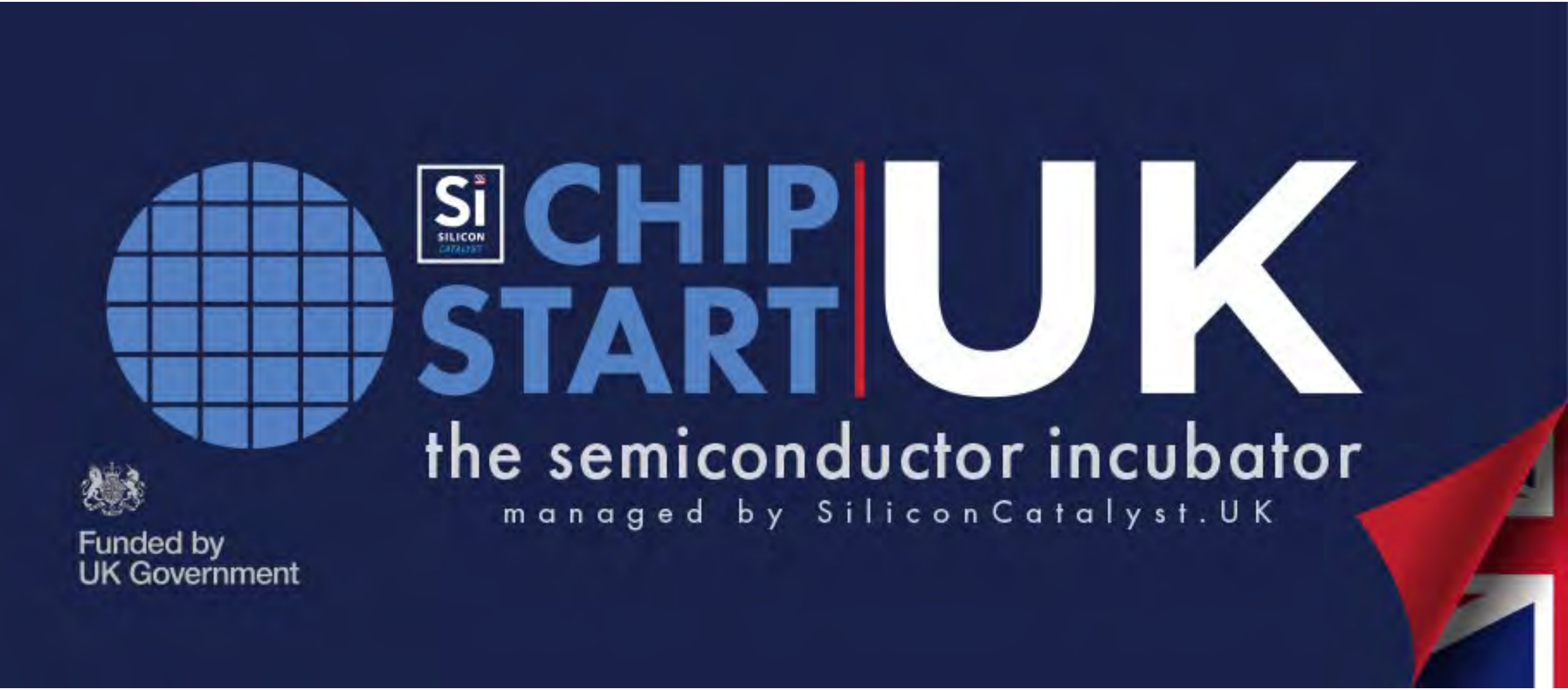

Si
SILICON
CHIP
START
UK
the semiconductor incubator
managed by SiliconCatalyst.UK
Funded by
UK Government

UK Government funded semiconductor startup incubator

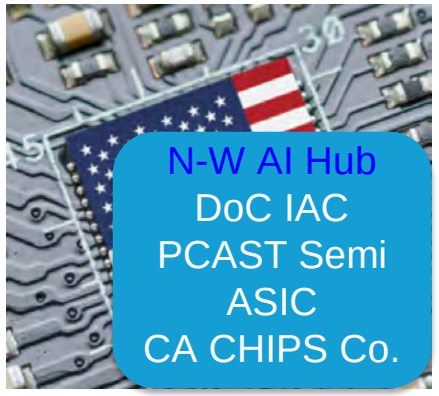
- Deploying Silicon Catalyst proven ecosystem for semiconductor startups
  - Training and advising
  - Free EDA tools, Design IP & Foundry from In Kind Partners
  - Links to the global semiconductor supply chain
  - Accessing and de-risking investment

- 9-month Semiconductor incubator
  - Fully funded by UK government

Department for Science, Innovation & Technology

- Applications open www.siliconcatalyst.uk for Cohort 2
  - closing April 12th

Ecosystem Centered on Startups



N-W AI Hub
DoC IAC
PCAST Semi
ASIC
CA CHIPS Co.

International
UK, Israel & US Teams
Advisors worldwide

35+ Universities

Industry Partners

Accelerators

Good for Startups, Partners, Investors, Advisors … the industry

arm

Enter for a chance to win up to $250,000 Arm Technology Credit

Arm Flexible Access for Startups Contest

Subject to Terms and Conditions

SECQAI

Rahul Tyagi
CEO

CHIP START UK
the semiconductor incubator
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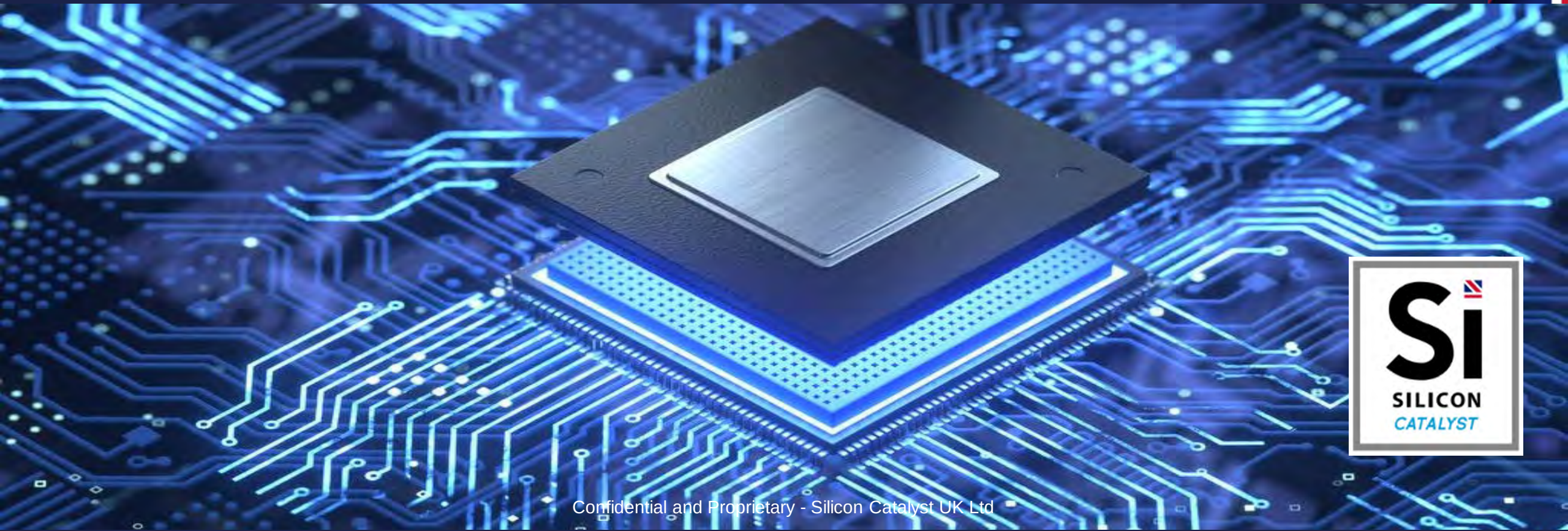
Funded by
UK Government



SILICON CATALYST

Confidential and Proprietary - Silicon Catalyst UK Ltd

SECQAI

Confidential Computing with Post-Quantum Encryption

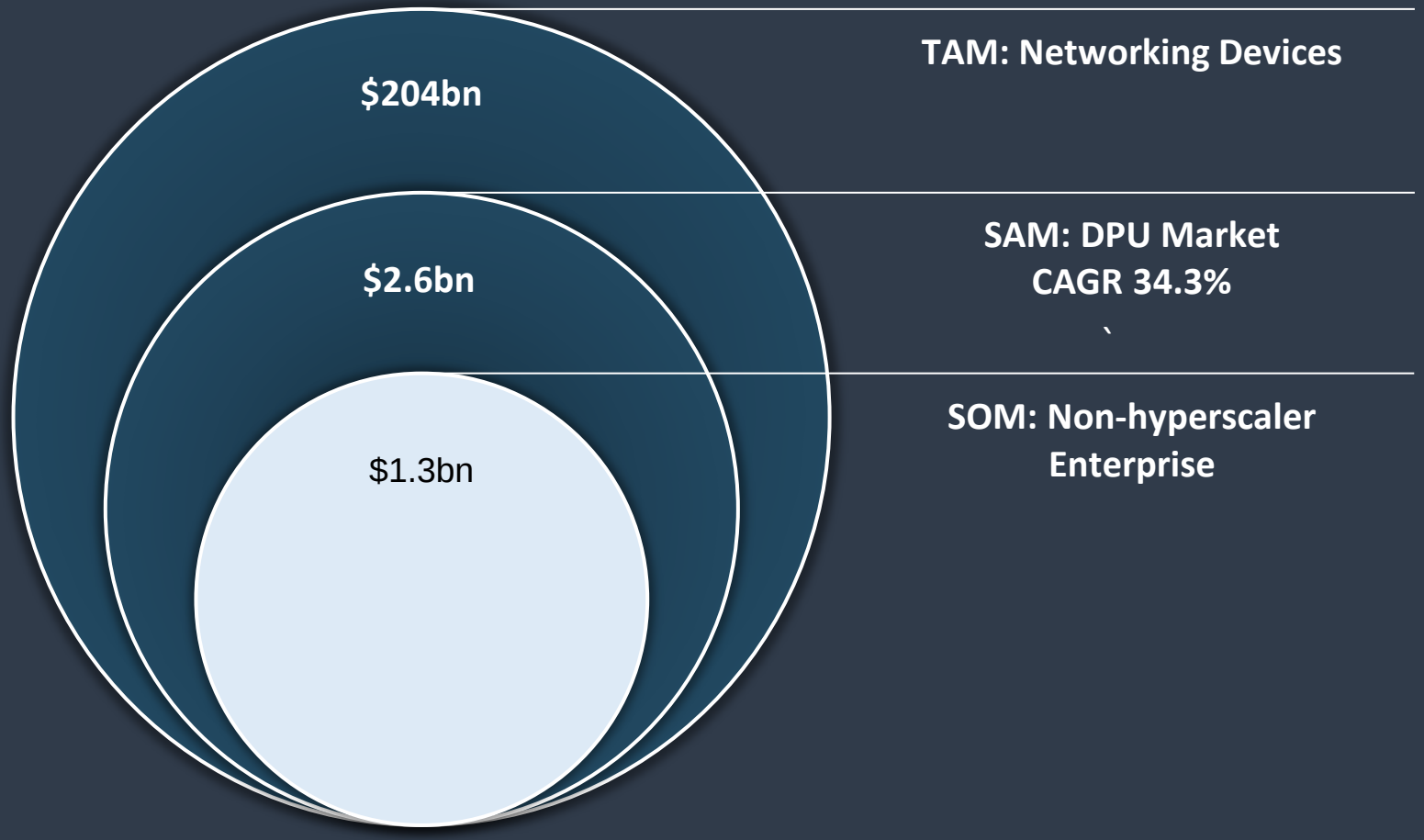
GSA London 2024

Confidential © SECQAI LTD.

