

# MEETING REPORT

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## Round Table Discussion Notes

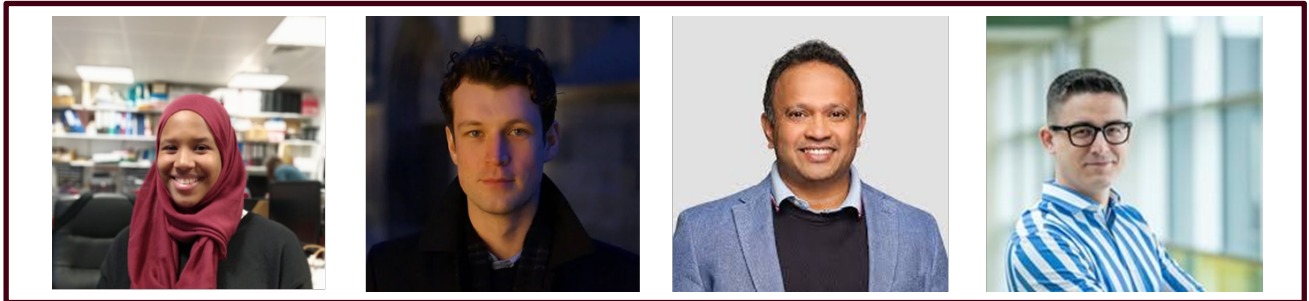
NeuMat Kick-Off Meeting  
September 23-25, 2025

Trinity College, Cambridge  
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NeuMat

# Roundtable discussion 1

Panel - Maryam Crabbe-Mann, Adnan Mehonic, Abu Sebastian, Alex Serb



## 1. HOW CAN THE NETWORK BE MOST EFFECTIVE?

The network's success depends on a well-defined, compelling strategy that unites all key stakeholders. The recommendations suggest that effectiveness must be considered from both the founders' perspective and the network's broader role. The effectiveness of the neuromorphic computing network depends on coordinated action, clear communication, and inclusive collaboration across academia, industry, and policy.

### Founders' Perspective

- **Deliver with impact.** The network must produce work—research, partnerships, events—that is executed rigorously and yields tangible value.
- **Be inclusive and welcoming.** Attracting and retaining talented members requires a culture that is open, accessible, and friendly.
- **Embrace diversity.** Bringing in participants from varied fields, backgrounds, and career stages including device physicists, algorithm designers, circuit engineers, and system-level researchers, strengthens creativity, legitimacy, and reach.

### Network-wide Role

- **Forge connections.** The network should actively bring researchers, industry users, and other stakeholders together can attract long-term investment and ensure societal relevance to foster direct collaboration and problem-driven innovation.
- **Solve real problems incrementally.** Start by identifying whom to engage, then use concrete use cases to demonstrate how network efforts can address those challenges.
- **Clarify your scope.** Define a clear thematic umbrella to prevent drift, minimize jargon, and ensure all activities remain aligned with the network's mission. Focus on what the technology does, not just how it works.

## 2. WHAT WOULD MAKE IT EASIER AND MORE MEANINGFUL FOR NETWORK PARTICIPANTS TO ACTIVELY CONTRIBUTE TO THE NETWORK?

To make participation easier and more rewarding, the network must clearly show its value to members while creating an environment that is dynamic, inclusive, and purposeful.

**What will help participants contribute:**

- **Stay visible and active.** Maintain a strong presence across communication channels so members feel engaged, informed, and connected.
- **Unite around a shared mission.** A common objective—bridging fields like materials science, circuit engineering, and AI—gives participants a clear reason to contribute and collaborate.
- **Champion diversity.** By welcoming varied expertise and perspectives, the network becomes richer and more innovative. Seeing others contribute from different backgrounds encourages wider participation.
- **Adapt communication.** Tailor messages to resonate with each audience—software developers, hardware engineers, or academics—so members see how the network relates to their own work and priorities.
- **Show real-world impact.** Highlight successful projects, use cases, and collaborations to demonstrate that contributions lead to meaningful outcomes. Visible results inspire continued involvement.

