



COGS3220

Advanced topics in Cognitive Science: Exploring Human-Technology Interactions

Session 2, In person-scheduled-weekday, North Ryde 2022

School of Psychological Sciences

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Disclaimer

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General Information

Unit convenor and teaching staff

Nathan Caruana

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Credit points

10

Prerequisites

130cp including (COGS2000 or COGS202) and ((COGS2010 or COGS210) or COGS2020 or COGS2030 or COGS2040 or COGS2050)

Corequisites

Co-badged status

Unit description

This unit is one of the Advanced Topics in Cognitive Science units. This unit provides an overview of the fundamentals and latest research developments, challenges and opportunities of social robotics, virtual reality, and artificial intelligence, with a strong focus on the use of psychological and neuroscientific techniques. In particular, research discussed in this unit describes how these types of technology can be used as tools for advancing our understanding of human neurocognitive function. Topics include but are not limited to an introduction to artificial intelligence, history of social robotics, psychological methods for examining human-technology interaction, neuroscientific methods for examining human-technology interaction, developmental robotics, cross-cultural issues related to human-technology interactions, and the future of human-technology interactions. Practicals will focus on reading and discussing 2 popular press books (one fiction, one non-fiction) concerning humans' relationship with technology, and will also feature students presenting an overview of the research they plan to propose in the final research proposal (the focus of the final exam assignment) and receive peer feedback and discussion on these ideas.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Explain current concepts, theories, methods, and findings in the cognitive and

brain sciences that relate to human-technology interactions.

ULO2: Identify strengths and limitations of recent research associated with using virtual reality, robotics, and AI in the cognitive and brain sciences.

ULO3: Discuss points of integration and conflict between technology and human cognitive and brain sciences.

ULO4: Critically evaluate issues and controversies in the cognitive and brain sciences with intellectual independence.

ULO5: Synthesise information from a wide variety of sources to formulate scientific arguments and ideas for new research directions.

General Assessment Information

Grade descriptors and other information concerning grading are contained in the [Macquarie University Assessment Policy](#).

All final grades are determined by a grading committee, in accordance with the Macquarie University Assessment Policy, and are not the sole responsibility of the Unit Convenor.

Students will be awarded a final grade and a mark which must correspond to the grade descriptors specified in the [Assessment Procedure](#) (clause 128).

To pass this unit, you must demonstrate sufficient evidence of achievement of the learning outcomes, meet any ungraded requirements, and achieve a final mark of 50 or better.

Further details for each assessment task will be available on iLearn.

Late Submissions

Unless a Special Consideration request has been submitted and approved, a 5% penalty (OF THE TOTAL POSSIBLE MARK) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11.55pm. A 1-hour grace period is provided to students who experience a technical concern.

For example:

Number of days (hours) late	Total Possible Marks	Deduction	Raw mark	Final mark
1 day (1-24 hours)	100	5	75	70
2 days (24-48 hours)	100	10	75	65
3 days (48-72 hours)	100	15	75	60
7 days (144-168 hours)	100	35	75	40

>7 days (>168 hours)	100	-	75	0
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Late submission of time sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs: students need to submit an application for Special Consideration.

Special Consideration

If you are unable to complete an assessment task on or by the specified date due circumstances that are unexpected, unavoidable, significantly disruptive and beyond your control, you may apply for special consideration in accordance with the [special consideration policy](#). Applications for special consideration must be supported by appropriate evidence and submitted via ask.mq.edu.au.

Assessment Tasks

Name	Weighting	Hurdle	Due
Critical reflection	15%	No	11:55pm Friday 9th September (End of Week 7)
Proposal presentation	20%	No	In class (Weeks 8-9).
Group discussion lead	15%	No	In class Weeks 3-5 and 10-12.
Research project proposal	50%	No	11:55pm, Sunday 30th October (End of Week 12)

Critical reflection

Assessment Type ¹: Report

Indicative Time on Task ²: 10 hours

Due: **11:55pm Friday 9th September (End of Week 7)**

Weighting: **15%**

At two points during the session, students will post a critical reflection on big questions, ideas or controversies that were introduced in class or inspired by class material. Students will also comment on a post written by one of their classmates.

On successful completion you will be able to:

- Explain current concepts, theories, methods, and findings in the cognitive and brain

sciences that relate to human-technology interactions.

- Discuss points of integration and conflict between technology and human cognitive and brain sciences.
- Synthesise information from a wide variety of sources to formulate scientific arguments and ideas for new research directions.

Proposal presentation

Assessment Type ¹: Presentation

Indicative Time on Task ²: 20 hours

Due: **In class (Weeks 8-9).**

Weighting: **20%**

Pitch of research proposal idea for the final research project proposal, including submission of presentation materials used. Students will give feedback on each other's presentations.

