today has a role in ensuring we seize that opportunity. As you listen, question, and connect, remember: the future is not simply inherited. It is built. And building it demands courage, foresight, and action, not just from those on stage, but from all of us.

Sian Priest
Group Executive Impact & Ecosystems

Acknowledgement of Country

In the spirit of reconciliation, Cicada Innovations would like to acknowledge and pay respect to the Traditional Custodians of the Gadigal lands on which we gather today. We also acknowledge and pay respect to the Traditional Custodians of country throughout Australia and their connections to land, sea and community.

We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

Meet the 23

Meet your MC

Tiahni Adamson

Wildlife Conservation Biologist

Wildlife conservation biologist, climate tech leader, and proud Kaurareg woman, Tiahni Adamson brings deep care for Country and sharp clarity to conversations about our shared future. Named South Australia's Young Australian of the Year in 2024, she blends science, sustainability, and Indigenous wisdom in everything she does, from methane-cutting seaweed to systems change. As host of Cicada x Tech23 2025, Tiahni brings heart, humour, and purpose to the day, grounding us in what matters most.

The Built World, Upgraded

From self-monitoring infrastructure to energy systems that respond in real time, these startups are embedding intelligence into the physical world, redesigning how we live, move, and power a planet under pressure. Smart cities, climate adaptation, and clean construction technologies are no longer optional; they are becoming the foundations of a more resilient, regenerative, and connected future.

Over a century ago, architect Marion Mahony Griffin imagined a capital city that worked with its landscape, not against it - a living system where architecture, nature, and civic life were inseparable. That capital city, Canberra, was conceived as more than a city plan; it was an ecosystem. Trained as one of the world's first licensed female architects, Marion challenged the conventions of her time, creating designs that were visionary in both aesthetics and purpose.

Today, deep tech is opening up new ways to meet the demands of a rapidly changing world; ageing infrastructure, growing cities, climate volatility, and rising energy use. It allows us to decarbonise without demolition, extend the life of essential assets, and build intelligence into the systems that underpin daily life.

The opportunity is not just to rebuild, but to retrofit, reuse, and regenerate. It's about embedding adaptability and foresight into the physical world, creating infrastructure that isn't just more efficient, but more equitable, more sustainable, and more aligned with the needs of future generations.

The work ahead isn't about building more, it's about building smarter. These founders are showing how we can rethink the systems beneath our feet and around our cities to create infrastructure that adapts to change, supports communities, and reflects the values of a climate-conscious era.

Sam Ringwaldt

CEO & Co-founder

Sam Ringwaldt is a pioneer in HVAC innovation, having helped bring to market technologies like the Turbocor compressor and Smardt chiller—saving over a gigaton of CO_2 globally. With a flair for rethinking the status quo, Sam now leads the reinvention of air-conditioning from the ground up, designing next-generation systems that cut emissions, boost comfort, and accelerate the global transition to net-zero buildings.

CONRY TECH

Revolutionising air-conditioning

conrytech.com

Conry Tech

Air-conditioning is one of the world's fastest-growing sources of emissions—responsible for 15% globally and over 60% of building energy use, yet most systems are outdated, inefficient, and hard to retrofit. Conry Tech is flipping the script. Their BullAnt system is a patented, decentralised HVAC platform that delivers heating and cooling only where and when it's needed, cutting energy use by up to 70%. Lightweight, modular, and quick to install, their system enables low-cost upgrades that actually improve comfort. Backed by decades of global HVAC innovation, Conry Tech is transforming a major climate problem into a scalable, Australian-led solution for net-zero buildings.

Harrison Crowe-Maxwell

CEO & Co-founer

Harrison and Shyeon lead this Startmate-backed robotics startup reimagining infrastructure maintenance. With a background in data science and cloud computing at AWS, he combines technical depth with startup agility. Harrison has been building robots since he was a kid, and now he's deploying them underground to solve a global problem. His mission? Create a future where robots maintain the pipes that keep the world running.

Puralink

Robots for pipe inspection, mapping & repair

puralink.com.au

Puralink

About 30% of the world's drinking water is lost to leaky pipes, an invisible crisis buried beneath our feet. Puralink is tackling this with autonomous robots designed to inspect, map, and repair critical underground infrastructure. Unlike traditional "pipe crawlers," Puralink's robots navigate bends, intersections, and verticals, adapting to pipe diameter changes in real time. The platform enables users to plug in their own sensors and integrate with existing workflows. From gas lines to remote mine site pipelines and water utilities, Puralink is turning reactive maintenance into proactive action - eliminating waste, preventing failures, and extending the life of global infrastructure. Puralink is already engaging customers across gas, mining, and water utilities, bringing modern robotics to some of the world's most outdated infrastructure.

Ana Belgun

CEO & Co-founder

Ana has a background in public policy, human-centred design, and systems thinking, where she spent two decades helping teams turn uncertainty into clarity. Ana is passionate about building technology that empowers not just experts, but entire communities. She leads Terria with a global perspective and a mission to make spatial data accessible, useful, and impactful for all.

terria

Advanced maps and digital twins to see the bigger picture

terria.io

Terria

Digital twins are transforming how we plan cities, manage infrastructure, and respond to disaster, but until now, building one was slow, expensive, and limited to GIS professionals. Terria is changing that. As the only open-source platform proven at national scale, Terria makes it radically easier to create and share spatial digital twins in minutes, not months. From NationalMap to the NSW Spatial Digital Twin, it's already delivering impact. With a new SaaS layer offering premium features and enterprise support, Terria is commercialising geospatial tech for good. Empowering governments, planners, and communities to see the bigger picture and build more resilient, inclusive, climate-ready futures.