## 3. WHAT DOES A NEUROMORPHIC ENGINEER OR SCIENTIST LOOK LIKE?

The discussion emphasizes that a neuromorphic engineer or scientist is not a narrow specialist but a multidisciplinary, adaptable professional.

**Key characteristics include:**

- **Broad understanding.** They should grasp the full landscape of the field, from fundamental research through to practical applications, i.e., proficiency across materials science, device physics, circuit design, and computational modeling is essential.
- **Balance of theory and practice.** Researchers must be equally capable of conceptual innovation and practical implementation.
- **Comfort with abstraction.** Deep knowledge of transistor-level details isn't essential, but they must understand the abstraction layers above and below their expertise and how these layers connect.
- **Black-box awareness.** Instead of mastering every detail, they should recognize complex system components as “black boxes” and know how to integrate them effectively.
- **Entrepreneurial orientation.** Neuromorphic engineering should not remain confined to academia; commercialization pathways and technology transfer should be encouraged.
- **Interdisciplinary training.** Future professionals will benefit from workshops and cross-university programs such as CDTs (Centres for Doctoral Training) or MSc degrees in neuromorphic engineering, ensuring they can bridge materials, hardware, algorithms, and applications.

## 4. WHAT DRIVES PEOPLE TO FOLLOW A FEED OF NEWS AND UPDATES?

To build a strong following, the network must communicate with clarity, confidence, and relevance—showing why neuromorphic technologies matter and how they make a difference.

**What attracts people to follow updates:**

- **Compelling use cases.** Audiences are motivated by practical benefits. Demonstrating that neuromorphic computing can, for example, perform AI tasks using ten times less energy provides a clear, powerful reason to pay attention. Neuromorphic ideas are already present in modern computing—even if they’re not explicitly labeled as such.
- **Relatable framing.** Positioning neuromorphic computing as “third-generation AI” helps a broad audience connect the technology to something they already understand—artificial intelligence.
- **Bold, confident messaging.** Just as quantum computing captured attention by making ambitious claims, the network should be “loud and proud” about its potential. Confident communication sparks curiosity and builds momentum.

## 5. HOW WILL THE NETWORK DRAW IN/ATTRACT THE DIVERSE COMMUNITIES THAT THE NETWORK LOOKS TO WORK WITH?

Attracting diverse communities means recognizing that each group has different motivations and tailoring engagement accordingly. The network must balance inclusivity with clarity while highlighting the real-world value of neuromorphic technologies.

**How to draw in and connect communities:**

- **Tailor the message.** Communicate in ways that resonate with each audience—software professionals may value efficiency gains, while academics may be drawn to opportunities for novel research.
- **Link industry and academia.** Build bridges through proven models like *Business Connect*, creating clear pathways for collaboration and for research to find practical application.
- **Emphasize benefits over jargon.** Focus on what the technology *does*—its functions and impact—rather than technical terminology. This not only engages broader audiences but also helps inform grant-awarding bodies and the public.
- **Define a clear umbrella.** Establishing a broad but coherent scope encourages participation across disciplines, avoiding confusion or exclusion caused by overly narrow or jargon-heavy framing.
- **Encourage openness.** Be willing to challenge and evolve ideas as the field matures.
- **Distributed responsibility.** Appoint dedicated individuals or teams to manage specific focus areas and maintain accountability.



# Roundtable Discussion 2

Panel - Judith Driscoll, Sergei Turitsyn, Steve Furber, Paul Larcey



## 1. KEY POINTS LEARNED FROM ALL TALKS

- **Branding matters.** While “neuromorphic” may sound futuristic, the consensus was not to abandon the term but to **clarify it**.
- **Don’t replace, refine.** Because UKRI has already funded neuromorphic projects, changing the name now could be counterproductive. Instead, the field should make its terminology more accessible for different people (academia, industry, etc.).
- **Use explanatory language.** Terms like “brain-inspired computing” help non-specialist audiences grasp the concept without getting lost in technical jargon. Future event where a venture capitalist or a business person should be invited to speak.
- **Borrow from adjacent fields.** The conversation echoed a broader trend: many emerging technologies succeed by pairing bold framing with approachable language.
- **(External insight):** As one commentator put it, “neuromorphic computing ... is poised to revolutionize information processing” by combining brain-inspired architectures with efficient computation.

