



COMP6420

Artificial Intelligence for Text and Vision

Session 2, In person-scheduled-weekday, North Ryde 2026

School of Computing

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	2
<u>General Assessment Information</u>	3
<u>Assessment Tasks</u>	6
<u>Delivery and Resources</u>	8
<u>Unit Schedule</u>	9
<u>Policies and Procedures</u>	10
<u>Changes from Previous Offering</u>	12

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General Information

Unit convenor and teaching staff

Convenor, Lecturer

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Lecturer

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Credit points

10

Prerequisites

COMP6200

Corequisites

Co-badged status

COMP3420

Unit description

Availability of digital data in increasingly larger volumes, both as text and images, has enabled machine learning to provide effective solutions to applications that require intelligent processing of text and images. This unit explores the use of Artificial Intelligence techniques, in particular deep learning techniques, for tasks related to the processing of text and computer vision. Application areas include text search, sentiment analysis, information extraction, and image recognition.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Industry, Innovation and Infrastructure

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: Identify the range of text processing and computer vision applications that benefit

from the use of Artificial Intelligence.

ULO2: Explain the fundamental Artificial Intelligence techniques in text processing and computer vision.

ULO3: Design systems that use deep learning techniques for tasks related to text processing and computer vision.

ULO4: Implement text processing and computer vision applications using a programming language.

General Assessment Information

The assessment of this unit consists of two assignments and a final exam. You will submit the solutions to the two assignments via iLearn by the due date. The final examination is a closed book examination, and will be taken in person during the exam period.

Generative AI

Assignments 1 and 2 are AI-open. You can use AI to help you, but you must understand the content you submit. Viva might be conducted.

Late Assessment Submission Penalty

- **5% penalty per day:** If you submit your assessment late, **5% of the total possible marks** will be deducted for each day (including weekends), up to 7 days.
 - *Example 1 (out of 100):* If you score 85/100 but submit 20 hours late, you will lose 5 marks and receive **80/100**.
 - *Example 2 (out of 30):* If you score 27/30 but submit 1 day late, you will lose 1.5 marks and receive **25.5/30**.
- **After 7 days:** Submissions more than 7 days late will receive a **mark of 0**.
- **Extensions:**
 - **Special Consideration:** If you need more time due to serious issues and for any assessments that are not eligible for Short Extension, you must apply for Special Consideration.

Need help? Review the Special Consideration page [HERE](#)

Assignments Release Dates

The assignments will be released no later than the dates listed below.

- AI for Computer Vision - 03/Aug/2026

- Practical AI for Text Processing - 14/Sept/2026

Assessments where Late Submissions will be accepted

- AI for Computer Vision - YES. Standard Late Penalty applies.
- Practical AI for Text Processing - YES, Standard Late Penalty applies.
- Exam - NO, unless Special Consideration is Granted

Supplementary Exam

If you receive [Special Consideration](#) for the final exam, a supplementary exam will be scheduled after the normal exam period, following the release of marks. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

Requirements to Pass this Unit

To pass this unit, you must achieve a total mark equal or greater than 50%. This unit does not have hurdle assessments.

Special Consideration

The [Special Consideration Policy](#) aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through connect.mq.edu.au.

Artificial Intelligence for Computer Vision

Assessment Type ¹: Experiential task Indicative Time on Task ²: 30 hours Due: **11/Sept/2026**
Weighting: **35%** Groupwork/Individual: Individual Short extension ³: Yes AI Approach: Open

Implement a computer vision application that uses pre-packaged tools and simple deep learning techniques.

On successful completion, you will be able to:

- Identify the range of text processing and computer vision applications that benefit from the use of Artificial Intelligence.
- Explain the fundamental Artificial Intelligence techniques in text processing and computer vision.
- Design systems that use deep learning techniques for tasks related to text processing and computer vision.
- Implement text processing and computer vision applications using a programming

language.

Practical Artificial Intelligence for Text Processing

Assessment Type ¹: Experiential task Indicative Time on Task ²: 30 hours Due: **30/Oct/2026**

Weighting: **35%** Groupwork/Individual: Individual Short extension ³: Yes AI Approach: Open

Implement a practical text processing application that uses deep learning techniques and realistic data which may require preprocessing or cleaning.

On successful completion, you will be able to:

- Identify the range of text processing and computer vision applications that benefit from the use of Artificial Intelligence.
- Explain the fundamental Artificial Intelligence techniques in text processing and computer vision.
- Design systems that use deep learning techniques for tasks related to text processing and computer vision.
- Implement text processing and computer vision applications using a programming language.

Final exam

Assessment Type ¹: Examination Indicative Time on Task ²: 10 hours Due: **Exam Period**

Weighting: **30%** Groupwork/Individual: Individual Short extension ³: No AI Approach: Observed

A final exam will be held during the University Examination Period.

On successful completion, you will be able to:

- Identify the range of text processing and computer vision applications that benefit from the use of Artificial Intelligence.
- Explain the fundamental Artificial Intelligence techniques in text processing and computer vision.

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
- [Academic Success](#) 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.

³ An automatic short extension is available for some assessments. Apply through the [Service Connect Portal](#).