Our System on Chip simplifies and solves core customer problems

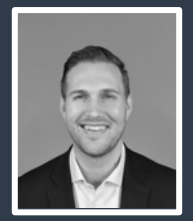
Core customer problems needing to be addressed		**SECQAI's 'Q-Locked' SOC: The "Apple" for security**
Not prepared for the Quantum Threat		Post Quantum Cryptography & QRNG
Security is hard		All your security tools, built in
Difficult and risky to compute at the edge		Memory safety for confidential compute

Our focus will initially be on the DPU market

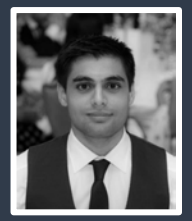


- Initial focus on Network Interface Card (NIC) / Data Processing Unit (DPU) commercial customers
- Firewall, XDR and cryptography functions are being offloaded to these devices
- Our strategy is to focus on user experience to gain traction: we target the neglected enterprise customer

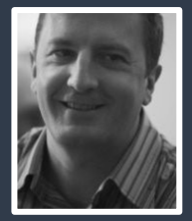
Leadership



Angus Lockhart
COO

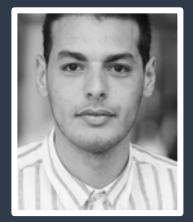


Rahul Tyagi
CEO

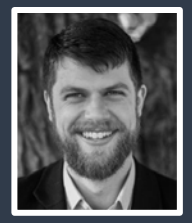


Graham Harris
CFO

Andrew Addison
Firmware



Alaeddine Jendoubi
Photonics Hardware



Andrew Nicol
Hardware Engineering Lead

… of a team with experience from leading organisations

Microsoft imec NORDIC SEMICONDUCTOR ELIXIRR

Google MathWorks Deutsche Bank Atos

Come & have a chat!

1. Helping you bring Post Quantum Cryptography to your products

2. Scaling up the impact we can have through an investment round soon

SECQAI

Interested in discussing further?

contact@secqai.com

www.secqai.com

Tuesday, 12 March 2024

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Vaire Computing

Rodolfo Rosini
CEO

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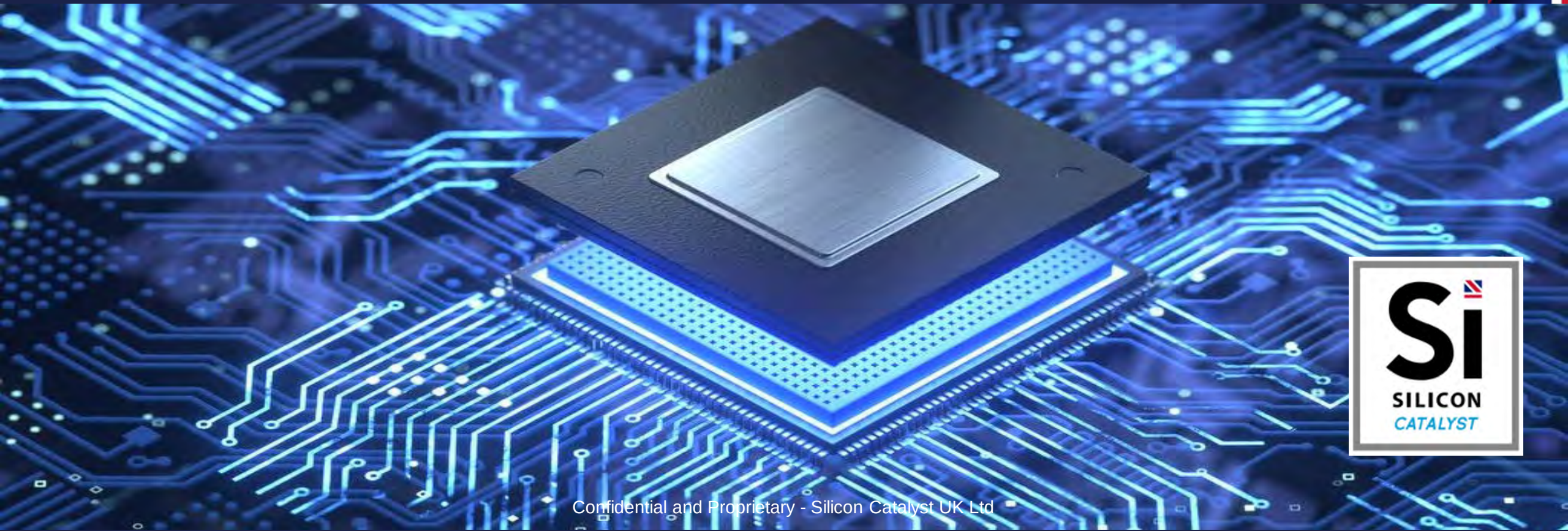

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Rodolfo Rosini
CEO & co-founder

vaire

Near-Zero Energy Chips for Generative AI

Everyone else is wrong

- There is no point investing time and resources in anything other than approaching sub-Landauer computing
- Incumbents keep running in the opposite direction, building faster and hotter chips

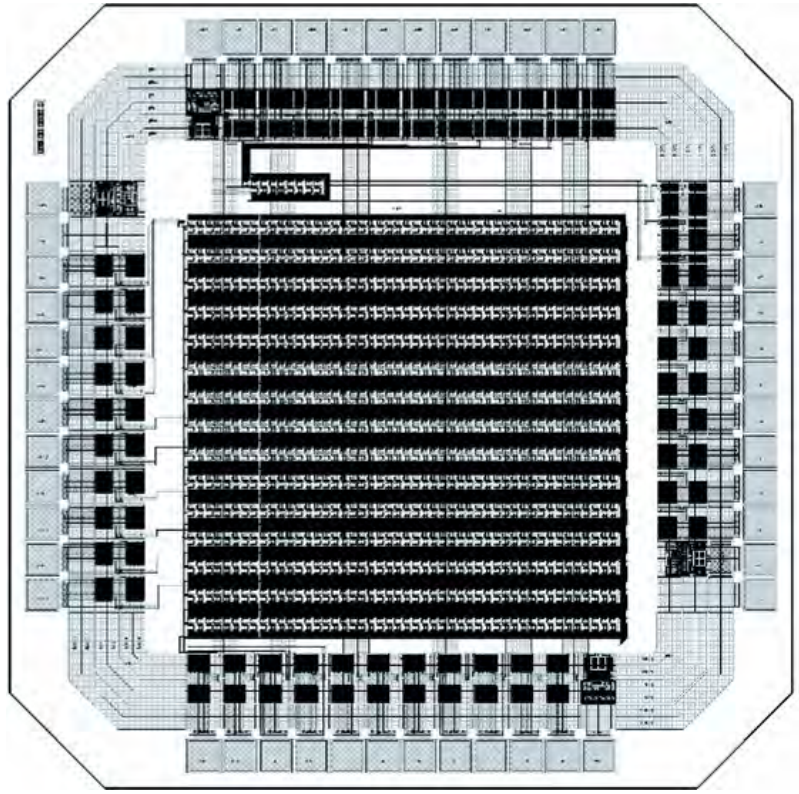
The future of chips is Near Zero Energy

Vaire Computing, founded in 2021, working on NZECs

Team ex Acorn/Arm/Google/Neuralink/Imagination/AMD

Raised $4m in seed funding from UK/US VCs

In discussions for a significant Series A in Q4 2024+



Initial market is always-on AI for IoT / defense / data centers

Test chip in 2025, mass market in 2027

We are hiring!

London, Cambridge, Seattle, Sunnyvale

Multiple openings:
Engineering, Product Management, Comms, Ops

Looking for high-intensity world-class performers

RODOLFO@VAIRE.CO

HyperCIM

Tanyaradzwa Mangoma
CEO

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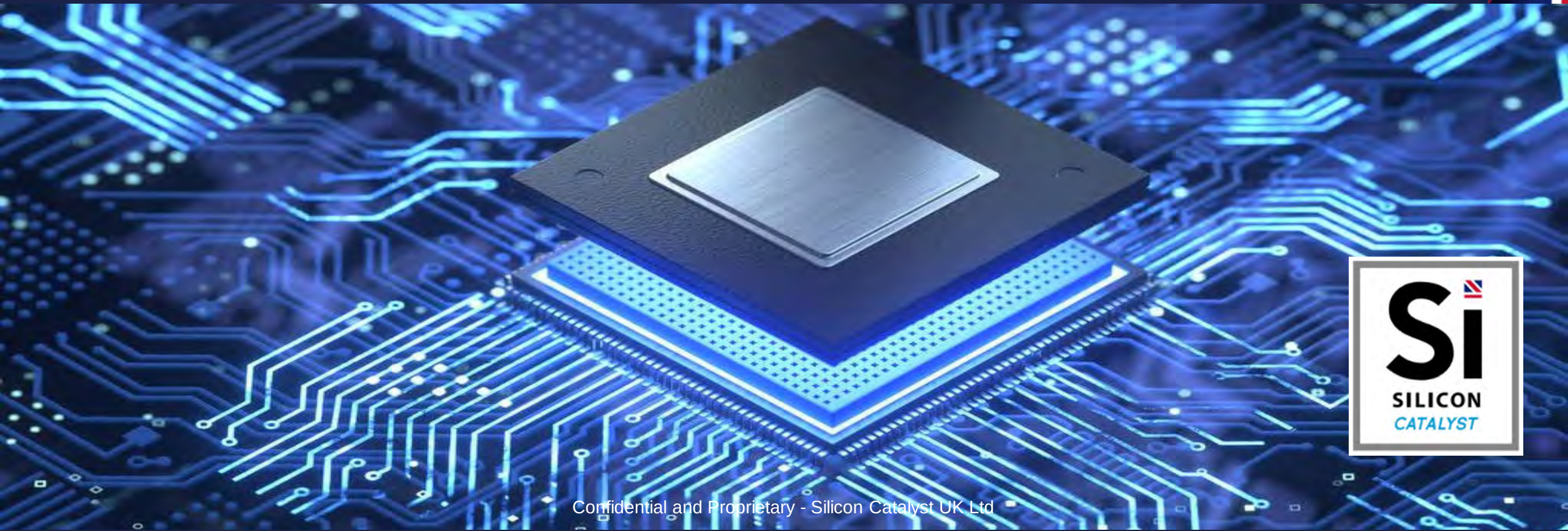
UK Government



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HyperCIM

Empowering | Enterprise | Software | Efficiency

Dr Tanya N. Mangoma
Founder
tanya@hyperCIM.com

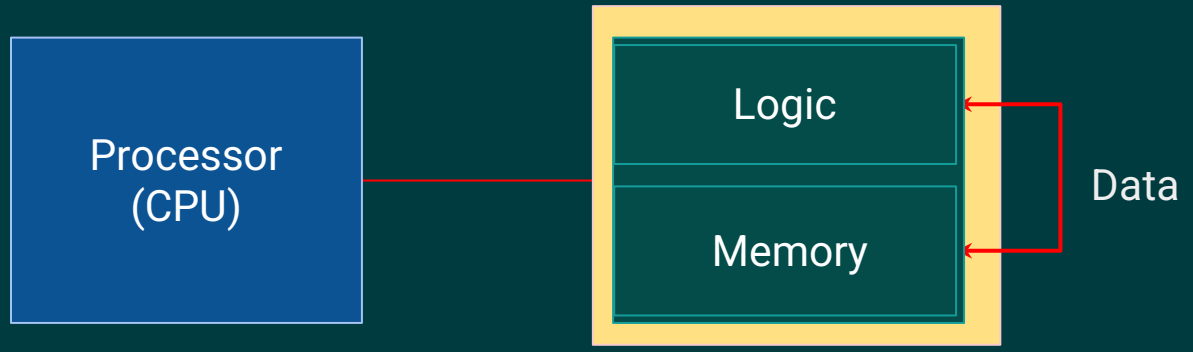
HyperCIM.com

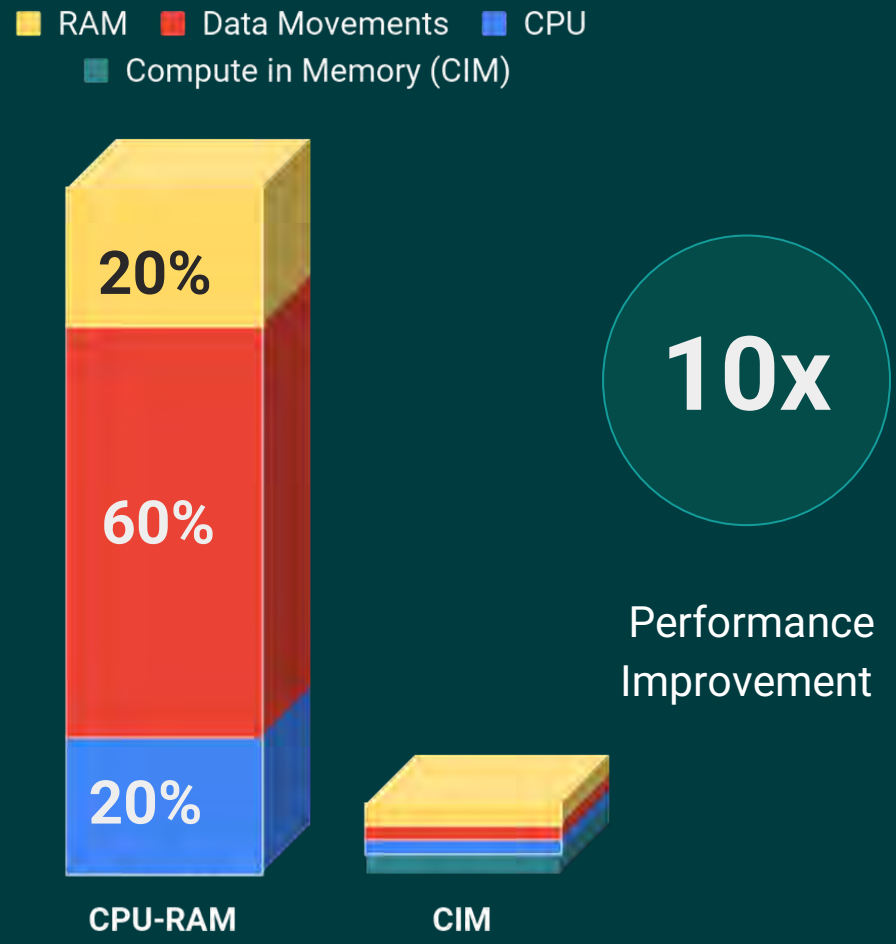
Compute-in-Memory: Cut power and execution time by processing data where it is stored.