On successful completion you will be able to:

- Identify strengths and limitations of recent research associated with using virtual reality, robotics, and AI in the cognitive and brain sciences.
- Critically evaluate issues and controversies in the cognitive and brain sciences with intellectual independence.

Group discussion lead

Assessment Type ¹: Facilitation

Indicative Time on Task ²: 15 hours

Due: **In class Weeks 3-5 and 10-12.**

Weighting: **15%**

Lead book discussion and submit a prepared set of questions and related issues to fuel class discussion.

On successful completion you will be able to:

- Identify strengths and limitations of recent research associated with using virtual reality, robotics, and AI in the cognitive and brain sciences.
- Discuss points of integration and conflict between technology and human cognitive and brain sciences.

- Critically evaluate issues and controversies in the cognitive and brain sciences with intellectual independence.

Research project proposal

Assessment Type ¹: Report

Indicative Time on Task ²: 40 hours

Due: **11:55pm, Sunday 30th October (End of Week 12)**

Weighting: **50%**

Research project proposal for new research study.

On successful completion you will be able to:

- Explain current concepts, theories, methods, and findings in the cognitive and brain sciences that relate to human-technology interactions.
- Identify strengths and limitations of recent research associated with using virtual reality, robotics, and AI in the cognitive and brain sciences.
- Discuss points of integration and conflict between technology and human cognitive and brain sciences.
- Critically evaluate issues and controversies in the cognitive and brain sciences with intellectual independence.
- Synthesise information from a wide variety of sources to formulate scientific arguments and ideas for new research directions.

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

As a student enrolled in this unit, you will engage in a range of online and face-to-face learning activities, including readings, videos and lectures, robotics demonstrations and group discussions and seminars. Details can be found on the iLearn site for this unit.

Required Readings

- Torres C. (2018) The Vestigial Heart: A Novel of the Robot Age. MA, USA: MIT Press.
- Brooks, R. (2021). Artificial Intimacy: Virtual Friends, Digital Lovers and Algorithmic Matchmakers. Sydney, AUS: NewSouth Press.

Technology Used

Active participation in the learning activities throughout the unit will require students to have access to a tablet, laptop or similar device. Students who do not own their own laptop computer may borrow one from the university library.

Unit Schedule

Please see the iLearn page for a detailed weekly schedule for Lecture, Tutorial and Assessment activities organised by topics and themes.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies](https://students.mq.edu.au/support/study/policies) (<https://students.mq.edu.au/support/study/policies>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA

student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support](#) including information about finances, tenancy and legal issues

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

INCLUSION AND DIVERSITY

Social inclusion at Macquarie University is about giving everyone who has the potential to benefit from higher education the opportunity to study at university, participate in campus life and flourish in their chosen field. The University has made significant moves to promote an equitable, diverse and exciting campus community for the benefit of staff and students. It is your responsibility to contribute towards the development of an inclusive culture and practice in the areas of learning and teaching, research, and service orientation and delivery. As a member of the Macquarie University community, you must not discriminate against or harass others based on their sex, gender, race, marital status, carers' responsibilities, disability, sexual orientation, age, political conviction or religious belief. All staff and students are expected to display appropriate behaviour that is conducive to a healthy learning environment for everyone.

PROFESSIONALISM

In the Faculty of Medicine, Health and Human Sciences, professionalism is a key capability embedded in all our courses.

As part of developing professionalism, students are expected to attend all small group interactive sessions including clinical, practical, laboratory, work-integrated learning (e.g., PACE placements), and team-based learning activities. Some learning activities are recorded (e.g., face-to-face lectures), however you are encouraged to avoid relying upon such material as they do not recreate the whole learning experience and technical issues can and do occur. As an adult learner, we respect your decision to choose how you engage with your learning, but we would remind you that the learning opportunities we create for you have been done so to enable your success, and that by not engaging you may impact your ability to successfully complete this unit. We equally expect that you show respect for the academic staff who have worked hard to develop meaningful activities and prioritise your learning by communicating with them in advance if you are unable to attend a small group interactive session.

Another dimension of professionalism is having respect for your peers. It is the right of every student to learn in an environment that is free of disruption and distraction. Please arrive to all learning activities on time, and if you are unavoidably detained, please join activity as quietly as possible to minimise disruption. Phones and other electronic devices that produce noise and other distractions must be turned off prior to entering class. Where your own device (e.g., laptop) is being used for class-related activities, you are asked to close down all other applications to avoid distraction to you and others. Please treat your fellow students with the utmost respect. If you are uncomfortable participating in any specific activity, please let the relevant academic know.