MANCHESTER 1824
The University of Manchester

Job Description

KTP Associate in Neuromorphic Systems	
Grade	7.1 – 7.8
Department	Department of Computer Science, Faculty of Science and Engineering
Company Name	Northrop Grumman UK Ltd
Location of role	Northrop Grumman UK Ltd, Capstan House, 31 Broadway, Salford, Manchester, M50 2UW

Overall Purpose

We are looking to recruit an experienced researcher to take the central role in undertaking this 24-month Knowledge Transfer Partnership (KTP) between Northrop Grumman UK Ltd (NGUK) and the University of Manchester, with the aim of developing neuromorphic systems capable of demonstrating evidence of genuine advantage over existing sonar systems.

Underwater sensing presents a particularly demanding challenge for modern AI, combining complex acoustic propagation, highly variable environmental conditions and limited availability of representative labelled data. Addressing these challenges calls for innovative approaches to learning, adaptation and signal processing that can extend beyond the capabilities of established methods.

The project will take an algorithm and hardware agnostic, evidence-led approach, drawing on a broad range of computational approaches, potentially including neuromorphic sensing, reservoir computing, state-space models and few-short learning methods, alongside broader insights from neuroscience, bioacoustics, and digital and analogue signal processing.

The position is based at NGUK's Manchester offices, with approximately one day per week embedded within the University of Manchester's newly established International Centre for Neuromorphic Systems (ICNS). The successful candidate will work directly with NGUK's Neuromorphic Research Lead and Dr Oliver Rhodes, Senior Lecturer in Bio-inspired Computing, benefiting from a collaboration that combines NGUK's industrial expertise and operationally relevant research challenges with ICNS's specialist neuromorphic hardware, laboratory facilities and world-leading expertise in neuromorphic engineering.

The role offers a unique opportunity to help shape the transition of neuromorphic technologies from laboratory research into deployable capability relevant to the monitoring, protection and understanding of the maritime environment, an area of enduring importance to UK security and prosperity.

MANCHESTER 1824
The University of Manchester

Job Description

About the Team

International Centre for Neuromorphic Systems (ICNS)

The International Centre for Neuromorphic Systems (ICNS) is a new research centre in the Faculty of Science and Engineering led by Prof André van Schaik. ICNS collaborates across the departments of Computer Science and Electrical and Electronic Engineering. The Centre is focused on applied research in neuromorphic systems across three pillars: sensors, algorithms, and platforms.

Faculty of Science and Engineering, University of Manchester, UK

The Faculty of Science and Engineering is large and comprehensive, with two component schools: Engineering and Natural Sciences, comprising ten departments – School of Engineering: Computer Science; Mechanical and Aerospace Engineering; Civil Engineering and Management, Electrical and Electronic Engineering; Chemical Engineering. The Faculty has a diverse portfolio at the highest quality. Many major advances of the 20th century began here, including the work by Rutherford on the splitting of the atom and the development of the world's first digital stored-program computer. Today, research activities remain at the cutting-edge and the Faculty now generates in excess of £250M in research funding each year.

Northrop Grumman UK Ltd (NGUK)

As the UK arm of a global aerospace and defence technology company, NGUK delivers advanced capabilities across the defence, security and space sectors, helping customers address some of their most complex operational challenges. Drawing on expertise spanning information advantage, autonomous systems, advanced sensing, data science, machine learning and secure cloud technologies, NGUK develops and delivers innovative solutions at pace and scale for UK, NATO and allied partners. Operating from sites across the UK and working closely with industry, government and academia, NGUK is committed to investing in advanced R&D, sovereign intellectual property and the development of future technologies that strengthen national security and long-term UK prosperity.

Knowledge Transfer Partnerships

Knowledge Transfer Partnerships (KTP) is Europe's leading programme helping businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills that reside within the UK knowledge base. Throughout the KTP you will;

- Receive a competitive salary
- Gain excellent experience of managing a high profile project
- Receive formal management training
- Have access to a £4,000 professional development and training budget
- Receive mentoring and support from academic staff and industry professionals

Further information on KTP, including case studies, can be found at; http://www.manchester.ac.uk/collaborate/business-engagement/knowledge-exchange/transfer-partnerships/

Key Accountabilities

We are seeking an experienced researcher with the creativity, technical depth and scientific and engineering judgement to form and deliver their own research agenda in pursuit of demonstrations of genuine neuromorphic advantage in the sonar domain. We particularly welcome candidates with experience of novel algorithm development, including increasing the Technology Readiness Level through early-stage

proof-of-concepts and physical demonstrators. Specialist expertise in neuromorphic engineering is highly valuable but not essential.

