Dr Adam D. Hines

B.MedSci, B.Sci (Hons), PhD

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Education

University of Pennsylvania *Philadelphia, PA - USA*
VISITING ASSOCIATE RESEARCHER (PhD), FULBRIGHT FUTURE SCHOLAR *July 2022 - December 2022*
- Perelman School of Medicine, Department of Anesthesiology and Critical Care

The University of Queensland *Brisbane, QLD - Australia*
DOCTOR OF PHILOSOPHY *April 2019 - March 2023*
- Queensland Brain Institute

University of New South Wales *Sydney, NSW - Australia*
B.MedSci, B.Sci (Hons. Class I) *2013 - 2016*
- The Victor Chang Cardiac Research Institute

Skills

Machine learning	Development, optimization, and deployment of machine/deep learning algorithms using Pytorch
Computer and robotic vision	Advanced computer vision skills, robotic vision to solve visual place recognition tasks, bio-inspired robotics
Neuroscience	Advanced biomedical research skills with 8+ years experience
Programming	Python, MATLAB, Java, UI/UX design, Git/Github version controlling
Publications and grants	Successful manuscript and grant writing experience, journal peer-review

Experience

Macquarie University *Brisbane, QLD - Remote*
POSTDOCTORAL RESEARCH FELLOW *September 2024 - present*
- Postdoctoral position with the School of Natural Sciences
- Neuroscience inspired modeling of honeybee active vision
- Developing spiking neural network algorithms that model insect visual systems
- Visiting Fellowship with the QUT Centre for Robotics

QUT Centre for Robotics *Brisbane,QLD*
RESEARCH FELLOW *May 2023 - August 2024*
- Postdoctoral position at the QUT Centre for Robotics
- Neuroscience inspired robotics and robotic vision
- Developing machine learning, artificial intelligence, and spiking neural network algorithms
- Consulting and bridging the gap between engineering and biomedical research

Queensland Brain Institute *Brisbane, QLD*
RESEARCH ASSISTANT (HEW 5) *February 2017 - March 2019*
- Managed day-to-day lab activity
- Provided technical support to postdoctoral and student researchers
- Designed and performed original research
- Directed quarantine and biosecurity facilities

Publications

Lead author

- Hines, AD. Milford, M & Fischer, T. 2025 A compact neuromorphic system for ultra energy-efficient, on-device robot localization *In press.*
- Hines, AD. *et al.* 2024 Synapse-specific trapping of SNARE machinery proteins in the anesthetized Drosophila brain *The Journal of Neuroscience* DOI: 10.1523/JNEUROSCI.0588-23.2024
- Hines, AD. Stratton, PG, Milford, M & Fischer, T. 2024 VPRTempo: A Fast Temporally Coded Spiking Neural Network for Visual Place Recognition. *IEEE International Conference on Robotics and Automation*
- Hines, AD. and van Swinderen, B. 2021 Tracking single molecule dynamics in the adult *Drosophila* brain. *eNeuro* 8 (3) pg 1-13 DOI: 10.1523/ENEURO.0057-21.2021

Senior author

- Dietrich, R. *et al.* 2025 Threshold Adaptation in Spiking Networks Enables Shortest Path Finding and Place Disambiguation. *IEEE Neuro Inspired Computational Elements*

Co-author

- van Swinderen, B. and Hines, AD. 2020 Turning to *Drosophila* for help in resolving general anesthesia *PNAS* 117 (40) pg 24627-24628 DOI: 10.1073/pnas.2012131117
- Perry, MD. *et al.* 2020 Pharmacological activation of IKr in models of long QT Type 2 risks overcorrection of repolarization *Cardio. Res.* 116 (8) pg 1434-1445 DOI: 10.1093/cvr/cvz247

Honours and awards

Fulbright Future Scholar

FULBRIGHT AUSTRALIA   *2022*

- Recipient of a prestigious Fulbright Future Scholarship to complete study in the United States, fully funded by the Fulbright Commission of Australia.