HyperCIM

Current Bottlenecked Execution:

HyperCIM's Compute-in-Memory Co-Processor:





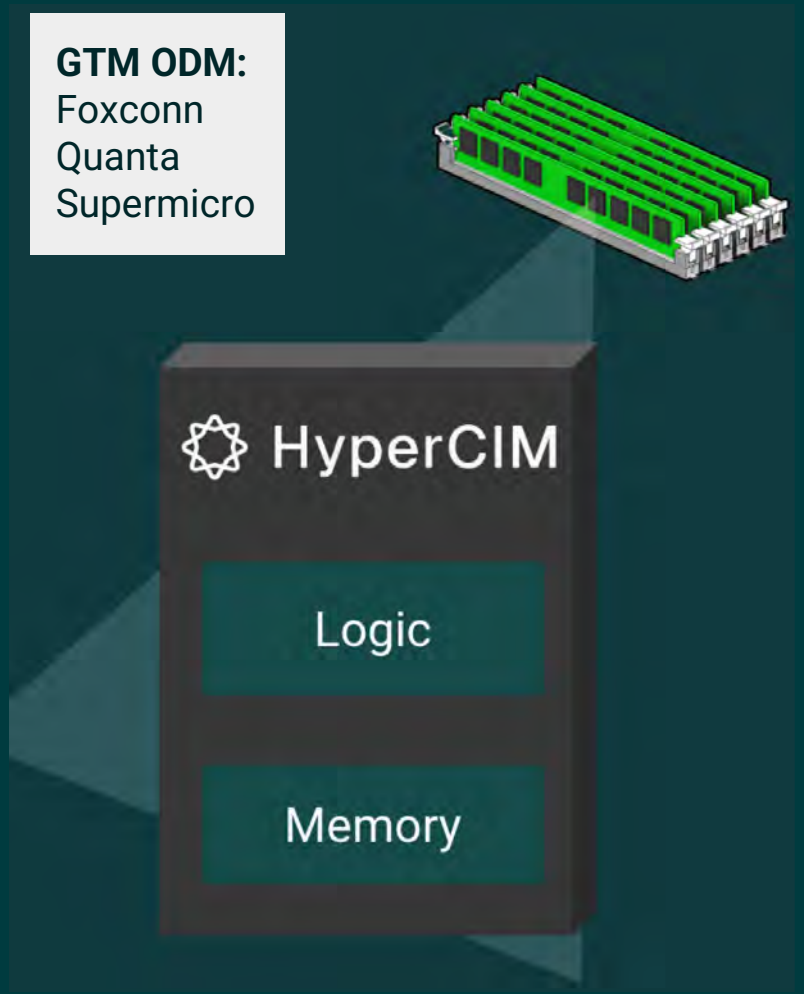
Contact tanya@hyperCIM.com

Made for Enterprises: Fastest co-processor for real-time database applications.

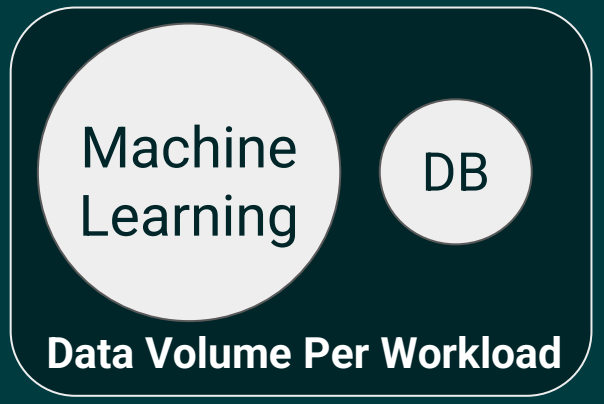
HyperCIM

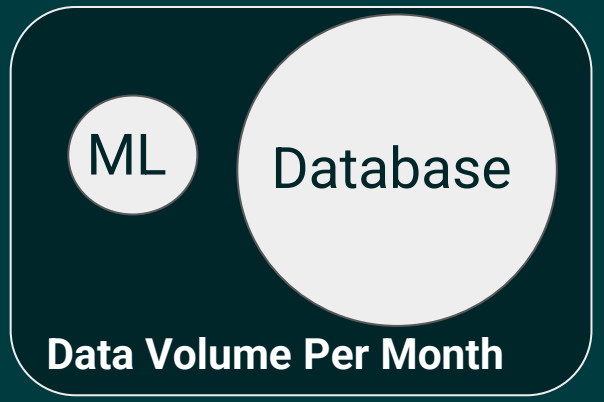
Product

GTM ODM:
Foxconn
Quanta
Supermicro



USP





SAP ORACLE salesforce

Market

TAM

USD $80 B

SAM

USD$55 B

SOM

USD $1B

- E-Commerce
- Finance & Banking
- Streaming Services

Contact tanya@hyperCIM.com

Ecosystem Integration: Ensuring compatibility with existing processes

HyperCIM

HyperCIM

Incubated by:

CHIP START UK the semiconductor incubator

Deep Science Ventures

Vendor Partnerships (NDA Stage):

tsmc
Memory IP
Chip Tapeout

imec
Foundry Interface
Design Services

arm
Peripheral SoC IP

Dr. T. N. Mangoma
Expert in Emerging Computing Hardware

Advisors

Dr. Ashraf Lotfi
Exited Semiconductor Founder (Altera, Intel)

Jamie Urquhart
Co-Founder of ARM

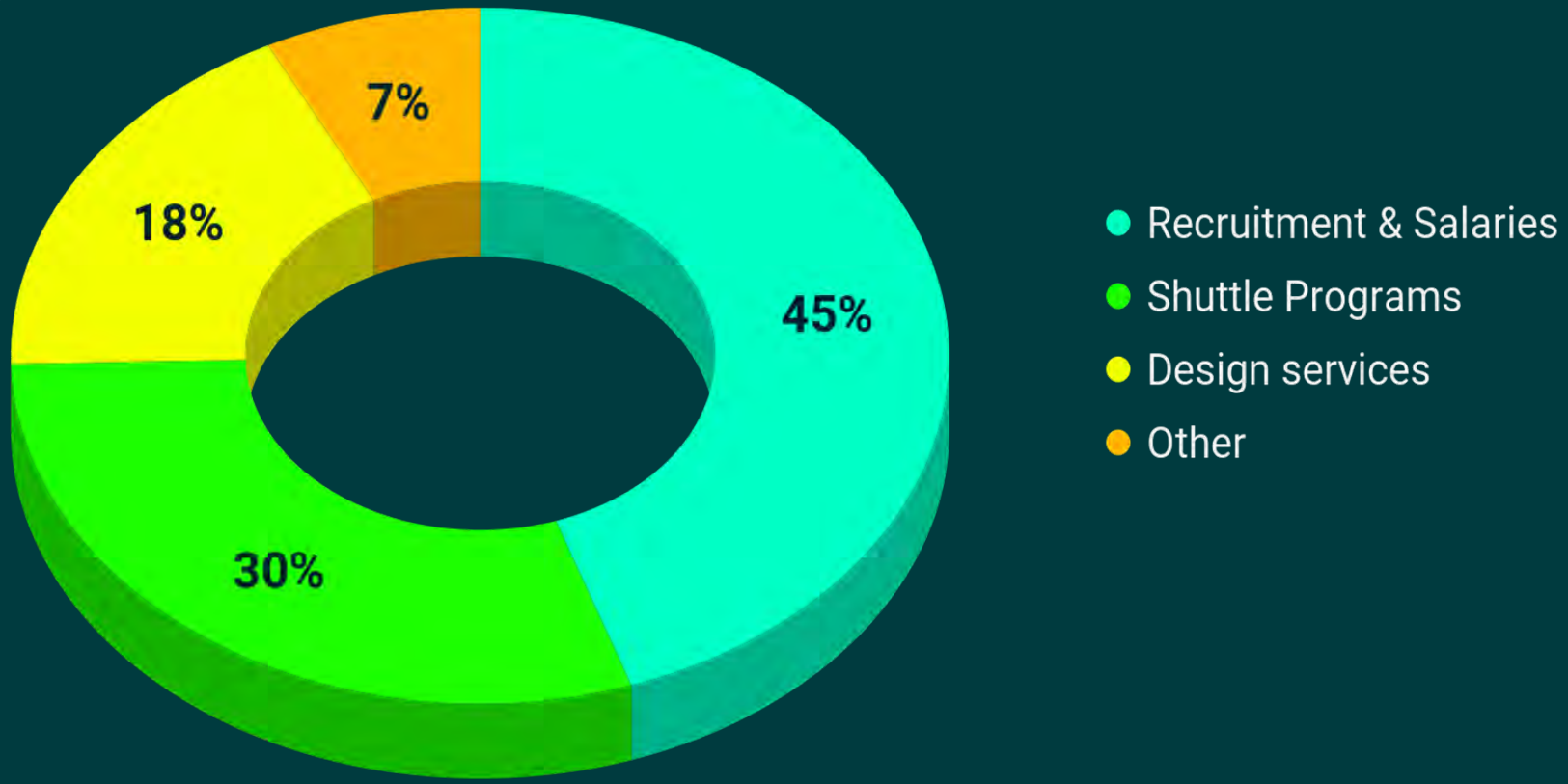
Dr. Brock Doiron
Enterprise GTM, Software Interface

Contact tanya@hyperCIM.com

Join the Journey : Empowering | Enterprise | Software | Efficiency

HyperCIM

Seed funding requested:
£3.3M for Q3 2024



Get in touch: **tanya@hyperCIM.com**

RED Semiconductor

James Lewis
CEO

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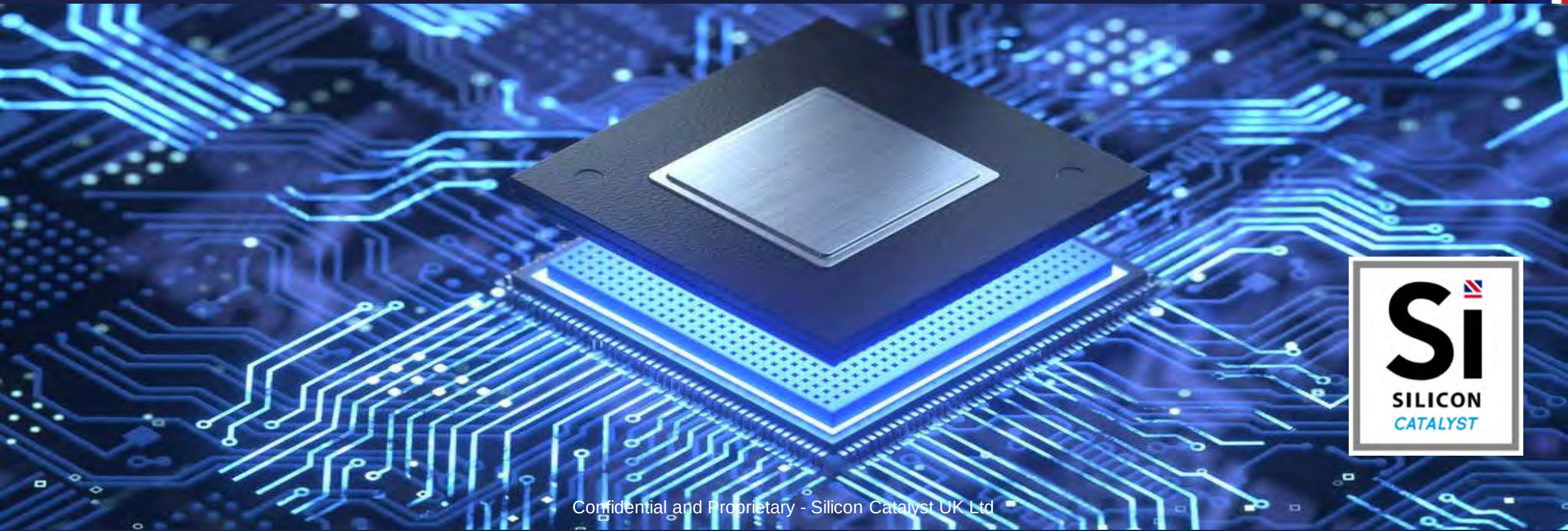
Funded by
UK Government



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RED semiconductor

VISC

Versatile Intrinsic Structured Computing

All the benefits of hardware acceleration – All the versatility of a Microprocessor

Algorithmic microprocessor architecture transforms performance
for Edge AI, Autonomy & Cryptography

James Lewis
Chief Executive Officer
james.lewis@redsemiconductor.com
+44 (0)7903 849974

New compute for exponential demands

RED semiconductor

Why?

