**C3 Statement by the Administering Organisation outlining Strategic Alignment**

**ARC *Future Fellowships* Applicant Dr Sasha Rubin [FT80100410].**

UNSW Sydney (UNSW), one of Australia's leading research-intensive universities, fully supports the application by Dr Sasha Rubin for a *Future Fellowship* Level 2.

Dr Rubin holds a PhD in computer science and mathematics from the University of Auckland. His PhD won the best doctoral thesis in the Faculty of Science at that University. He subsequently held two prestigious postdoctoral fellowships: the New Zealand Science and Technology Postdoctoral Fellowship (2004-2007) and a Marie-Curie Cofund Fellowship (2012-2014).

Dr Rubin's background is in formal methods and he has developed a profound interest in Artificial Intelligence in recent years, with a stunning research output (he has published 10 papers in the most prestigious AI conferences only in the last two years). UNSW fully supports his goal of developing the foundations and tools for advanced formal analysis of artificial agents and multi-agent systems. The need for these is acute and pressing, as evidenced by the recent Statement on Algorithmic Transparency and Accountability by the ACM U.S. Public Policy Council and ACM Europe Policy Committee[[1]](#footnote-2). Dr Rubin's background, knowledge and interests put him in a special position to contribute to such an analysis.

UNSW has an established, leading reputation in Computer Science and Artificial Intelligence and Image Processing more specifically. As evidence of this we cite that according to Excellence in Research for Australia 2015 report (http://www.arc.gov.au/era-reports) UNSW scores **well above world standard** in Computer Science (rank 5 for the FoR code 08) and **above world standard** in Artificial Intelligence and Image Processing (rank 4 for the FoR code 0801). Moreover, UNSW ranks **above or well above world standard** on all but one of the FoR 08 4-digit codes in Computer Science.

Accordingly, this candidate, and this Fellowship, is closely aligned with the UNSW Research Strength of "ICT, Robotics and Devices"[[2]](#footnote-3).

**Contribution of the Future Fellow and Project to Building this Research Strength at UNSW**

**Building Research Strength & Capacity:** Dr Rubin's research strengths are methods for formal analysis of complex systems, including artificial agents and multi-agent systems. On these topics **his** **research output is outstanding**. Notably, he has published 10 papers in the most prestigious conferences in AI (IJCAI, AAMAS, KR) in only the last two years. Very few people have these levels of output, and those who do are usually experienced full professors with large groups consisting of several junior researchers; none of them is a young researcher like him. This is hugely impressive and a mark of the highest possible quality.

As a Future Fellow Dr Rubin will again reach and perhaps surpass these levels of quality and output. Indeed, we expect that together with faculty in the Department of Computer Science and Engineering and our strong PhD candidates, we will produce deep, original and impactful results in the analysis of epistemic protocols, security flow, high-level robot control and robot architectures, and general game playing.

**Enhancing Collaboration:**

*UNSW*: The project will enhance collaboration with current members of the School of Computer Science and Engineering at UNWS, namely A/Prof R. van der Meyden and the study of epistemic protocols, Prof M. Thielscher and his work on general game playing, Dr D. Rajaratnam, Dr B. Hengst, Prof M. Pagnucco, Prof C. Sammut and their work with Prof Thielscher on architectures for robotics, Prof C.C. Morgan and his work on verification of information flow security. Dr Rubin will be invited to join the recently formed multidisciplinary interest group in Blockchain, Smart Contracts and Cryptocurrency, co-ordinated by A/Prof van der Meyden.

*Australia*: Dr Rubin has contacted two experts in planning and agent programming languages, who have agreed to form collaborations on the topic of this project: Nir Lipovetzky, Lecturer at the University of Melbourne, and former PhD student of Hector Geffner; and Sebastian Sardina, Associate Professor at RMIT University.

*Internationally*: Dr Rubin has an extensive group of collaborators and this Future Fellowship will give him the resources needed to maintain and further develop these collaborations through joint workshops, research visits, and

regular meetings with colleagues in Sydney. These collaborations will directly benefit the students and faculty at UNSW, and thus enhance the position of UNSW in the international academic community. Notable collaborators are the **world leaders** MosProf. M.Y. Vardi in the area of Automata Theory and Formal Methods (Rice University, Karen Ostrum George Distinguished Service Professor in Computational Engineering and Director of the Ken Kennedy Institute for Information Technology, Godel Prize, ACM Presidential Award, 40K+ citations), Prof. M. Wooldridge in the area of Multi-agent Systems (Oxford University, ACM Fellow, AAAI Fellow, EURAI Fellow, AISB Fellow, BCS Fellow, 60K+citations), Prof. Giuseppe De Giacomo (Sapienza University of Rome, ACM Fellow, AAAI Fellow, EurAI Fellow, 17000+ citations) in the area of Knowledge Representation, Prof. H. Geffner in the area of Automated Planning (Pompeu Fabra, 6K+ citations), and Prof. A. Lomuscio in the area of verification for Multi-agent systems (Imperial College London, 6K+ citations). All these world leaders have confirmed their participation in the project. In particular, Giuseppe De Giacomo has suggested he would visit Dr Rubin at UNSW.

**Infrastructure, Facilities and Major Equipment:** The department will provide access to libraries, computing facilities, and office equipment.

**UNSW Support for the Future Fellow**

An amount of $40,000 per annum over the four years of the Future Fellowship will be provided by the Faculty of Engineering in support of Dr Rubin's research activities. In particular, this will be used to hire two (back to back) masters by research students, as well as to pay for open access publication costs and to fund collaboration visits by the students and international collaborators.

The University assists its researchers in developing and maintaining pathways for their ongoing development. As such, UNSW has established several initiatives that provide research staff with professional support in planning and developing their careers. Formal performance appraisals are performed in all faculties and researchers are proactively mentored through an innovative Researcher Development Framework program.

UNSW will also provide support for IP protection and commercialisation through UNSW Innovations

(UNSW’s commercial arm) for any innovations which may arise from Dr Rubin’s research program.

UNSW is committed to world-class research, actively encouraging its researchers to participate in a wide range

of international research collaborations. Moreover, this extends to seizing the opportunity to attract and retain

international researchers of the calibre of Dr Rubin, valuing their international reputation and their strong alignment with UNSW’s areas of research strength.

**Integration of the Future Fellow into UNSW Research Activities after Fellowship**

At the conclusion of the Fellowship, Dr Rubin will be offered a further appointment for a minimum of 2 years in the School of Computer Science and Engineering, subject to performance and research output commensurate with the Fellowship. Given Dr Rubin's successful track record to date and this innovative Future Fellowship application and, conditional on budget constraints, performance during the Future Fellowship and alignment with Faculty strategy, it is envisioned that Dr Rubin will transition to a continuing position.

Dr Rubin’s research fits into the anticipated Future Intelligence research priority area at UNSW, and in any case into the existing ICT & Robotics area of strength.[[3]](#footnote-4)

In closing, I reiterate UNSW Sydney’s strong support for the application by Dr. Sasha Rubin for a Future Fellowship in 2018 and welcome the opportunity provided by the Australian Research Council to promote and support research both for the benefit of Australia and the University.

Yours sincerely

Professor Nicholas Fisk  
Deputy Vice-Chancellor (Research)

1. https://www.acm.org/binaries/content/assets/public-policy/2017\_usacm\_statement\_algorithms.pdf [↑](#footnote-ref-2)
2. https://research.unsw.edu.au/unsw-areas-research-strength [↑](#footnote-ref-3)
3. https://research.unsw.edu.au/unsw-areas-research-strength [↑](#footnote-ref-4)