Sam Clifton

Head of Operations

Sam leads the development and commercialisation of Kardinia's Printed Solar. A scientist and entrepreneur, Sam has worked across academia, startups, and industry to accelerate renewable energy innovation. He's passonate about bringing deep tech into the real world, championing flexible solar solutions that are clean, low-cost, and ready to scale. His mission: make sustainable energy accessible wherever it's needed most.

Kardinia Energy

Sustainable energy, accessible for all

kardiniaenergy.com

Kardinia Energy

Kardinia Energy is redefining solar with 'Printed Solar' with an ultra-lightweight, flexible, and recyclable alternative to traditional panels. Built using a roll-to-roll printing process, the technology enables fast, scalable deployment in places where conventional solar is too heavy, rigid, or costly. From rooftops to remote communities to festival grounds, Kardinia's solution expands access to renewable energy while cutting waste and emissions. With commercial pilots already underway, including a partnership with Coldplay to power live concerts. Kardinia is lighting the way toward a more sustainable, portable, and inclusive energy future.

Clayton Franklin

Founder & Chief Engineer

Clayton Franklin is a Wunumara man from Cloncurry, QLD. With over 25 years as an electrical engineer in mining, he's led major decarbonisation projects, including a 220-tonne hydrogen-battery hybrid truck. Drawing on his Indigenous heritage and deep industry experience, Clayton is pioneering practical solutions to electrify heavy industry without waiting for new fleets or far-off timelines.

EPCA ELECTRIC POWER CONVERSIONS AUSTRALIA

Retrofitting diesel mining trucks to 100% electric

epca.net.au

EPCA - Electric Power Conversions Australia

Mining contributes nearly a quarter of Australia's emissions, and diesel-powered haul trucks are a major culprit. EPCA is tackling this challenge head-on by converting existing diesel trucks into fully battery-powered electric vehicles. Their circular economy approach retains up to 80% of original components, cutting manufacturing emissions while delivering high-performance, zero-emission alternatives to traditional OEM solutions. Backed by CSIRO and industry partners, EPCA's retrofit technology offers a faster, cheaper, and more scalable path to decarbonising mining, removing over 1,000 tonnes of CO_2 per truck per year and keeping diesel in the ground and out of the air.

Meet our Scene Setter

Lisa Sarago

CEO & Founder, Land on Heart Foundation

Who Gets to Shape the Future? Power, Progress, and the Blind Spots of Innovation

Lisa Sarago is a proud Bunda Burra Yidinji/Western Yalanji woman, award-winning Indigenous leader, and founder of the Land on Heart Foundation. Through initiatives like Land on Heart and Tiddas in Tech, she is creating pathways for Indigenous voices and talent to shape the technology sector, blending the world's oldest living culture with the tools of the future. Named 2022 Indigenous Leader of the Year, Lisa is a passionate advocate for equity, sovereignty, and inclusive innovation. At Tech23, Lisa will ask the difficult but necessary questions: Who gets to decide what counts as "progress"? What happens when narrow perspectives dominate the design of tools that govern all our lives? Her talk is a powerful call to recognise blind spots and to build futures that are not only technologically advanced, but socially just and culturally inclusive. For deep tech founders, investors, and policymakers alike, Lisa offers a reminder that innovation without diversity is fragile, and that true progress demands broader voices at the table

Engineering New Capability

During WWII, working in secret at the CSIRO's Radiophysics Lab, Ruby Payne-Scott became the first person to apply radar techniques to solar observation. Scaling the cliffs at Dover Heights, she rigged makeshift antennas and captured explosive bursts from the Sun, proving it emitted radio waves and could be tracked from Earth. This rogue experiment became the genesis of radio astronomy in Australia and seeded a national sensing capability that now underpins satellite tracking, defence surveillance, and deep space communications.

Her contributions weren't limited to science. As one of the first female physicists in the Commonwealth Scientific Service, Payne-Scott also challenged the marriage bar and systemic bias, refusing to quietly step aside. She understood that engineering new capability wasn't just about invention, it was about expanding who could contribute and what we imagined was possible.

That same spirit lives on in the systems and capability being developed to extend our reach and awareness, machines that sense what we can't see, operate without human oversight, and thrive in the most extreme conditions. These technologies are not always headline-grabbing, but they are foundational, enabling the navigation, surveillance, energy, and communication systems our future will depend on. They reflect a shift from building bigger to building smarter, from force to finesse, from reaction to anticipation.

Like Payne-Scott's early experiments, they begin at the edge of what's known, grounded in scientific courage, driven by systems thinking, and shaped by those willing to question the status quo. The lesson remains: capability is never just about tools, it's about the boldness to use them differently.

Dr Crighton Nichols

CEO & Co-founder

With a background spanning PwC, the Australian Army, and Australia's largest First Nations consultancy, Crighton has led projects ranging from AI adoption to global education access. Now, his focus is aerial. At Burl, he's applying a systems-thinking mindset to reimagine logistics unlocking flight without runways to build a more connected and resilient world.