AI, Cryptography, Codecs, Autonomy…

- Increasing algorithmic compute demands
- Soaring power consumption
- Massive design complexity
- Spiraling up cost of silicon

What?

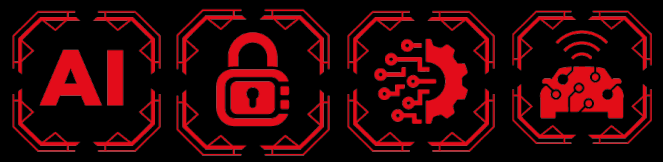
VISC IP Core innovation delivers:

- 10 - 100x maths performance boost
- Best maths-per-watt power
- Security of critical data
- Most efficient use of silicon area

Our product

Innovative IP defensible by patents – licensed to customers:

- Reconfigurable execution architecture
- Optimises for parallelism in real time
- Holistic algorithm sequencing
- Memory efficiency … no memory accesses during computation
- Simple ‘Reconfig’ instructions for any ISA



DCT

FFT

Matrix Multiply

Trigonometry

Logic

Non-linear Problems

Highly experienced team addicted to changing the Future of Microprocessors

RED semiconductor

CEO
James Lewis

Tech Starter and Builder
Oxford Semiconductor (sold to Kioxia)
Redux Labs (sold to Google)

Technical Strategy and Governance
David Calderwood (Director of R&D and Chair)

Chartered Engineer and team-builder

Product Development
Andrey Miroshnikov (Senior Eng)

Qualcomm

Commercial Strategy – Winning Customers
David Harold (COO)

Imagination

Product Development
Shriya Sharma (Embedded Eng)

Southampton Uni

Industry Expert
Steve Evans (Advisor)

Arm, MIPS, Imagination

Expert advisory team
James Tout (Semiconductor Design) Kioxia/Oxford Semi
Haydn Povey (Cybersecurity) ARM, IAR, IoTSF
Justin Hill (IP) Dentons

Talent, Functions and Sector Experience to get the job done

Taking our IP to market

Market size and shape

TAM

Global microprocessor market in 2030:

$100 bn+

SAM

No. of RISC-V chip implementations in 2030 world-wide:

16 billion units

SOM

RISC-V chip implementations in 2030 – Edge applications in accessible territories:

6.6 billion units

Business model

License and royalty revenue for VISC Core IP

Established business model for microprocessor IP-creative companies

Routes to market

Partnerships:

- IP Suppliers
- EDA tool vendors
- Design Services

Direct to Customers

Target customers

Game-changers and leaders developing SoCs:

Fabs and Fabless Chip Companies

Microprocessor companies

Today:

- Software sims => FPGA demonstration by RISC-V acceleration
- Demonstrated 50x code reduction in cryptography algorithm vs. ARM and x86
- Funded by grants; patent protection underway

Raising Seed Capital now:

- £3.5m ($4.5m) will take us to first hardware implementation and development kits into our lead customers

Singular Photonics

Shahida Imani
CEO

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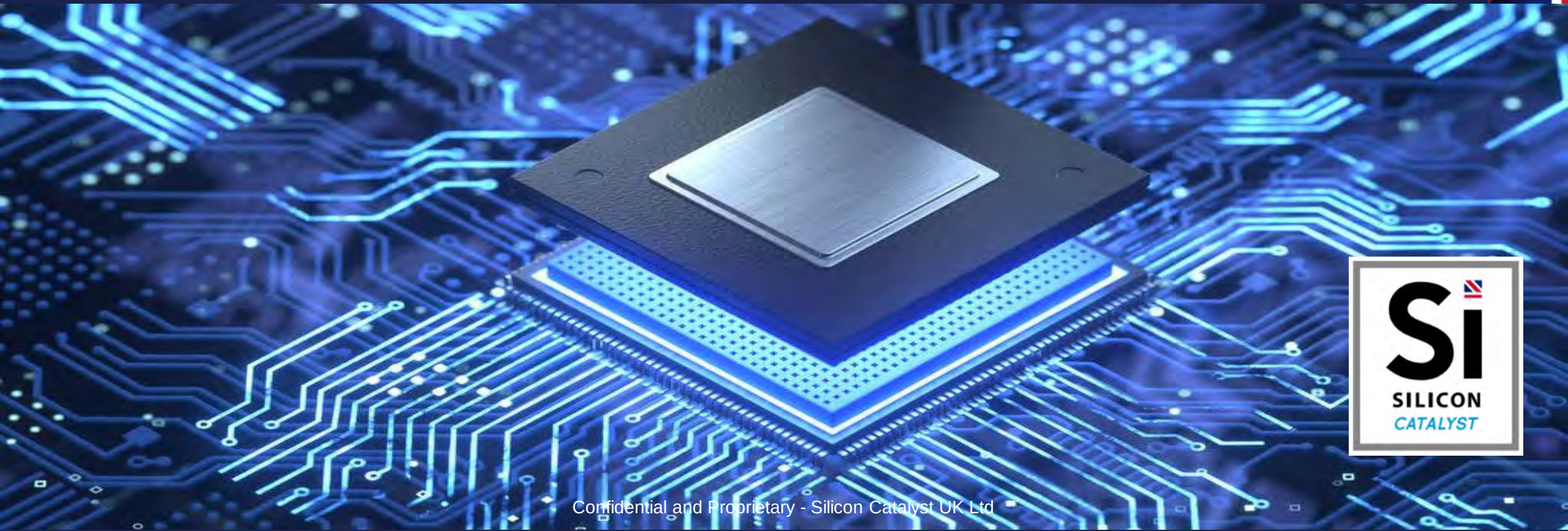
UK Government



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Singular Photonics

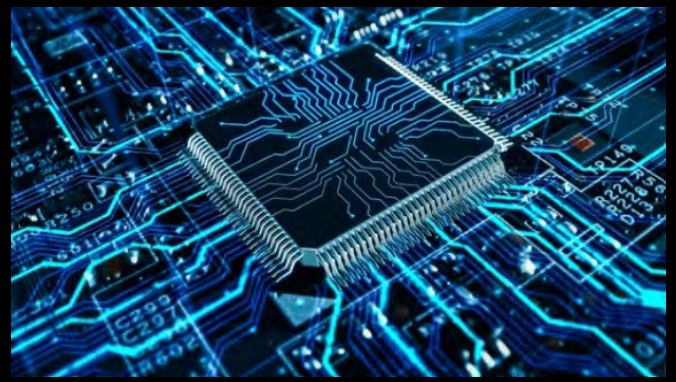
4D

Introduction

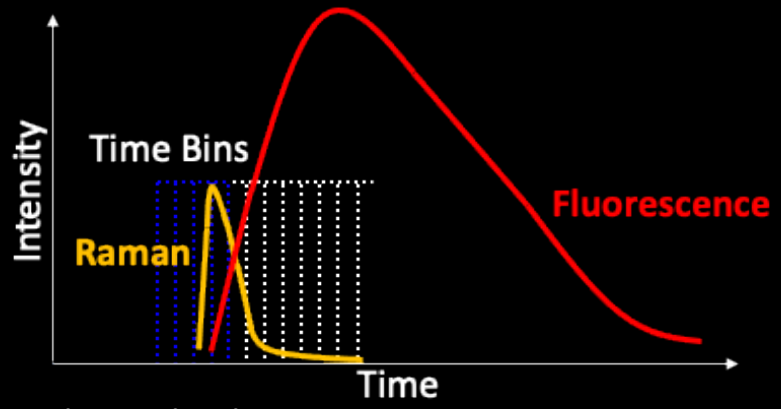
Imaging Time: The Fourth Dimension

Singular Photonics

Imaging Time : The Fourth Dimension



3D Stacked = 100% fill factor

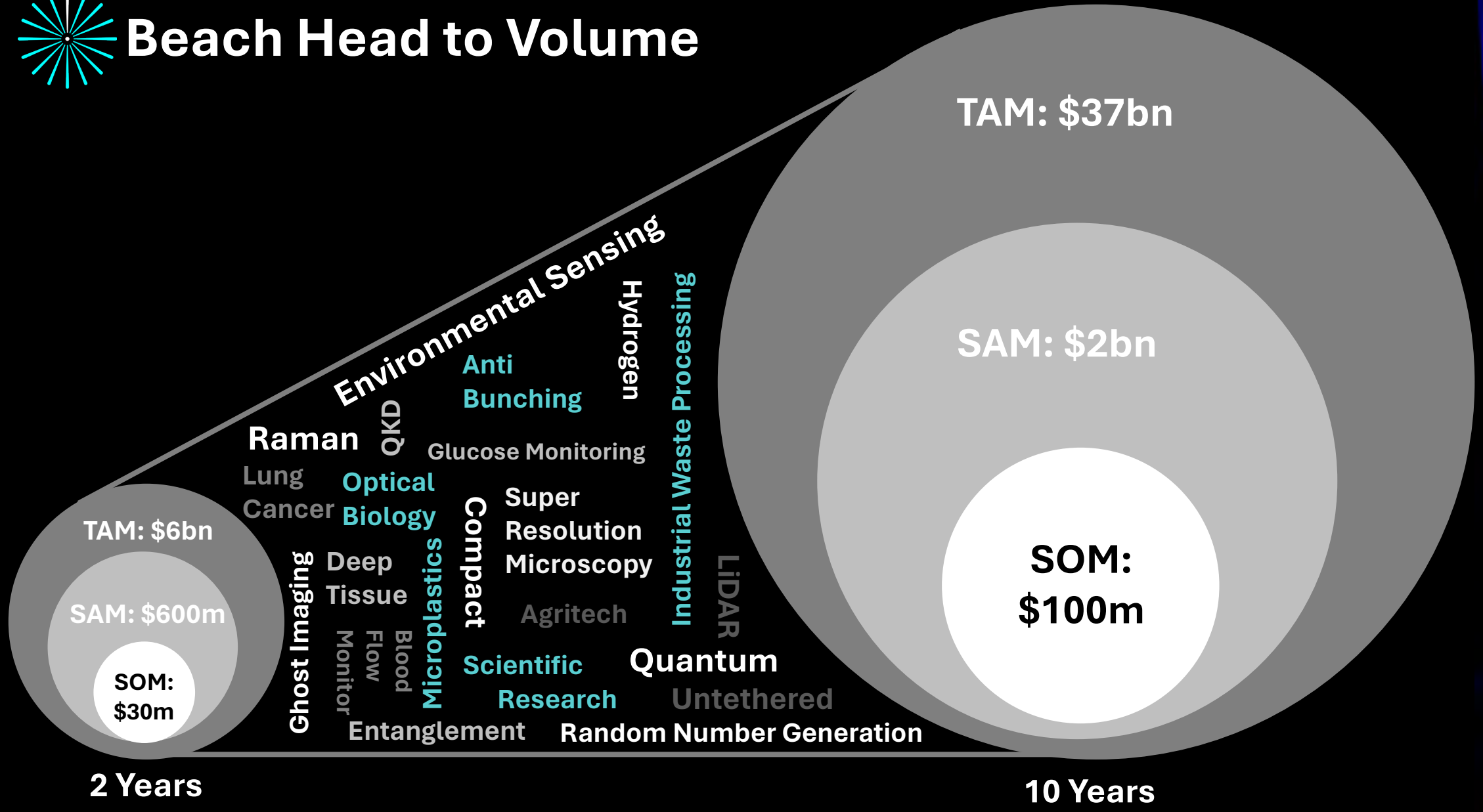


Time binning every photon (4D)

