1st SIT COURSEWORK – 01 Coursework: **Autumn Semester 2025**

Module Code:	**CT7160NI**
Module Title:	**Computer Vision**
Module Leader:	**Juned Alam (Islington College)**

Coursework Type:	**Individual**
Coursework Weight:	This coursework accounts for **50%** of your total module grades.
Submission Date:	**Sunday, 25 January 2026**
When Coursework is given out:	**Week 5**
Submission Instructions:	Submit the following to Islington College MST portal before the due date: ● **Report in PDF format** ● **Source Code files**
Warning:	London Metropolitan University and Islington College takes Plagiarism seriously. Offenders will be dealt with sternly.

© London Metropolitan University

Plagiarism Notice

You are reminded that there exist regulations concerning plagiarism.

Extracts from University Regulations on Cheating, Plagiarism and Collusion

Section 2.3: "The following broad types of offence can be identified and are provided as indicative examples …..
(i)   Cheating: including copying coursework.
(ii)   Falsifying data in experimental results.
(iii)   Personation, where a substitute takes an examination or test on behalf of the candidate. Both candidate and substitute may be guilty of an offence under these Regulations.
(iv)   Bribery or attempted bribery of a person thought to have some influence on the candidate's assessment.
(v)   Collusion to present joint work as the work solely of one individual.
(vi)   Plagiarism, where the work or ideas of another are presented as the candidate's own.
(vii)   Other conduct calculated to secure an advantage on assessment.
(viii) Assisting in any of the above.

Some notes on what this means for students:

(i)   Copying another student's work is an offence, whether from a copy on paper or from a computer file, and in whatever form the intellectual property being copied takes, including text, mathematical notation and computer programs.
(ii)   Taking extracts from published sources without attribution is an offence. To quote ideas, sometimes using extracts, is generally to be encouraged. Quoting ideas is achieved by stating an author's argument and attributing it, perhaps by quoting, immediately in the text, his or her name and year of publication, e.g. " $e = mc2$ (Einstein 1905)". A reference section at the end of your work should then list all such references in alphabetical order of authors' surnames. (There are variations on this referencing system which your tutors may prefer you to use.) If you wish to quote a paragraph or so from published work then indent the quotation on both left and right margins, using an italic font where practicable, and introduce the quotation with an attribution.

Further information in relation to the existing London Metropolitan University regulations concerning plagiarism can be obtained from http://www.londonmet.ac.uk/academic-regulations

CONTRACT CHEATING

Contract cheating (also known as assessment outsourcing, commissioning or ghost writing) is when someone seeks out another party, or AI generator service, to produce work or buy an essay or assignment, either already written or specifically written for them or the assignment to submit as their own piece of work.

Contract cheating undermines the integrity of the academic process and devalues the qualifications awarded by the university. Students are reminded that academic integrity is a fundamental principle of our institution. Engaging in contract cheating not only impacts the individual's academic record but also the reputation of the university.

Students are encouraged to seek support if they are struggling with their coursework. The university offers a range of resources, including academic counselling, tutoring services, and workshops on study skills and time management. Utilizing these resources can help students achieve their academic goals without resorting to dishonest practices.

Penalty:

- Failure in the Module: The student must re-register for the same module, and the re-registered module will be capped at a bare pass.

- Ineligibility to Continue on the Course: Where re-registration of the same module, or a suitable alternative, is not permissible, the student will not be able to continue on the course. Additionally, the following penalty will be applied to the student's final award:

  - Undergraduate Honors: The student's final classification will be reduced by one level.
  - Unclassified Bachelors: Downgraded to Diploma in Higher Education.
  - Foundation Degree: Distinction downgraded to Merit; Merit downgraded to Pass; Pass downgraded to Certificate in Higher Education.
  - Masters: Distinction downgraded to Merit; Merit downgraded to Pass; Pass downgraded to Postgraduate Diploma.