Next-generation vertical lift to better connect the world

burlaerospace.com

Burl Aerospace

Moving heavy cargo by air typically requires runways and significant infrastructure. Burl Aerospace is taking a different approach. Their radical new class of rotorcraft enables ultra-heavy lift from tight spaces using a novel tilt-tip thruster design. Developed with support from the Australian Defence Force and global aerospace leaders, Burl is unlocking vertical logistics for construction, emergency response, and off-grid transport. Compact on the ground and powerful in the air, this Queensland venture is reimagining what flight can do and where it can go.

Sophie Zhao

CEO & Founder

Her path began in the lab, exploring photon teleportation and error correction in research roles at leading institutions like Xanadu and the Joint Quantum Institute (US). With deep expertise in quantum optics, she's now building the scalable, fault-tolerant systems designed to bring real-world stability to the quantum future, fixing a critical flaw in quantum computing.

Scaling reliable quantum computing

Zhao Jie

Quantum computing holds immense promise but is held back by errors. Even a single lost photon can derail a calculation in optical systems. CatQ, an ANU spinout, is fixing this. Their hybrid encoding method corrects errors before they spread, dramatically improving performance in room-temperature, all-optical systems. With near-unity efficiency and compatibility with existing infrastructure, CatQ's technology accelerates real-world applications from medical modelling to cybersecurity. Backed by a multi-institute quantum research lab and deep photonics expertise, CatQ is pushing quantum out of theory and into use.

Christel Hadiwibawa

COO & Co-founder

A designer by background and a systems thinker at heart, she launched more than 25 products in consumer goods before shifting into deep tech. Now building wireless charging systems for the future of autonomy, she is driven by purposeful design and a belief that the best technology works quietly in the background, making life simpler and more efficient.

Powering the future of autonomy

noathebrand.com

Powered by NOA

Powered by NOA is closing the power gap in autonomous systems, where manual charging, battery swaps, and long recharge times still limit performance. Their rugged, hands-free wireless charging system eliminates downtime for drones and ground robots in mission-critical environments like agriculture, infrastructure inspection, and emergency response. Unlike consumer-grade options, NOA's solution is built for the field and designed to scale. By enabling autonomous machines to charge themselves and stay online, NOA is making true continuous autonomy possible, no cables, no swaps, no stopping.

Dr Roozbeh Ravansari

CEO & Co-founder

Roozbeh's mission began in crisis zones testing water during Flint and measuring legacy soil contamination across Detroit. Seeing the real-world impacts of industrial pollution pushed him to build better, faster measurement tools. Today, he's bringing that urgency to agriculture. With X-Centric, he's delivering field-ready insights that go far beyond carbon, helping the people who work the land make smarter, data-backed decisions in real time.

Soil intelligence for a more resilient planet

xcentric.tech

X-Centric Sciences

Soil is one of agriculture's most critical and complex assets, yet most analysis is slow, narrow, and lab-bound. X-Centric Sciences is changing that with a portable device that delivers deep, real-time soil insights across nutrients, carbon, and geochemistry. It generates richer data per scan, without lab delays or high costs. Already piloting with global leaders like PepsiCo, X-Centric is equipping farmers and corporations to make smarter, faster decisions, improving yields, reducing inputs, and strengthening supply chains from the ground up.

Professor Jim Rabeau

CEO & Co-founder

Jim started his career in the lab of a Nobel laureate and went on to lead quantum programs at Microsoft and other global tech firms. Now a professor and entrepreneur, he's turning decades of diamond quantum research into real-world systems. His venture is building navigation that works where GPS fails, keeping assets online and people safe, even when satellites go dark.

GPS-free navigation, guided by diamonds

deteqt.tech

Deteqt

GPS is vulnerable. From underground mines to defence operations, losing signal means losing control. DeteQt has developed a chip-sized quantum sensor that uses the Earth's magnetic field to guide navigation, no satellites required. Built on 15 years of research, the system fuses a diamond sensing element with a silicon chip in a world-first design. Backed by a $3.4 million Australian Defence contract and top-tier investors, DeteQt is turning quantum precision into magnetic field intelligence for defence, mining, and medical imaging, delivering exact positioning where GPS fails.

Meet our Scene Setter

Rachel Slattery

Founder, Silver Futures

The Future is Silver: Designing for a Longer, Bolder Life

Rachel Slattery has been shaping Australia's innovation story for decades. From her early career in publishing, she went on to establish Slatterys, curating flagship conferences such as AgileAus and Tech23 long before "agile" and "deep tech" were household terms. Today she is turning her lens to ageing with Silver Futures, a platform dedicated to reimagining later life as a stage of purpose, reinvention, and continued contribution. At Tech23, Rachel will open a vital conversation about the radical potential of longevity. As science and technology extend our years, how do we also extend meaning, connection, and curiosity? Her talk challenges us to design innovation systems that do more than add time — they add value to lives well-lived. Drawing on her unique vantage point across decades of technology shifts, Rachel will invite the audience to imagine ageing not as decline, but as a bold frontier for innovation that demands our attention today.

A New System of Care

Reverend John Flynn saw a crisis of scale and distance. In early 20th-century Australia, the vast outback was a dangerous place to fall ill or be injured, with no system of care to respond. Flynn wasn't a doctor, but an innovator. He imagined a new kind of healthcare. Decentralised, connected, and built to reach people where they were.

In 1928, the Royal Flying Doctor Service became a reality. Paired with the pedal radio, it delivered more than emergency response, it created a support system. It provided care before a crisis, continuity between visits, and connection in times of isolation. It was a radical shift away from institution-based medicine, and a powerful reminder that health systems must be designed around people, not just facilities.