- Unparalleled **real time** pixel configurability
- **Detect 50% more** molecules
- **Low noise** and **low light** operation
- **Compact** form factor for handheld and mobile applications

Volume : Quantum, Health and Environment

Beach Head to Volume



Beachhead: Scientific Instrumentation Market

Singular Photonics

The Executive Team

Shahida Imani
CEO / CFO and Co Founder
Over 25 years experience in High Growth Technology Companies

Dr Aravind Jalajakumari
CTO and Co Founder
Sensor and electronics design, previous experience with ST Microelectronics

The Non-Executive and Advisory Team

Pete Hutton
Chairman / NXD
Previous President of Product Groups, **ARM**
Chairman Agile Analog

Prof Robert Henderson
Chief Scientific Advisor & Co Founder
World leading expert in SPAD sensor technology

Dr Neil Finlayson
Applications Specialist and Co Founder
Over 30 years' experience in ultra-fast optics

Singular Photonics

4D

Thank you & Questions

Shahida Imani
CEO and Co- Founder
s.imani@singularphotonics.com
+44 7944 231537

Blueshift Memory

Helen Duncan
Chief Marketing Officer

Funded by
UK Government

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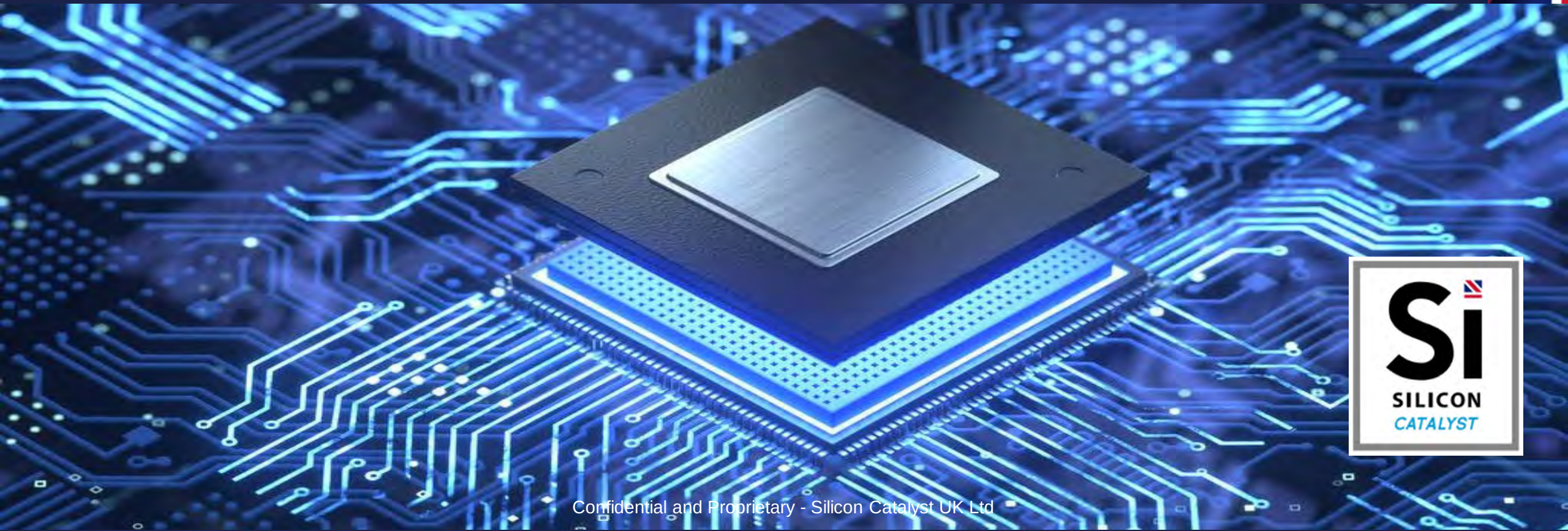
the semiconductor incubator
managed by SiliconCatalyst.UK



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Blueshift Memory

Self-Organizing Memory

Breaking through the Memory Wall

Helen Duncan, Chief Marketing Officer

info@blueshiftmemory.com
www.blueshiftmemory.com

Why Blueshift Memory?

Our mission

To speed up memory-hungry applications without re-writing code

- AI/ML
- Data centers
- In-memory databases
- Automotive
- Mobile
- IIoT

Overcoming the memory bottleneck

- ~80% of CPU usage is wasted handling data structure, rather than the calculation
- Self-optimising memory unlocks this performance

Hardware-verified performance

Zero
Latency

300x
Speed

-90%
Energy

Product and Market

FPGA

Chiplet

IP

CPU
BSM IP

2024

2025

2027

The Market 2028

SOM (IP)
$1.0 bn

TAM
$150 bn

Team

Peter Marosan
Founder, CTO (Acting CEO)

Patents: 5 **Exits: 2**

Hungarian Academy of Science, Econet and UGS

Guillaume d'Eyssautier
Lead Board Advisor

Exits: 4

Matra Harris Semiconductor, GEC-Plessey, Rockwell, IBM, Cadence, PicoChip and other startups

Helen Duncan
CMO

Plessey 3-5, ROHM Semiconductor, United Business Media, Publitek

Dr Theodore Omtzigt
Founder and Advisor

Patents: 10

NVIDIA, Intel, 3DFX and Stillwater Supercomputing

Kitrick Sheets
Founder and Advisor

Patents: 7

Cray, Supercomputer Systems

Dr Sarmad Adeel
Senior Embedded Engineer

Hamburg University of Technology (TUHH), NXP Semiconductors

Sarah Bayliss
Finance Manager

Harting UK Limited

Advisors

Dr Ron Black: *CEO Codasip*
Rupert Baines: *CEO QPT*
Dr Audrey Stone: *Legal/IP*
Allan Cantle: *Open Compute Project Foundation*
David Stewart: ChipStart UK advisor

MintNeuro

Dorian Haci
CEO

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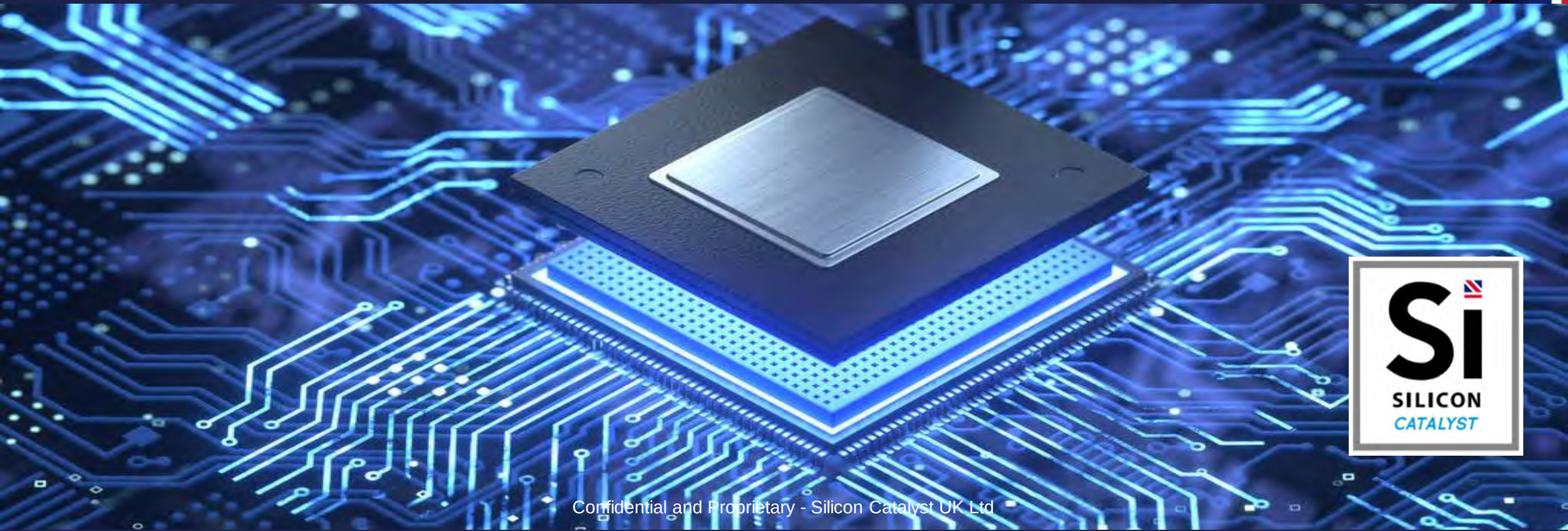

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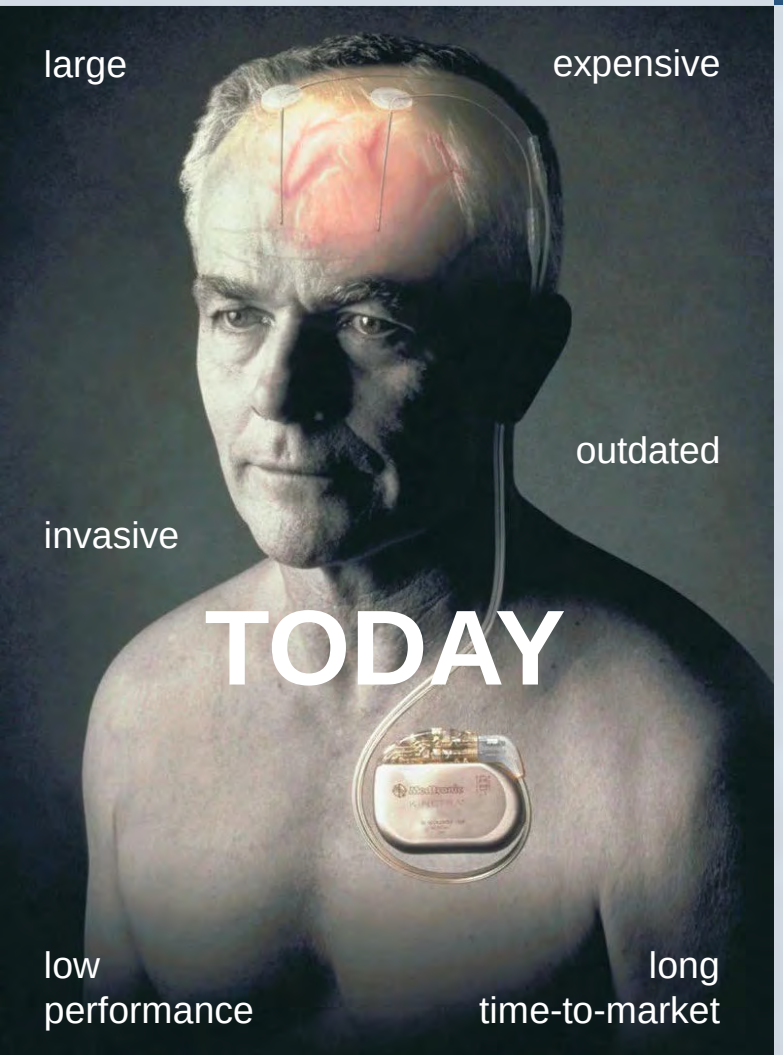
Boston Scientific · Abbott · LivaNova · Medtronic · synchron · NEURALINK · NEUROPACE

mintneuro

Empowering next-gen neural implants

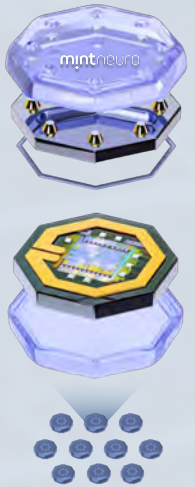
with advanced semiconductor technology



Integrated Circuits

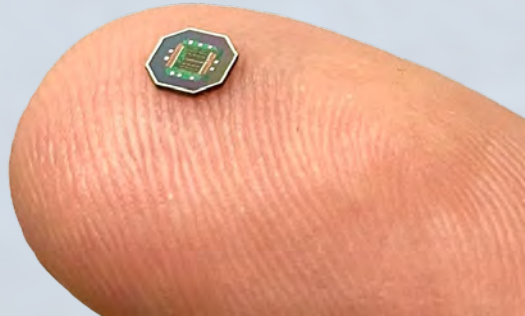
Integrated Systems

Integrated Implants



Efficient, compact, medical-grade devices

to enable scalable, less invasive, more accessible neural interventions



Dorian Haci
CEO
IMPERIAL

Tim Constandinou
CTO
IMPERIAL

Andy Jackson
CSO

Tim Denison
Chair

Semiconductors

Neuroscience

Medical Devices

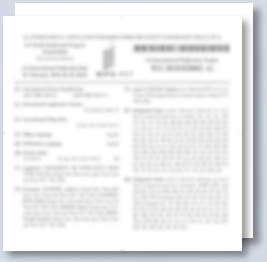
Patent-protected intellectual property

SPINOUT FROM IMPERIAL

Implantable Neural Interface
(granted in UK, US)