Reporting and Consequences:

Instances of contract cheating will be thoroughly investigated, and students found guilty will face the penalties outlined above. It is the responsibility of every student to ensure that their work is their own and to avoid situations that could lead to accusations of academic misconduct. By adhering to these standards, students contribute to a fair and equitable academic environment, ensuring the value and recognition of their qualifications are maintained.

Coursework Overview

This coursework requires students to demonstrate both theoretical and practical mastery of computer vision techniques introduced throughout the module. You are to **design, implement, and evaluate a computer vision system** that applies one or more of the algorithms and models discussed in lectures — with clear evidence of experimentation, evaluation, and reflective documentation.

The coursework consists of **two integrated parts**:

1. **Practical Implementation (30%)**
   Design and develop a fully functional computer vision prototype using Python (OpenCV, TensorFlow, PyTorch, or similar). You may select **one of the following project categories**:
   - **Image Classification** – Implement or fine-tune CNN architectures for object categorization.
   - **Object Detection and Tracking** – Employ YOLO, OpenCV, or Kalman/Optical Flow-based systems for real-time object tracking.
   - **Image Segmentation** – Apply transfer learning with U-Net, Mask R-CNN, or related architectures.
   - **Visual Recognition & Embedding** – Build a system that identifies and clusters similar visual features using SIFT/HOG/Deep Embeddings.
   - **Generative Vision Models** – Implement diffusion or transformer-based architectures for visual synthesis or caption generation.

2. **Report and Logbook (70%)**
   Submit a **2500-word technical report and logbook** that documents your work, structured as follows:
   - **Introduction:** Overview of chosen task, motivation, and objectives.
   - **Background:** Summary of theoretical basis and literature review.
   - **Methodology:** Algorithms, data preprocessing, model design, architecture, and libraries used.
   - **Implementation:** Experimental setup, parameters, and steps followed.
   - **Results & Evaluation:** Screenshots, performance metrics, comparison with benchmarks.

- o **Discussion:** Reflection on challenges, strengths, and areas for improvement.
- o **Conclusion & Future Work:** Summary of outcomes and potential extensions.
- o **References:** Harvard referencing format.

Milestones and Deliverables

Week	Milestone	Deliverables
Week 7	Milestone 1	Submit project proposal (500 words) with topic selection, research outline, and initial design diagrams.
Week 10	Milestone 2	Submit partial implementation: preliminary model training results, and mid-term report draft.
Week 12	Final Submission	Submit final report (2500 words), complete code with documentation, and reflective logbook.

Marking Criteria

Component	Marks
Abstract, Literature Review & Background Research	10
Methodology, Architecture & Experimentation	20
Code Implementation & System Functionality	30
Results, Analysis & Evaluation	10
Conclusion and Recommendations	10
Reflective Logbook	10
Viva Presentation & Demonstration	10
Total	**100 (Coursework)**

Guidelines for Submission

- Submit your **final report in PDF format** and **source code (with dependencies in requirements.txt)** via MST portal.
- All code should be clearly documented and reproducible.
- Any data used should comply with ethical standards and institutional data privacy policies.

Assessment Links to Learning Outcomes

Learning Outcome	Assessed In
LO1. Apply mathematical and physical principles in CV systems	Implementation, Report
LO2. Demonstrate theoretical and critical understanding of CV systems	Report, Viva
LO3. Use software/hardware tools to implement CV algorithms	Code, Implementation
LO4. Conduct postgraduate-level analysis and report writing	Report, Logbook
LO5. Address ethical and professional issues in CV	Report, Viva

Recommended Tools and Frameworks

- Python 3.x, OpenCV, TensorFlow, PyTorch, Keras, scikit-image
- MATLAB (for comparative analysis, optional)
- GitHub for version control and collaboration
- Jupyter Notebook / Google Colab for experimentation

Bibliography and Research Databases

Core Texts:

1. Szeliski, R. (2021). *Computer Vision: Algorithms and Applications.*
2. Davies, E. R. (2017). *Computer Vision: Principles, Algorithms, Applications, Learning.* Academic Press.
3. Gonzalez, R. et al. (2008). *Digital Image Processing.*

END OF COURSEWORK