That same rethinking is needed now. Our healthcare systems are under strain. From ageing populations, chronic conditions, workforce shortages, and infrastructure bottlenecks. Too often, care arrives too late, especially for the most vulnerable.

But deep tech is unlocking a new wave of solutions: continuous diagnostics that flag deterioration early, wearable sensors that help people manage long-term conditions, implantable devices that replace hospital-based treatments, and technologies that make care safer and more responsive for newborns and the elderly alike.

These are not marginal improvements. They are blueprints for a different kind of system. One that listens earlier, acts faster, and supports health across the full continuum of life. As Flynn showed, the most powerful care often begins far from the clinic, when we dare to imagine a better way.

Dr Samira Sadeghi

CEO & Co-founder

Dr. Samira is leading OncoRevive, a biotech startup specialising in a novel multiomics liquid biopsy platform, transforming early cancer detection. She has over 12 years of experience in cancer biology and nanotechnology, and 18 peer-reviewed publications. She blends scientific depth and entrepreneurial drive in her work. Before OncoRevive, she secured non-dilutive funding for a previous biotech venture and has received multiple awards throughout her career. Samira is committed to turning cutting-edge science into accessible, life-saving solutions.

OncoREVIVE

Detecting cancer earlier, from a single drop of blood

oncorevive.com

OncoRevive

1 in 5 people worldwide will face cancer in their lifetime, according to the World Health Organisation (WHO), with cases projected to rise 77% by 2050. Yet 50% of patients still die, largely due to the lack of efficient, non-invasive tools for treatment monitoring and recurrence detection. To combat this, OncoRevive has created a blood test that's over a billion times more sensitive than standard methods. Analysing DNA, proteins, and sugars in a single sample, their AI-driven platform spots cancer early, with results in hours. It's a powerful leap toward faster, more accurate, and more accessible diagnosis worldwide.

Dr Nipanjana Patra

CEO & Founder

Dr. Nipanjana is driving innovation in neonatal patient safety. With over 14 years of experience in space and astronomy research, she transitioned into MedTech after recognising the urgent need for safer IV therapy in NICUs. She leads the development of Vedette, a precision monitoring solution designed to prevent IV extravasation injuries in preterm infants. Committed to advancing neonatal care, she advocates for purpose-built solutions tailored for neonates, rather than scaled-down adaptations of adult technology.

PRETECT

Safer intravenous infusion for premature babies

pretectdevices.com

Pretect Devices Pty Ltd

In neonatal intensive care, undetected IV fluid leakage poses a critical and often life-threatening risk, potentially causing severe internal burns to vulnerable infants. Pretect Devices is directly addressing this grave issue by developing Vedette, a wearable monitor designed for continuous, early detection of fluid leakage. Inspired by the founder's own experience with her newborn, this innovative device provides real-time alerts to clinicians to prevent harm. Vedette represents a significant breakthrough in neonatal safety, seamlessly translating a profound lived experience into life-saving technology. This proactive approach promises to prevent serious harm, drastically improve patient outcomes, and bring immense peace of mind to families and healthcare providers worldwide.

Alur Saguinsin

CEO & Founder

Alur is a Mechatronics engineer with a background in Control systems and medical device manufacturing at Fisher and Paykel Healthcare. After losing a parent to end-stage kidney failure, Alur left her corporate engineering role to focus full-time on developing a fully implantable artificial kidney. Combining personal lived experience with technical expertise, Alur leads the development of One Kidney's bioinspired filtration technology and its team of clinical, commercial, and regulatory advisors.

A future beyond kidney dialysis

onekidney.com.au

Over 850 million people are affected globally, with kidney disease costing the Australian health system more than $9 billion each year, according to the International Society of Nephrology (ISN). However, many die because donor kidneys are scarce and dialysis remains a gruelling, time-consuming treatment. One Kidney is solving this issue with a fully implantable artificial kidney to restore natural function, with no machines and no donor waitlists. The company's bioinspired membrane system was born after founder Alur Saguinsin witnessed her father's struggle with kidney failure. This technology, which began as a high-efficiency external dialyser now in clinical validation, is poised to bring the next generation of renal care to life, saving countless lives worldwide.

One Kidney

Naomi Dragt

CEO & Founder

Naomi is a passionate scientist transforming psychiatry from crisis intervention to proactive management of neuropsychiatric diseases. With a background in psychology and neuroscience and over a decade as a carer, she drives this mission. Naomi is developing the BEAM biosensor platform to predict and prevent psychiatric emergencies, leading R&D and advocating for a future where families are never blindsided by mental illness relapse.

Predicting psychiatric relapse before it happens

liora.health

Psychiatric relapse can escalate rapidly, often without sufficient early warning, leading to significant personal and healthcare burdens. Liora Neurotech is addressing this critical issue by developing 'Lumara', a wearable biosensor that continuously tracks key biomarkers. Lumara monitors indicators like cortisol, inflammation and melatonin to detect early relapse risk in schizophrenia and bipolar disorder. By enabling continuous sensing, Lumara empowers both patients and clinicians to take proactive steps much earlier, fundamentally shifting mental healthcare from a reactive, crisis-driven model to a preventative and proactive approach, improving outcomes and quality of life for patients worldwide.

Liora Neurotech

Hitesh Mehta

COO & Co-founder

Hitesh Mehta is a corporate consultant turned entrepreneur. He has over a decade of experience in healthcare consulting. Hitesh is passionate about creating a more proactive healthcare system and leverages his background and drive to build Nutromics into a world leader in continuous biomolecular monitoring. Hitesh's vision is to make healthcare more accessible and inclusive globally.