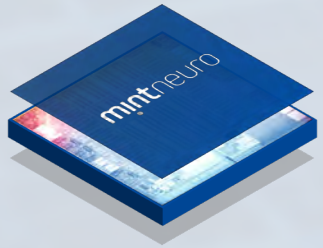
System for Brain Computer Interface
(granted in UK, US)

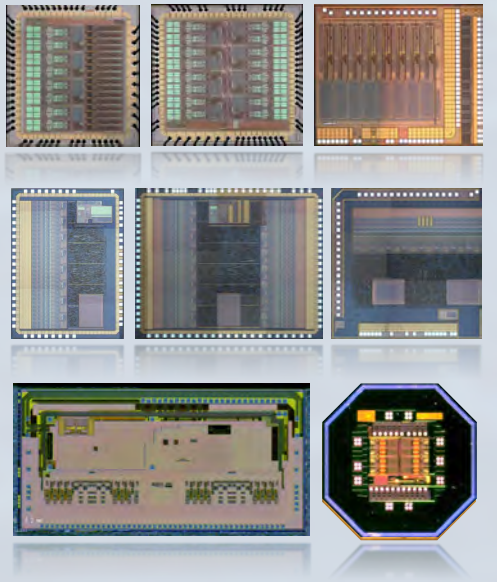
System and method for neuromodulation
(granted in UK, US)



SiP architecture for neural chipsets
(filing in UK, US)

12 years in neural chip design

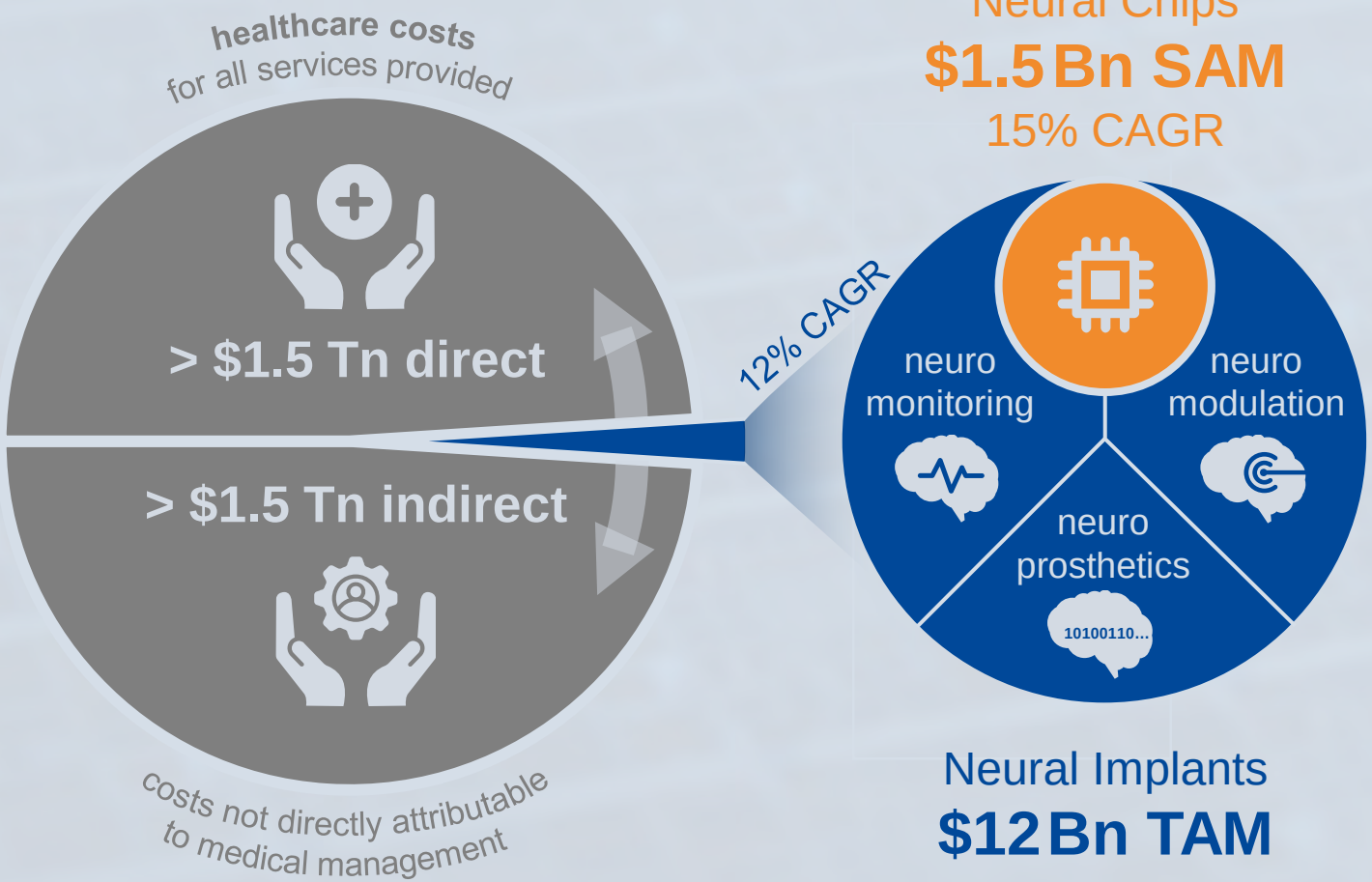




Untapped market opportunity

"The total cost of neurological disorders is equivalent to the cost of heart diseases, cancer, and diabetes … combined."

– Economist Impact, 2020



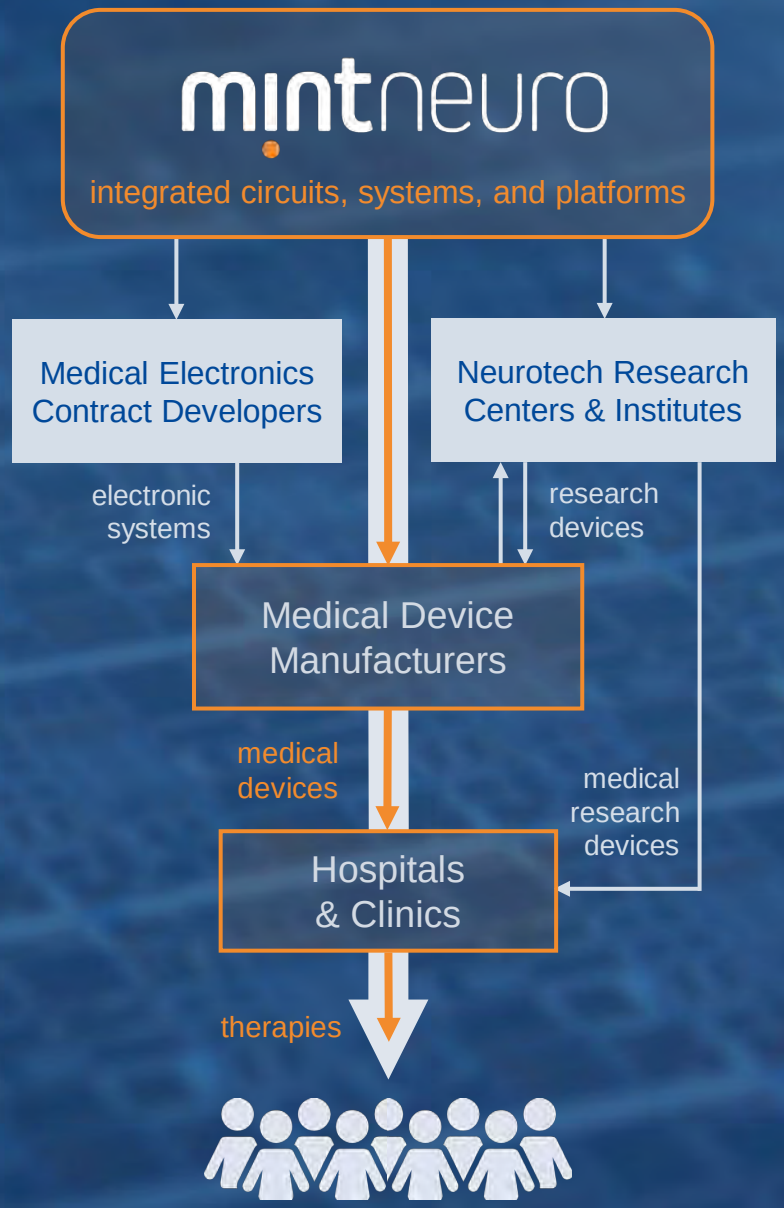
Neural Chips

$1.5 Bn SAM

15% CAGR

Neural Implants

$12 Bn TAM

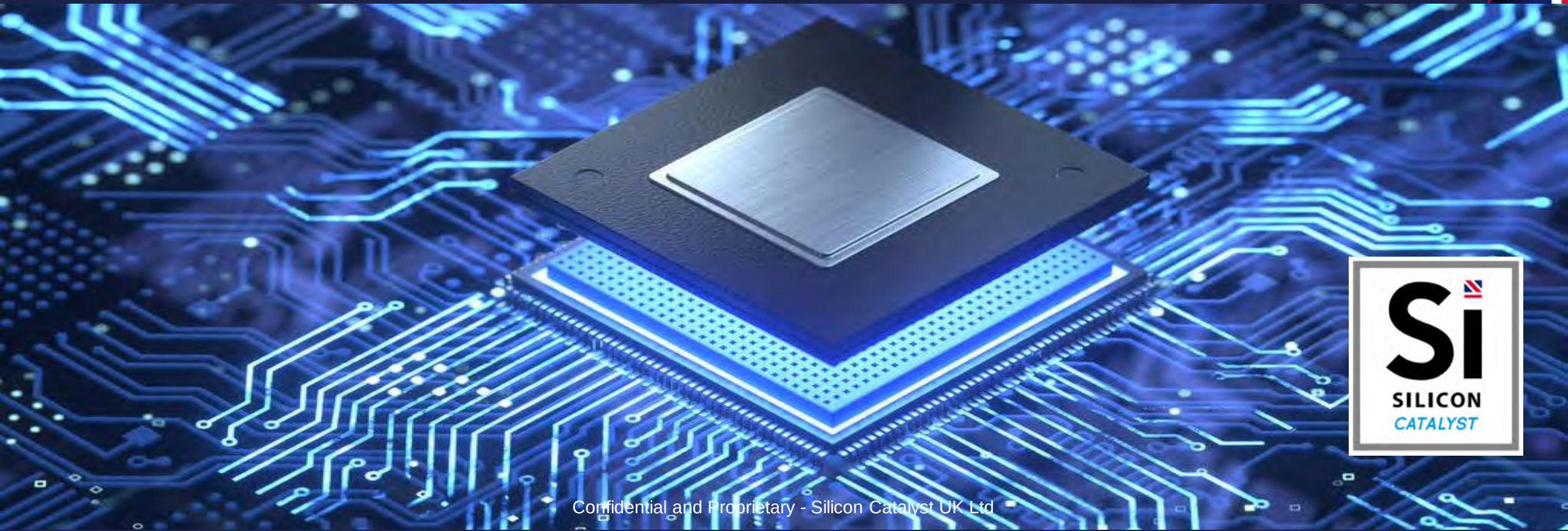


Wave Photonics

James Lee
CEO

CHIP START UK
the semiconductor incubator
managed by SiliconCatalyst.UK

Funded by
UK Government



SILICON CATALYST

Confidential and Proprietary - Silicon Catalyst UK Ltd

The platform for the future of photonics

Integrated Photonics

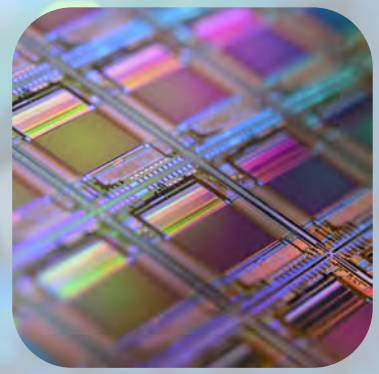
Driven by datacoms…

- Exploits $100Bs of investment in semiconductor processing
- Leveraged to address demand for bandwidth and energy reduction in datacentres, HPC and AI model training