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
Practical Artificial Intelligence for Text Processing	35%	No	30/10/2026	Individual	No	Open
Final Exam	30%	No	During exam period	Individual	No	Observed
Artificial Intelligence for Computer Vision	35%	No	11/09/2026	Individual	No	Open

Practical Artificial Intelligence for Text Processing

Assessment Type ¹: Experiential task

Indicative Time on Task ²: 30 hours

Due: **30/10/2026**

Weighting: **35%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Open

Implement a practical text processing or computer vision application that uses deep learning techniques and realistic data which may require preprocessing or cleaning.

On successful completion you will be able to:

- Identify the range of text processing and computer vision applications that benefit from the use of Artificial Intelligence.
- Explain the fundamental Artificial Intelligence techniques in text processing and computer vision.
- Design systems that use deep learning techniques for tasks related to text processing and computer vision.
- Implement text processing and computer vision applications using a programming language.

Final Exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 10 hours

Due: **During exam period**

Weighting: **30%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Observed

You will undertake a final examination during the formal examination period.

On successful completion you will be able to:

- Identify the range of text processing and computer vision applications that benefit from the use of Artificial Intelligence.
- Explain the fundamental Artificial Intelligence techniques in text processing and computer vision.

Artificial Intelligence for Computer Vision

Assessment Type ¹: Experiential task

Indicative Time on Task ²: 30 hours

Due: **11/09/2026**

Weighting: **35%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Open

Implement a text processing or computer vision application that uses pre-packaged tools and simple deep learning techniques.

On successful completion you will be able to:

- Identify the range of text processing and computer vision applications that benefit from the use of Artificial Intelligence.
- Explain the fundamental Artificial Intelligence techniques in text processing and computer vision.
- Design systems that use deep learning techniques for tasks related to text processing and computer vision.
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³ An automatic short extension is available for some assessments. Apply through the [Service Connect Portal](#).

Delivery and Resources

During most of the weeks, there will be 2 hours of lectures and 2 hours of Practicals. All the required software will be installed in the computers of the PC labs allocated for the Practicals but you are free to bring your own device and install the software.

Lectures and practicals start on Week 1.

Delivery Modes

All lectures and Practicals are delivered in campus. The lectures will also be recorded and recordings of the lecture will be available via iLearn. There will not be recordings of the Practical sessions.

Methods of Communication

We will communicate with you via your university email or through announcements in iLearn. Queries to convenors can be made via the Contact tool in iLearn or sent to diego.molla-aliod@mq.edu.au from your **university email** address.

Reading

Every week there will be a list of required and recommended readings. The list will be maintained in iLearn.

Most of the contents of the unit will be based on the following books:

- François Chollet, Matthew Watson (2025). Deep Learning with Python, 3rd Edition. Manning Publications. Available in the library and online: <https://deeplearningwithpython.io/>
- Brian McMahan, Delip Rao. Natural Language Processing with PyTorch. O'Reilly 2019. Available in the library.
- Thomas Dop. Hands-on Natural Language Processing with PyTorch 1.x. Pack Publishing 2020. Available in the library.
- V Kishore Ayyadevara, Yeshwanth Reddy. Modern Computer Vision with PyTorch - Second Edition. Pack Publishing 2024. Available in the library.

Additional useful readings are:

- Steven Bird, Ewan Klein, Edward Loper. Natural Language Processing -- Analyzing Text with Python and the Natural Language Toolkit. Available [online](#).
- Dan Jurafsky and James H. Martin (2025), Speech and Language Processing (3rd ed. draft). Available [online](#).

- Valliappa Lakshmanan, Martin Görner, Ryan Gillard (2021), Practical Machine Learning for Computer Vision. O'Reilly. Available in the library.
- Mohammed Elgendy (2020), Deep Learning for Vision Systems. O'Reilly. Available in the library.

Software

The main software for this unit is Anaconda for Python 3.13 with the following packages:

1. numpy
2. scipy
3. pandas
4. matplotlib
5. nltk
6. scikit-learn
7. scikit-image
8. gensim
9. pytorch
10. torchtext
11. torchvision
12. opencv
13. pillow
14. spacy
15. transformers
16. regex (re)
17. seaborn

Unit Web Page

Note that the majority of the unit materials is publicly available while some material requires you to log in to [iLearn](#) to access it.

The unit will make extensive use of discussion boards hosted within [iLearn](#). Please post questions there, they will be monitored by the staff on the unit.

Unit Schedule

The following schedule is tentative and is only an indication of the actual contents. The final schedule will be available in iLearn.

Week	Topic	Assignment Due
1	Introduction; Python; Simple image processing	
2	Deep learning for image classification	
3	Convolutional networks	
4	Advanced convolutional networks	
5	Object detection and image segmentation	
6	Practical computer vision	
7	Simple text processing	Assignment 1
8	Text Search	
	RECESS	
9	Machine learning for text classification	
10	Deep learning for text classification	
11	Transformer	
12	Large Language Models	Assignment 2
13	Exam review	

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).

[du.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 connect.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/>

Academic Success

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

- [Ask a Study Coach](#)
- [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 Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

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

IT Help

For help with University computer systems and technology, visit <https://students.mq.edu.au/support/technology/service-desk>.

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.

Changes from Previous Offering

As no performance benefits were observed with the previous offering, the automatic extension has been removed.

Unit information based on version 2026.03 of the [Handbook](#)