Saving lives through continuous diagnostic monitoring

nutromics.com

Traditional lab diagnostics offer only a single, delayed data point, which is insufficient for fast-moving medical conditions. Nutromics is revolutionising diagnostics by providing continuous, real-time biomolecular monitoring. Their lab-on-a-patch technology uses microneedles and DNA-based biosensors to continuously track biomolecules directly at the bedside. This innovation replaces delayed lab data with minute-by-minute visibility, enabling ICU teams to precisely track a patient's response to treatment. Already tested in humans and backed by $20 million in funding, Nutromics is the first clinically ready system to deliver continuous, real-time diagnostic insights on critical molecular targets, starting with vancomycin (administered IV antibiotic), dramatically improving patient care globally.

Nutromics

Meet our Scene Setter

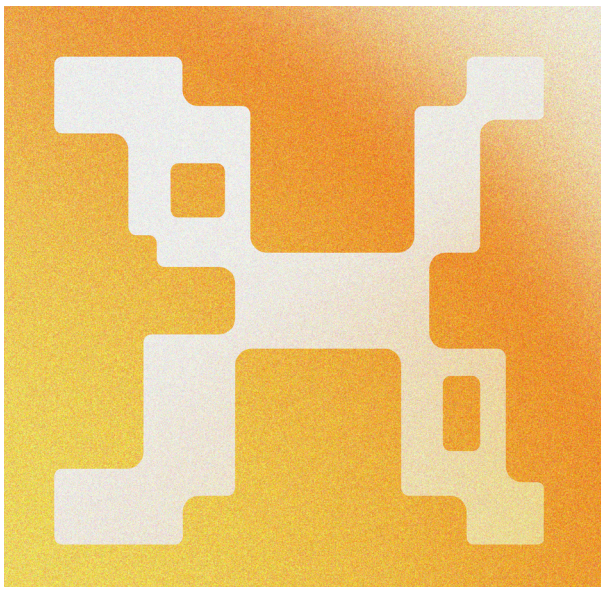
Steve Kessel

Former SVP, Amazon

Creating a Culture of Innovation: Lessons from Amazon, for Deep Tech and Beyond

For more than two decades, Steve Kessel was part of Amazon's senior leadership team, helping grow the company from $600 million to $300 billion in revenue. He led the development of landmark innovations including the Kindle, Amazon's digital media business, Fire tablets, and the Just Walk Out technology that powers cashier-less stores around the world. With a career spanning the launch of entirely new businesses to scaling global operations, Steve has unparalleled insight into what it really takes to build and sustain a culture of innovation. At Tech23, Steve will draw on lessons from inside Amazon; the structures, behaviours, and mindset shifts that enabled bold ideas to thrive, and reflect on what does and doesn't transfer into Australia's context. His talk will challenge founders, policymakers, and corporate leaders alike: if we are serious about unlocking deep tech, what needs to change? Visionary yet grounded, Steve sets the tone for a day about building innovation that lasts.

Re-Sourcing the World



Long before the terms ‘circular economy’ or ‘upcycling’ were common, Ronni Kahn was already tackling the problem of food waste, one meal at a time.

After witnessing the colossal amount of perfectly good food being thrown away, she founded OzHarvest in 2004. Her mission was simple yet radical. Rescue surplus food and deliver it to people in need. It wasn’t just about feeding people; It was about exposing a systemic flaw in our society. That valuable resources were being discarded while others went without. Her approach was revolutionary. Khan even faced legal challenges as she fought for the right to donate food. Today, OzHarvest is a national institution, but its legacy goes far beyond food rescue. Kahn’s work fundamentally shifted our perception of waste from a liability to an asset, and she showed us that one person’s waste can be another’s resource.

In the same way Kahn redefined food waste as a resource, these founders are redefining where value comes from. They’re seeing carbon, waste, and critical minerals not as discards, but as the raw materials for a climate-conscious future. They are creating a new industrial era where waste is not an end but a beginning. They’re using deep tech to break down textiles, plastics, and electronics into reusable components, engineering new materials from captured carbon, and turning industrial byproducts into high-value chemicals. These technologies promise to create a sustainable future, where our infrastructure and goods are made not from virgin resources, but from what we’ve already used. Re-sourcing the world requires more than just innovation. It requires a profound shift in mindset. We must see waste not as a problem to be disposed of, but as a resource to be treasured.

Leigh Staines

Managing Director

An environmental and chemical engineer, she broke new ground as one of the first women to lead major Australian refineries. With decades of experience running complex industrial sites for global companies like ExxonMobil and Rio Tinto, she is now leveraging that deep industry expertise to champion a new standard for copper refining, building what comes next and leading the sector into a cleaner, smarter future.

BANKSIA

Redefining the future of copper production

Copper is essential to the global energy transition, but current refining methods are dirty, dangerous, and outdated. Banksia Minerals is building a new normal for copper production, replacing traditional smelting with a cleaner, safer, and more cost-effective process. Their low-emission technology eliminates toxic byproducts and operates without furnaces, unlocking resources once considered too hard or dirty to mine. Spun out of the University of Queensland, Banksia offers a scalable path to refining copper that meets modern expectations.

banksiaminerals.com

Banksia Minerals Processing

Julius Lewis

Founder

Applying decades of commercial and technical experience to decarbonise flight, his career began in energy management in the UK after earning an Honours in Physics. He later held executive roles across Australia’s finance, consulting, and tech sectors. Now a Visiting Fellow at UNSW’s School of Chemistry, he is focused on transforming captured carbon into clean, scalable fuels for a net-zero future.