The successful candidate will be expected to take significant ownership of the project's research and technology development activities. This role is intended for a highly ambitious and self-motivated researcher who thrives in uncertainty, embraces poorly defined challenges, and enjoys integrating insights from across disciplines to create genuinely novel solutions.

The successful candidate will be expected to engage confidently with stakeholders spanning academia, industry and government, translating promising scientific ideas into meaningful technological capability while making the most of the exceptional access, expertise and networks available through the KTP.

Research and Technical Responsibilities:

- Developing and maintaining state-of-the-art knowledge and understanding in neuromorphic systems, and translating this knowledge into research activity and practical problem-focused solutions
- Applying state-of-the-art knowledge to business-led use cases, documenting decision making and solutions to help embed research knowledge.
- Analysing and interpreting the results of research and generate original ideas based on findings to improve project outcomes.
- Preparing research work for dissemination, e.g. through publication in peer-reviewed journals or conferences, and via business-led stakeholder/customer presentations.

Project and Administrative Responsibilities

- Lead and collaborate on planning of research projects and their delivery, and actively contribute to decision making, to best support knowledge exchange and business impact of the KTP.
- Attend and contribute to relevant meetings, to manage project delivery and ensure outcomes are met (with academics, NGUK stakeholders and customers, and the wider research community)
- Communicate complex, specialist information, orally, in writing, and electronically, to a range of stakeholders.
- Build internal/external contacts and participate in internal/external networks for information exchange and future collaboration.
- Maintain awareness of the risks in the work environment and their potential impact on their own work and that of others.

Person Specification	
Knowledge	Proven expertise in developing algorithms and signal processing applications, particularly in the context of neuromorphic/low-power systems.
Experience	Demonstrable ability to plan and lead high-quality research in an academic or industrial setting; to include reviewing literature, constructing hypotheses, designing and running experiments, critically analysing results, and writing reports/publications. Experience leading research projects, including defining goals, objectives, and solutions, and ensuring their timely delivery.
Skills	Excellent written and oral communication skills, with the ability to present

MANCHESTER 1824
The University of Manchester

Job Description

	research findings clearly and effectively to a range of stakeholders. Excellent time management and organisational skills, and ability to work independently and as part of a team, liaising confidently and effectively with project team, ensuring deadlines are met. Skilled in analysing complex data and adapting flexibly to emerging research challenges.
Education	Holds a PhD in Computer Science, ideally with experience in neuromorphic systems. However adjacent disciplines (e.g. Maths, Physics, Engineering) and/or research themes (e.g. AI/machine learning/low-power hardware) also considered, as is significant equivalent industrial/post-doctoral experience.
Other	Eligible for security clearance within the UK (minimum 5-years of UK residency).

Key Behaviours

One University: A 'One University' approach, whereby we break down silos and work collaboratively towards furthering the University's strategic goals, vision and values.

Freedom of Speech and Academic Freedom: Support the University's commitment to securing and actively promoting the importance of free speech and academic freedom within our community.

Service Excellence: Committed to prioritising service excellence and high performance to deliver great people-centred experiences.

Agility: Demonstrate a commitment to agility and continuous improvement by embracing change, championing innovation, and being flexible and forward thinking to adapt.

Sustainability: A sustainable approach that safeguards the University of the future by championing environmental practices, advancing digital capability, and supporting financial stability and philanthropic initiatives.

Inclusion: Support the University's ambition to create an inclusive place to work where every person matters, demonstrating a commitment to non-discriminatory conduct and respect for others, and fostering a University where people feel deeply connected to each other, to Manchester, and to the wider world.

Social Responsibility: Promote and champion the University's social responsibility ambitions to advance social inclusion, prosperous communities, better health, and cultural engagement.