3-Minute Thesis Winner

AUSTRALASIAN NEUROSCIENCE SOCIETY   *2021*

- Winner of the 3MT competition at the annual Australasian Neuroscience Societies conference.

AwwWOSome Award

WONDER OF SCIENCE   *October 2021*

- In recognition of outstanding service to lead Wonder of Science in schools.

Runner up - QBI and All Institutes round

3 MINUTE THESIS   *June - July 2021*

- Runner up in both the QBI and All Institutes round of the UQ 3 Minute Thesis competition.

Young Science Ambassador Award

WONDER OF SCIENCE   *2021 - 2022*

- Award received to engage with local and rural schools in Queensland promoting STEMM careers to the next generation of researchers.

Images in Neuroscience competition 1st prize

AUSTRALASIAN NEUROSCIENCE SOCIETY - 39TH ANNUAL MEETING   *December 2019*

- Best submitted image

UQ Graduate School Scholarship (UQGSS)

THE UNIVERSITY OF QUEENSLAND - BRISBANE, QLD   *April 2019*

- Awarded category 1 scholarship to undertake PhD studies

Student Presentation Award - Winner

AUSTRALIAN SOCIETY FOR BIOPHYSICS   *December 2016*

- Best student presentation at the annual meeting

Invited positions

Co-chair & Steering Committee Member

EMCR BRAIN SCIENCES   *2024 - present*

- Working with a group of early and mid career neuroscientists to promote and engage with the wider neuroscience community.

Associate Faculty Member

FACULTY OPINIONS   *2022 - present*

- Associate faculty with Prof. Rod Eckenhoff recommending peer-reviewed articles in Anesthetic Mechanisms.

Deputy Chair & Queensland Representative

AUSTRALASIAN NEUROSCIENCE SOCIETY STUDENT BODY COMMITTEE   *2020 - 2022*

- Working with the executive ANS and student body committee providing social networking events, society feedback and improvement, and coordination of annual conferences.
- Management and development of social media outreach and mentorship program.
- Organising student related events for Queensland members of the Australasian Neuroscience Society, contributing to monthly committee meetings and society matters

Student and Postdoc Association committee member

QUEENSLAND BRAIN INSTITUTE   *2019 - 2020*

- Organising and hosting fortnightly seminars delivered to students and postdocs at QBI

Conferences, presentations, and seminars

IEEE International Conference on Robotics and Automation
Presented accepted contributed paper   *May 2024*

Massachusetts General Hospital Dept. of Anesthesiology
Happy Hour presentation   *November 2022*

University of Pennsylvania - Chronobiology and Sleep Institute
Seminar Series   *November 2022*

Weill Cornell Medical College
Dept. of Anesthesiology Seminar   *November 2022*

University of Pittsburgh Dept. of Anesthesiology
Fall Seminar series   *October 2022*

Rutgers University
Departmental Seminar   *September 2022*

University of Pennsylvania - Dept. Anesthesiology
Research in Progress Seminar   *May 2022*

QBI ECR-Student Symposium
Volunteered Presentation   *November 2021*

Royal Brisbane and Women's Hospital Department of Anaesthesia
Lecture   *September 2021*

AusFly
AusFly Seminar Series   *March 2021*

University of Pennsylvania - Dept. Anesthesiology
Research in Progress Seminar   *February 2021*

Australasian Neuroscience Society - 39th Annual meeting
Conference Talk   *December 2019*

Australian Society for Biophysics - 40th Annual Meeting
Conference Talk   *December 2016*

Media

ABC
Afternoons with Josh Szeps   *April 2021*

The Conversation
Science and Technology   *April 2021*

ABC
ABC News Afternoons   *October 2019*

ABC
National News - Pre-recorded   *October 2019*

ABC Radio Brisbane
Mornings with Rebecca Levingston   *October 2019*