COOL ENGINEERING

Transforming carbon dioxide into aviation fuel

Aviation is one of the fastest-growing and hardest-to-abate sectors, facing a massive shortfall in sustainable aviation fuel. COOL ENGINEERING is addressing this by converting industrial CO_2 into fuel that works with existing aircraft and infrastructure. Their patented, modular process is scalable, cost-effective, and adaptable to customer needs. With patents granted across Australia, India, the US, and Europe, they’re demonstrating how carbon can be transformed from a liability into an asset. By starting with aviation, they are tackling an urgent emissions challenge and paving the way for a circular carbon economy.

coolengineering.co

COOL ENGINEERING

Dr Peter Richardson

CEO & Co-founder

A scientist and engineer by training, he has worked across R&D, manufacturing, and process design in both emerging ventures and global firms. Now, he’s turning a chance lab discovery into a platform for climate impact, applying his deep technical expertise to reengineer one of the world’s most important chemicals for a sustainable future and leading the charge to decarbonise ammonia.

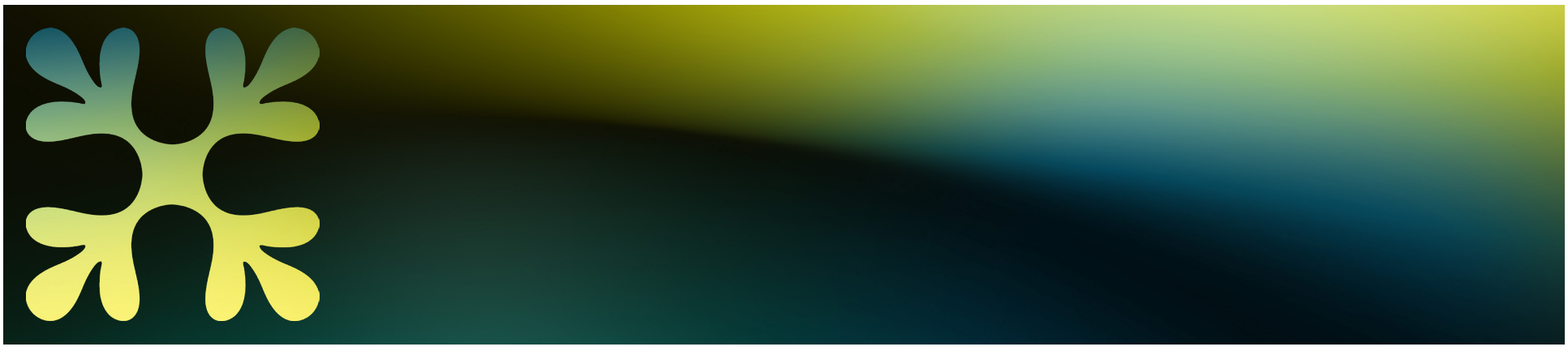
FACET AMTECH

Fueling the energy transition with clean ammonia

Ammonia is vital to global farming and energy systems, but its current production relies on fossil fuels. Facet Amtech is changing this with new technology that creates ammonia directly from water and air, cutting out hydrocarbons entirely. Their breakthrough reduces emissions, energy use and costs, redefining how we make and use ammonia. With a modular design suited to decentralised use, it opens new pathways for green fertiliser, zero-carbon shipping and clean power generation. By rebuilding ammonia from the molecule up, Facet Amtech is repositioning ammonia as a cornerstone of the clean energy transition.

facetamtech.com

Facet Amtech



Built with Biology

Before “biotech” or “synthetic biology” entered the lexicon, a Tasmanian ecologist named Bill Mollison was laying the groundwork for a different kind of biological revolution. In the 1970s, Mollison co-developed the philosophy of permaculture; not as a farming technique, but as a framework for designing human habitats modelled on natural ecosystems. He saw biology as infrastructure: self-healing, intelligent, and more powerful than any engineered system. At the time, his ideas were considered fringe, even subversive.

But today, his legacy can be found everywhere - in regenerative agriculture, closed-loop manufacturing, and a growing realisation that biology is not just a tool, but a blueprint for how we live and build. The ventures behind this theme are advancing that blueprint. They are redesigning materials from the molecule up, engineering living cells and systems to heal skin, recycle stubborn plastics, recover critical minerals from waste, and grow carbon-smart alternatives to fossil feedstocks. Biology is no longer just a source of inspiration, it’s becoming the foundation of our next industrial era. These technologies promise to replace petroleum and pollution with processes that are regenerative by design. But unlocking this future is not without challenges. Scaling biomanufacturing, competing on cost, earning public trust, and resisting the pressure to retrofit biology into extractive models - these are the real tensions. Still, the opportunity is vast: to build a world where infrastructure isn’t mined or manufactured, but grown, repaired, and sustained by life itself.

What Mollison taught us, and what this new generation must carry forward, is that building with biology requires humility, imagination, and courage. We must design with living systems, not over them. We must reimagine what infrastructure looks like when it’s grown, not mined. The founders you’ll meet in this theme are doing just that - working with nature, not against it, to craft a future that is repairable, resilient, and very much alive.