…but can unlock:

Quantum

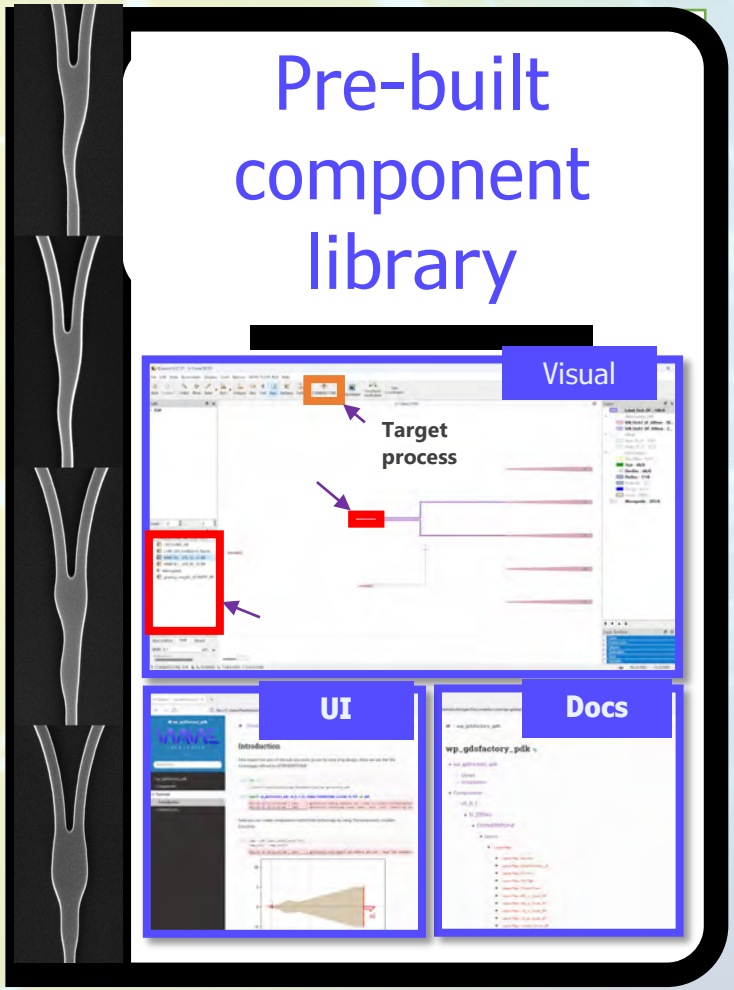
Healthcare



Optical computing

Lidar

The opportunity – why Wave Photonics?

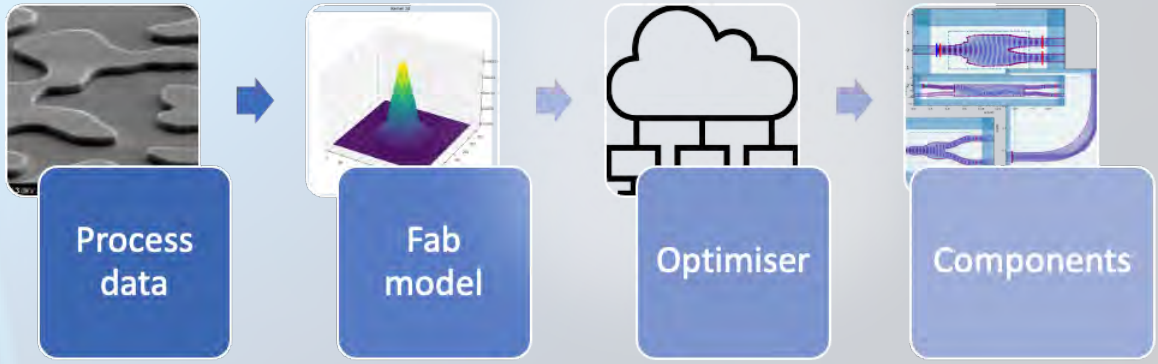


From: Multi-year development

Inherently analogue design, sensitive to process variation

- Error-prone, iterative design

To: Ready to go building blocks



Team

Founders

James Lee - **CEO**

TOSHIBA Leading Innovation · CREDIT SUISSE · UNIVERSITY OF CAMBRIDGE · UNIVERSITY OF OXFORD

Matthew Anderson - **CSO**

TOSHIBA Leading Innovation · UNIVERSITY OF CAMBRIDGE · University of St Andrews

Mateusz Kubica - **CTO**

CREDIT SUISSE · Uniwersytet Wrocławski

Board/Advisors

Ming Zhang – **Board Member**

PDF SOLUTIONS · intel · SYNOPSYS · zGlue

Mark Miller – **Advisor**

Mentor A Siemens Business · cadence · CORTERA neurotechnologies · xfab

+

Technical team

Team of 4 photonics engineers with experience across quantum photonics, chip design and optimisation

+

To join

Confirmed: Advisor – commercial photonics background

With seed round: Product manager/BD, Project manager, integrations engineer/developer, simulation engineer

Literal Labs

Noel Hurley
CEO

CHIP START UK
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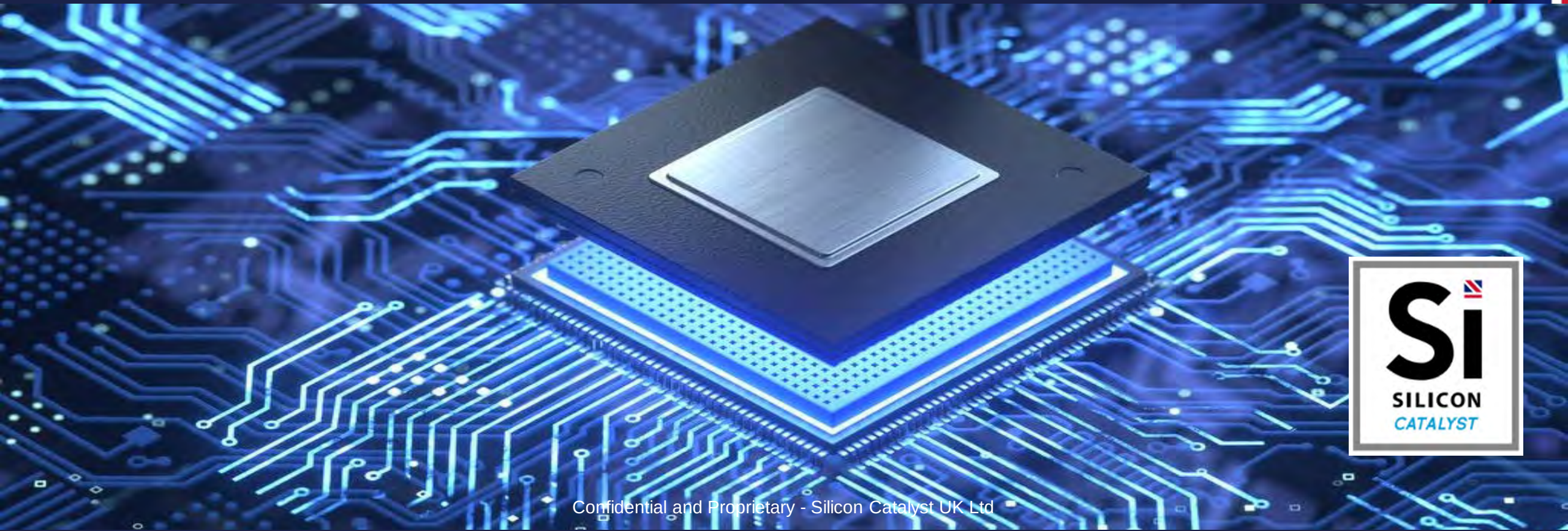


SILICON CATALYST

Confidential and Proprietary - Silicon Catalyst UK Ltd

A new generation of energy efficient AI

Literal Labs

Noel Hurley
CEO
Literal Labs

NOEL@LITERAL-LABS.AI

WWW@LITERAL-LABS.AI

A CAMBRIDGE FUTURE TECH VENTURE

Literal Labs

AI based on Tsetlin Machines and propositional logic

High Throughput

250x faster inferencing using software only on todays silicon

1000X when accelerated!

Ultra Low Power

Logic not multiplication!

10,000x lower energy per inference can be achieved

On chip training

Low compute complexity enables edge training

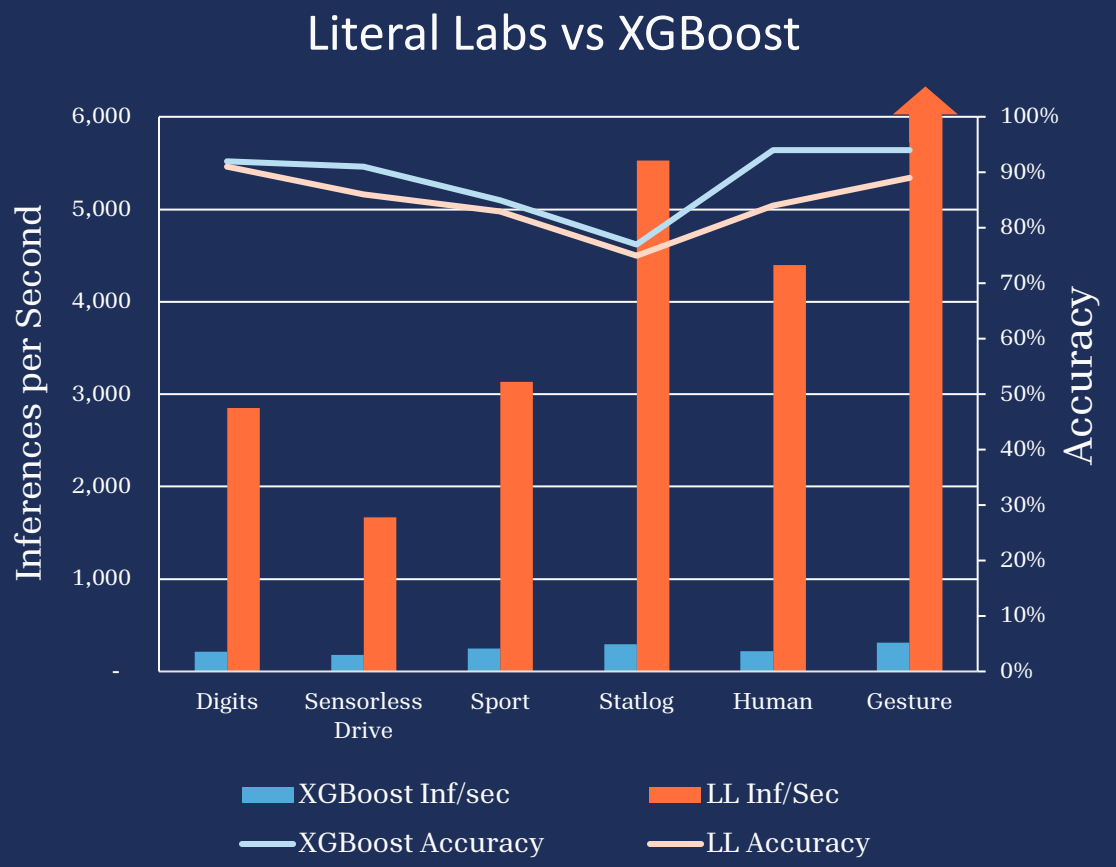
Explainable AI

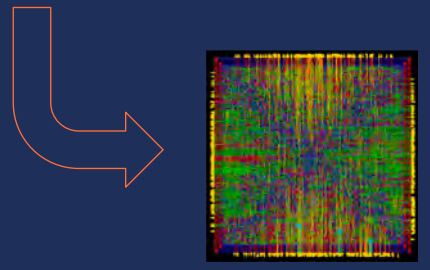
Our architecture enables explainability and ensures accountability for decisions made

Benchmark Example

Same Datasets
Same Hardware
Published Optimised Results

Benchmark papers available.