## 2. STATE OF THE ART IN THE WORLD AND IN THE UK AND INDUSTRY NEEDS

### State-of-the-art in the world and in the UK

- Large companies are selling NM products everywhere. There's a significant amount of work in the **US** (e.g., Intel) and **Germany** (the **Human Brain Project**).
- The UK is at the forefront of neuromorphic materials and AI hardware research, with initiatives like **NEUMAT** developing innovative neuromorphic devices.
- **SpiNNaker** (University of Manchester) is a large-scale neuromorphic computing platform simulating spiking neural networks for neuroscience, robotics, and AI research.
- The **Aston University-led UK Multidisciplinary Centre for Neuromorphic Computing** develops energy-efficient, brain-inspired computing technologies through cross-institution collaboration.
- There is low visibility in neuromorphic sensors and the sensor area in the UK. The NM Zoo — a central neuromorphic facility, freely accessible in the UK, is currently missing.
- Collaborative networks between universities, research institutes, and industry are strengthening the UK’s capabilities and enabling translation from research to application.

### Industry needs

- There is a need for **scalable, reliable neuromorphic devices** that can be integrated into real-world applications.
- **Demonstrators or showcase products** are needed to highlight the advantages of neuromorphic computing over conventional systems.
- Industry collaboration is crucial, particularly from **hardware and semiconductor leaders** (e.g., ARM, IBM, Samsung) to accelerate development across the full technology stack.
- Bridging the gap between research and commercialization remains a priority, requiring partnerships, funding, and high-visibility events.

## 3. HOW THE UK CAN BEST PIVOT ITSELF

To secure a leadership position in neuromorphic technology, the UK should focus on building a **sustainable and integrated ecosystem**:

- **Boost funding and talent support** – Lobby UKRI for targeted grants, fellowships, and research funding.
- **Develop holistic programs** – Create initiatives similar to the Erasmus Mundus model, integrating materials, hardware, and algorithms courses at different university/academic centres.
- **Establish training hubs** – Launch CDT-style (Centre for Doctoral Training) programs and incubators that bring together engineers, physicists and business professionals, closely linked to research efforts.
- **Entrepreneurial training** – Include short courses within PhD programs (e.g., 6 months) to equip students with startup-building skills.
- **Industry-led development** – Engage industry at the forefront to drive innovation and prevent academic insularity.
- **Flexible funding mechanisms** – Allow grants to be disbursed more agilely, enabling rapid project pivoting and responsiveness to emerging opportunities.

## 4. COLLABORATION AND FUTURE DIRECTION

Collaboration is critical to securing the UK's leadership in neuromorphic technology:

- **Branding projects** and promoting all activities on a website to enable people to get involved.
- **Overseas Partnerships:** While protecting the UK's strategic position as a "European program" may be considered, international collaborations should be balanced to maximize knowledge exchange.
- **Sustainable Workshops:** Establish regular UK-based workshops, inspired by the CapoCaccia Neuromorphic Workshops or the Bangalore Neuromorphic Engineering Workshop model, to provide ongoing platforms for sharing expertise and fostering collaboration.
- **Cross-Stack Collaboration:** Engage key industry players (e.g., ARM, IBM, Samsung) to work across the full technology stack—from materials and devices to algorithms and systems—ensuring practical, end-to-end development. The core question was *"How best to work effectively across the stack?"* and the answer was a *two-way communication* between *academia and industry*. The key goal of **Neumat** is to connect everyone in the UK.