Nick Hazell

Founder

Originally an Aerospace manufacturing engineer from Cambridge University, Nick’s career has taken him into chocolate manufacturing at Mars, industrial engineering, technology and innovation as R&D director for Mars Inc. and Pepsico in 3 countries. He won the Chairman’s award for innovation for Achieving Pepsico’s long term health goals in Australia. He has taught innovation at UTS and founded V2food in 2019, growing it to Australia’s leading plant based meat company.

algenie

Making algae biomanufacturing more scalable and cheaper

algenie.com.au

The global industrial economy heavily relies on fossil fuels and traditional agriculture, leading to significant carbon emissions and land degradation. Algenie is fundamentally transforming this by making algae the foundation of tomorrow’s industrial economy. They’ve developed a patented helical photobioreactor that efficiently cultivates cyanobacteria using only light and otherwise wasted renewable energy, requiring no farmland or additional CO_2. The innovative system absorbs two kilograms of carbon for every kilogram of product, and is up to 50 times more cost-effective than existing photobioreactors. By unlocking low-cost, large-scale algae production, Algenie enables sustainable alternatives for fuels, plastics, proteins and lays the foundation for a new, climate-positive industrial economy.

Algenie

Dr Stephanie Allison-Logan

CEO & Co-Founder

Stephanie Allison-Logan is the CEO and Co-Founder of Sprout Materials, a startup developing circular materials to tackle plastic waste. With a PhD in polymer chemistry and postdoctoral research experience at MIT, Stephanie was also an early hire at a Boston biotech startup before founding Sprout Materials in early 2024. Her work bridges cutting-edge materials science with real-world impact, aiming to create a more sustainable future through smart, circular design.

Sprout Materials

Sustainable materials to drive a circular plastic economy

sproutmaterials.com

Polyurethane foam, ubiquitous in packaging and furniture, poses a significant environmental challenge due to its limited recyclability. Sprout Materials directly addresses this issue by developing a chemically recyclable alternative. Their innovative material performs identically to conventional foam and seamlessly integrates with existing manufacturing systems. Built upon patented Australian National University (ANU) chemistry, Sprout Materials’ circular materials enable producers to achieve their sustainability targets without compromising on performance or cost. This is more than just a product; it’s a practical and scalable climate solution ready to revolutionise industries worldwide. Sprout Materials’ tech is set to significantly reducing waste and promoting a more sustainable, circular economy for packing materials.

Sprout Materials

John Mellowes

Chief Engineer and Co-Founder

John Mellowes is pioneering the company's patent-pending pyrolysis technology. With over 25 years in engineering, including running successful fabrication businesses, John brings extensive hands-on experience in complex industrial processes. John is currently leading the design and delivery of BioCarbon's first commercial plant and is a recognised speaker on numerous podcasts, as well as presenting on biochar in steelmaking at international summits in Germany and China.

BIOCARBON

BioCarbon produces sustainable, net zero carbon for industry

Heavy industry's persistent reliance on coal presents a significant challenge to global decarbonisation efforts, contributing heavily to greenhouse gas emissions. BioCarbon is directly addressing this issue by replacing coal with a renewable alternative made from forestry waste. Their patented pyrolysis process ingeniously transforms wet, unprocessed wood into GreenChar, a high-grade carbon product that powers electric furnaces for steelmaking. This innovative technology requires no external energy and has completed industry trials, with a commercial plant underway. BioCarbon is proving that fossil fuels are replaceable and can be outperformed by waste, offering a cleaner, more efficient, and sustainable pathway for industrial processes worldwide and reducing the carbon footprint of critical sectors.

biocarbon.com.au

BIOCARBON_AU

Veronica Stevenson

CEO & Founder

Veronica began her journey with a personal investment of her life savings to sequence a rare solitary bee's genome, leading to a proprietary peptide that restarts elastin production, typically found in anti-aging skincare. This peptide promotes elastin 4.7x more than current standards, revolutionising the $50B cosmetic market. Veronica holds a BSc in Reproductive Anatomy and Structural Biology and a Master's in Science Communication and is an Edmund Hillary Fellow, a TEDx speaker, and a scientific polymath.

Humble Bee Bio

Combining nature with biotechnology to create products that restore biodiversity

After puberty, the human body ceases elastin production, leading to the familiar signs of aging and decreased tissue flexibility. Humble Bee Bio directly tackles this by engineering a bioinspired peptide that reactivates the body's natural elastin production. This innovative technology delivers visible results in 12 hours and demonstrates a 500% superior performance compared to existing ingredients on the market. Clean, sustainable, and clinically validated, this breakthrough is set to revolutionise the aesthetics market. Beyond its scientific achievements, Humble Bee Bio integrates purpose-driven impact by allocating a portion of its profits to support Indigenous-led biodiversity initiatives, blending scientific innovation with purpose-driven impact.

humblebee.co.nz

humble bee bio

Professor Caitlin Byrt

Director

Professor Caitlin is an Australian Research Council Industry Fellow at The Australian National University. As co-founder of Membrane Transporter Engineers, she spearheads the development of bioengineered technologies that harvest valuable resources from industrial wastes. Her team focuses on sustainably recovering precious metals, minerals, nutrients, and clean water. Dr. Byrt's work directly contributes to a circular economy, transforming waste into resources for various industries and promoting environmental sustainability.