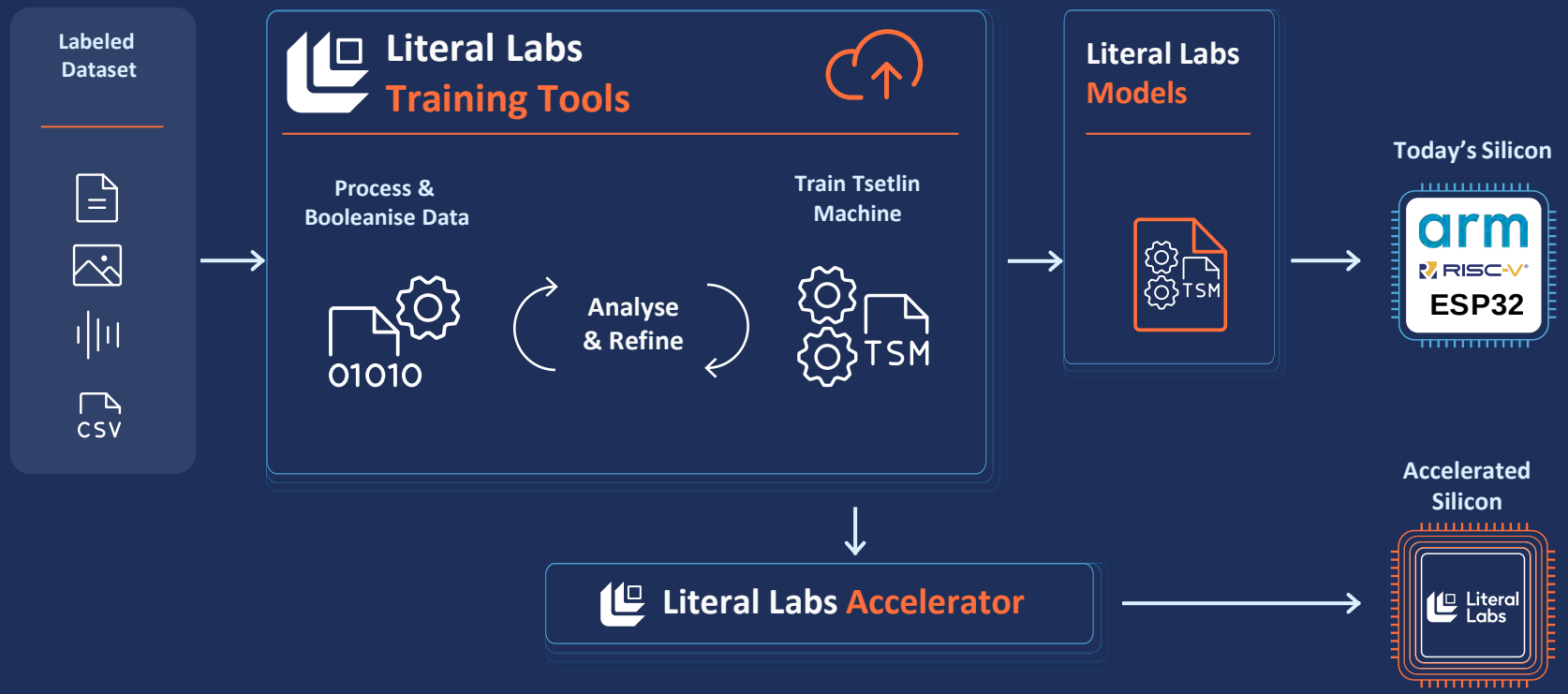




Another 100x faster when Literal Labs accelerator present

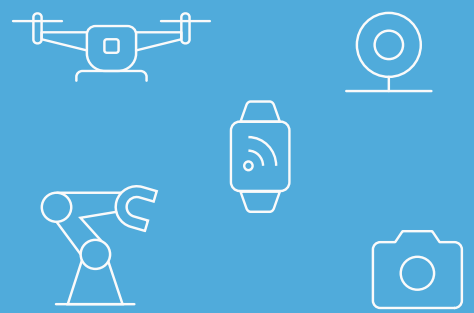
Literal Labs

Literal Labs
Product and Initial Market



SAM: Embedded EDGE AI market

$18bn



Literal Labs

Our team

Core Team

Noel Hurley
Chief Executive Officer
Former VP & General Manager of the CPU group within Arm. Co-Founder of XMOS, and currently a NED for EnSilica Plc.

Professor Alex Yakovlev
Founder
Professor of Computer System Design, Head of the MicroSystems Research Group at the University of Newcastle. Fellow of the Royal Academy of Engineering

Dr Rishad Shafik
Founder
Reader in Electronic Systems at Newcastle University. Research focusing on AI hardware design using learning automata and ultra low-power design

Chief Technology Officer
Former AI Deep Leaning Lead at AstraZeneca. Co-founder of Manifold AI
Joins May 2024

Advisors

Professor Ole-Christoffer Granmo
Chair Technical Steering Board
Director of Centre for Artificial Intelligence Research at the University of Agder. Named the decade's researcher in artificial intelligence by Norwegian Artificial Intelligence Research Consortium (NORA)

Jem Davies
Non-Exec Director
Former VP and General Manager of Machine Learning and GPU groups at Arm. 35+ Years in the Semiconductor Industry

Xavier Parkhouse-Parker
Chair
CJBS alumnus. Serial Tech Entrepreneur in AI, HR & MarTech Founder. Start Up Operations Expert. CVC Capital Young Innovator 2017. COO at Cambridge Future Tech

Literal Labs

Thank you!

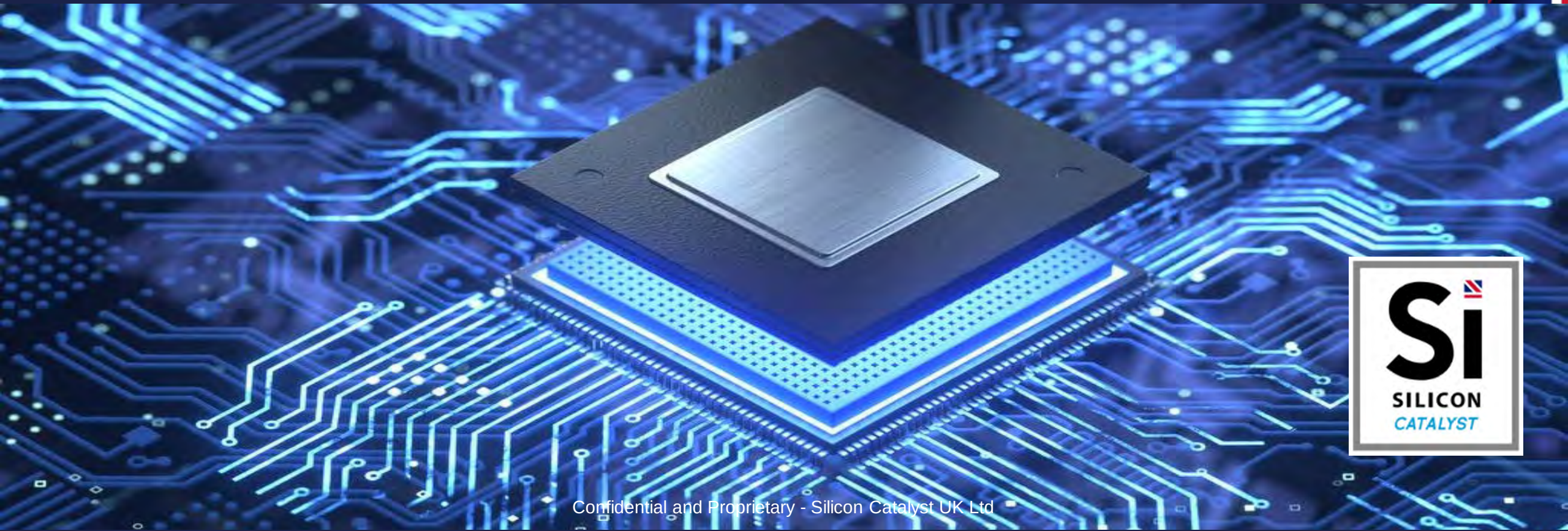
A CAMBRIDGE FUTURE TECH VENTURE

Finchetto

Mark Rushworth
CEO

CHIP START UK
the semiconductor incubator
managed by SiliconCatalyst.UK

Funded by
UK Government



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Finchetto

FINCHETTO
SOLVING ENERGY & PERFORMANCE IN NETWORKS

March 2024

THE PROBLEM

POWER

Data centres consume 2% of all global electricity

Reducing network switch energy by 90% would save:

- $330bn in running costs
- 256MT of CO2e

PERFORMANCE

New data creation is forecast at 50x current levels by 2035 – current telecoms networks are not able to deliver this

State-of-the-art datacoms network models are currently unrealisable due to high latency

Lower power
= operating costs & sustainability

Lower latency
= time through the network

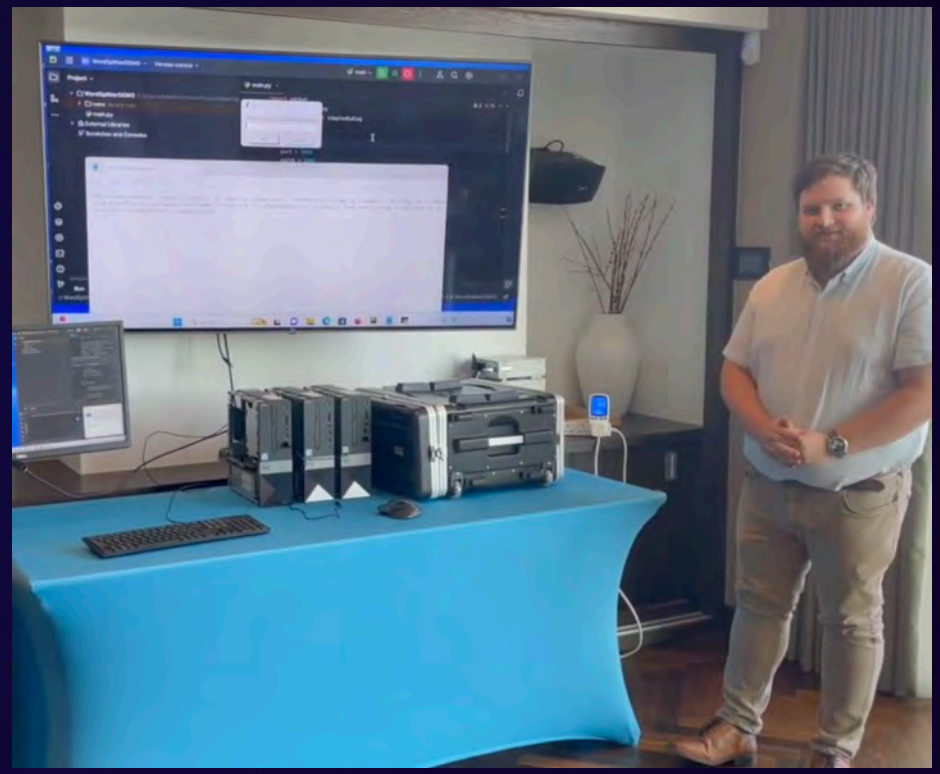
Faster switching time
= quicker decision on where to send the data

THE SOLUTION

The world's first fully-optical, passive network switch

- 38W power – 26x lower power
- 50 nanosecond latency – 40x lower latency
- 3-port ethernet switch – packet-switching

vs. state-of-the-art Cisco Nexus 9232E



THE MARKET OPPORTUNITY

Full-product Solutions in HPC/ Datacenter and Telecommunications

DATACOMS

1

Future datacoms network architectures for HPC (device-level and chip-level integrated) and DCs.

INTEL

$300bn TAM

"If we can scale this, the potential is revolutionary – this could enable the future of high-performance compute." Intel

TELECOMS

2

Future telecoms network architectures for use initially in core (& in future, distribution & access etc.)

BRITISH TELECOM

$100bn TAM

"This technology has the potential to be a real game-changer for the telecommunications industry." BT

Kevin Crain, CTO Intel Ignite; Andrew Lord, BT

FINCHETTO SENIOR TEAM

Mark Rushworth
CEO

- 2x DeepTech founder
- Qualified in integrated photonic design & characterisation

Michael Pearcey
CTO

- Inventor of Finchetto's core IP
- Developer of core prototypes

Nick Ray
Chair

- Tech CEO of 30 years across 4 successful exits

Chris Cottrell
Telecoms Lead

- 30 years' delivering telecoms product solutions
- Cisco, HPE & Alcatel

Jim Dertzbaugh
VP - US BD

- 20+ years' experience in optical switch BD
- Sales Director of Chromatis, acquired for $4.7bn

Bill Yost
Advisor

25+ years helping bring early-stage technologies to market including Polatis' optical network switch.

Core founding team of Mark & Michael, with expertise from sector-specific industry stalwarts

Finchetto

BE PART OF THE FUTURE

TECH DEMONSTRATION