Membrane Transporter Engineers

Reclaiming value from industrial wastewater

Complex industrial wastewater presents a significant environmental challenge and a missed opportunity for resource recovery. Membrane Transporter Engineers (MTE) is addressing this by developing nature-inspired membrane technologies that recover high-value materials from these challenging waste streams. Mimicking how plant cells selectively transport nutrients, their innovative technology precisely extracts critical resources like lithium, cobalt, and phosphorus. Their tech supports a circular economy, effectively transforming industrial waste into valuable resources for essential sectors such as agriculture, mining, and clean energy. MTE's technology offers a sustainable and efficient solution for global industries, by reducing pollution, providing access to scarce materials and fostering a more sustainable future.

membranetransportengineers.com

Caitlin Byrt

Meet our Scene Setter

Edmond Lau

Cultural Strategist & Author, The Dark Mode Shift

Do Not Be Afraid of the Dark: Designing in an Age of Disillusionment

Edmond Lau is a cultural strategist who makes sense of internet aesthetics, trends, and taste. His viral essay The Dark Mode Shift captured a global mood, drawing mainstream media attention and sparking conversations about trust, disillusionment, and design in a turbulent age. Operating at the intersection of brand strategy and cultural anthropology, Edmond decodes how online communities shape behaviours, markets, and meaning. At Tech23, he brings this outsider lens to deep tech, asking what it means to innovate when optimism feels naïve and disruption no longer inspires automatic faith. His provocation, Do Not Be Afraid of the Dark, will help us sit with uncertainty not to despair, but to design with intention and clarity. What should innovation look and feel like in an era of scepticism? What should founders, researchers, and investors carry forward when belief in "progress" is fractured? Expect a creative and unsettling reflection that reframes "darkness" not as doom, but as a necessary space for reinvention.

Event agenda

Time	Session	Detail
8:00	Registration Opens - Breakfast & Networking	
8:55	Welcome to Cicada x Tech23 Welcome to Country Opening Remarks Introduction to the day	Speakers & MC: Uncle Colin Locke Sian Priest, Cicada Innovations MC, Tiahni Adamson
9:20	Session 1: The Built World, Upgraded *From self-monitoring infrastructure to energy systems that respond in real time, these startups are embedding intelligence into the physical world - redesigning how we live, move, and power a planet under pressure.*	Founder Talk: Sam Ringwaldt, ConryTech Panel: Harrison Crowe-Maxwell, Puralink Ana Belgun, Terria Moderator: Sian Priest, Cicada Innovations Fireside Chat: Clayton Franklin, EPCA Moderator: Sian Priest, Cicada Innovations
10:05	Nature Break (25 minutes)	
10:30	Session 2: Engineering New Capability *This is deep tech that enables the impossible: sensing, navigating, and operating in environments beyond the reach of legacy systems, from autonomous flight to quantum-scale perception.*	Founder Talk: Crighton Nichols, Burl Aerospace Panel: Sophie Zhao, CatQ Christel Hadiwibawa, Powered by NOA Roozbeh Ravansari, X-Centric Sciences Moderator: Tim Hynes, Radium Capital Fireside Chat: Jim Rabeau, DeteQt Moderator: Alex Shapilsky, Cicada Innovations Keynote Speaker: Lisa Sarago
11:30	Nature Break (20 minutes)	
11:50	Session 3: A New System of Care *This session reveals how healthcare is shifting from reactive to preemptive, with sensing, diagnostics, and monitoring systems that act before symptoms appear, building a future where health is continuous, ambient, and engineered.*	Fireside Chat: Samira Sadeghi, OncoRevive Moderator: Elaine Stead, Main Sequence Ventures Founder Talk: Nipanjana Patra, Pretect Devices Panel: Alur Saguinsin, One Kidney Naomi Dragt, Liora Neurotech Hitesh Mehta, Nutromics Moderator: Katja Beitat, Cicada Innovations

Time	Session	Detail
	Session 3: A New System of Care	Keynote: Rachel Slattery
13:00	Lunch (1 hour)	
14:00	The Big Thought	Keynote Speaker: Steve Kessel Keynote Interview: Steve Kessel & Mike Zimmerman
14:35	Session 4: Re-Sourcing the World *Startups in this session are redefining where value comes from transforming carbon, waste, and critical minerals into the raw materials that will power a climate-conscious, resource-constrained future.*	Founder Talk: Leigh Staines, Banksia Minerals Panel: Julius Lewis, COOL ENGINEERING Peter Richardson, Facet Amtech Moderator: Jo Palmer, Pointer Remote
15:10	Nature Break (25 minutes)	
15:35	Session 5: Built with Biology *These ventures are using biology as infrastructure, harnessing living systems to grow, fabricate, and regenerate everything from industrial materials to ecosystem intelligence.*	Keynote Speaker: Edmond Lau Panel: Nick Hazell, Algenie Stephanie Allison-Logan, Sprout Materials John Mellowes, Biocarbon Moderator: Jason Whitfield, Main Sequence Ventures Fireside Chat: Veronica Stevenson, Humble Bee Bio Moderator: Tamara Bryden, Westpac Founder Talk: Caitlin Byrt, MTE
16:35	Closing Remarks	Tiahni Adamson Sian Priest
17:00	Conference concludes, plus networking drinks	

Cicada x Tech23 is proudly supported by:

Main Sponsors

MAIN SEQUENCE

Vanguard Sponsors

Westpac

Ecosystem Sponsors

ADDISONS

BOSON VENTURES

CFO plus
Your outsourced finance department

CSIRO

CITY OF SYDNEY

DASSAULT SYSTEMES

Australian Government
IP Australia

onset

R&DIUM CAPITAL

<techvisa>

THE UNIVERSITY OF SYDNEY

HONDA Xcelerator Ventures

UTS