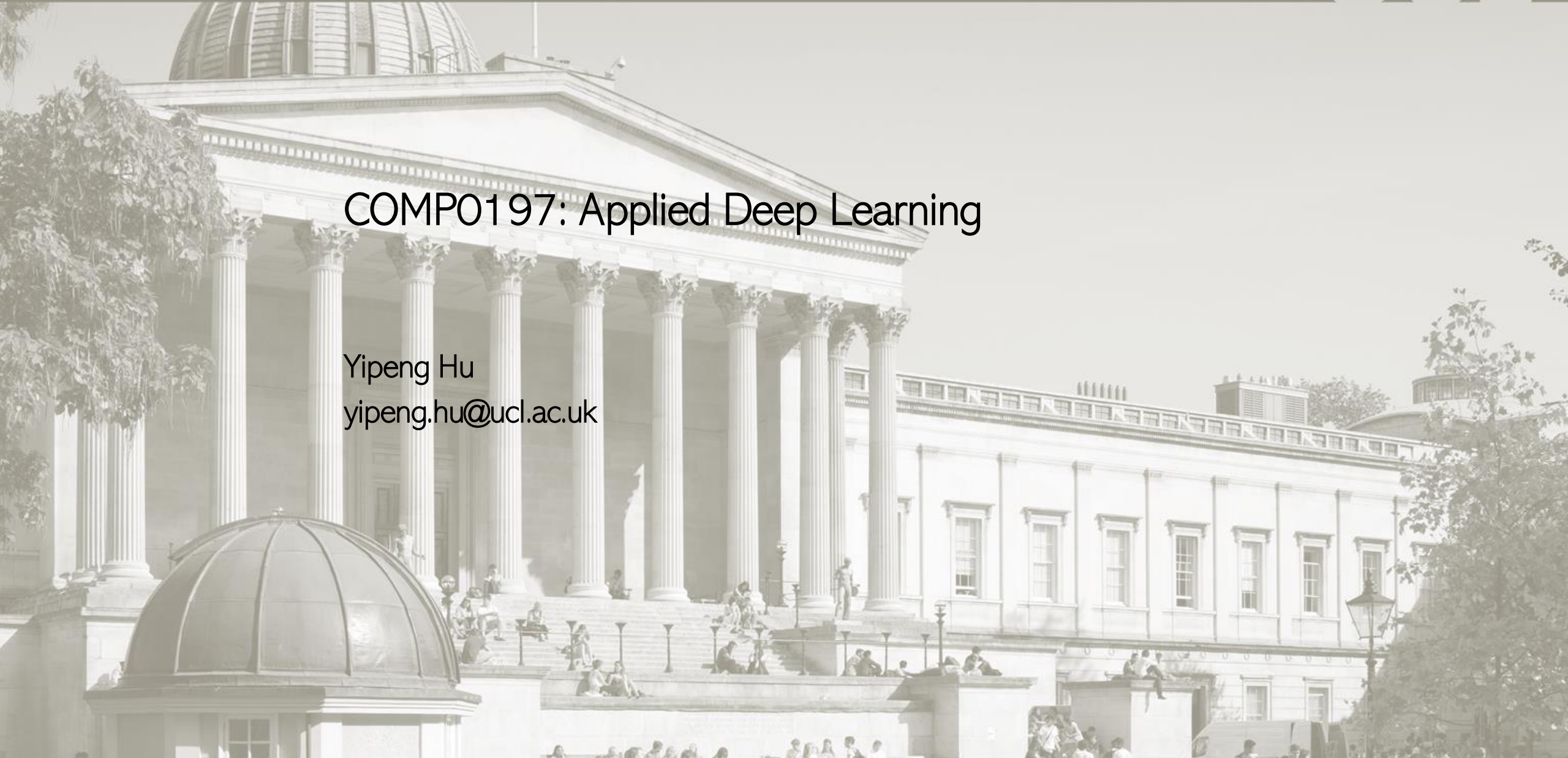# COMP0197: Applied Deep Learning

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The Group project and individual report

- Self-supervised pretraining and finetuning

- The group project

Submission and Marking Criteria

- Code

- Report

- Peer assessment

Difference between a project and a "traditional" coursework

- Open-ended components

- Interpreting requirements

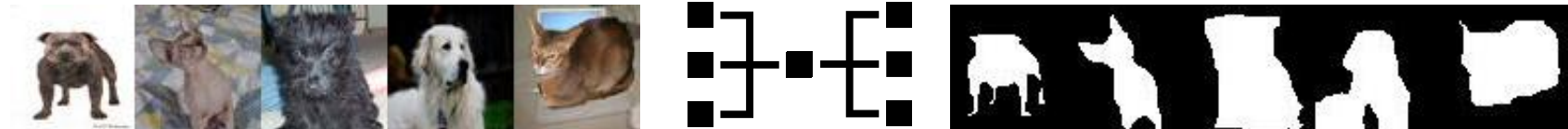- Freedom

- Novelty

- Assessment

Self-supervised learning

- Aim

- Example algorithms, e.g. masked autoencoder & contrast learning

- Pretraining, finetuning and testing
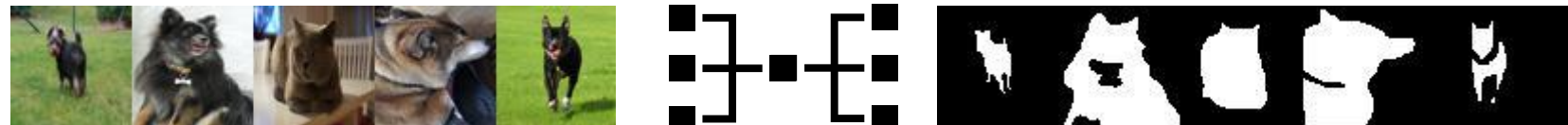
- Algorithms and architectures

The data set
The Oxford-IIIT Pet Dataset for finetuning and testing, as in the "image segmentation" tutorial

The "minimum required project" (70%)

- Deciding and justifying which algorithms to use

- Identify and curating a data set for pretraining

- Implementing a self-supervised pretraining framework

- Implementing a finetuning method using the Pet data set

- Experimenting for network comparison, using the Pet data set for testing

- Describing implemented methods and conducted experiments

- Summarising obtained results and drawing conclusions

Questions for you

- Why the selected pretraining data set?

- Which algorithm, loss, optimiser, training strategy, for pretraining and finetuning?

- What are the metrics for segmentation tasks?

- What are the metrics for self-supervised tasks?

- What are the experiments to compare these networks?

- What can we conclude from the results?

- What need to be included in report and what can be cited for brevity?

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An "open-ended question" (30%)

- Hypothesis generation: A research/study question
- Experimental design: How to implement and test the question
- Experiments and results analysis: draw the conclusion

(Just) example research/study questions

- Does increase unlabelled pretraining data always help?
- How similar the pretraining and finetuning/test data need to be?
- What has been learned from the pretraining data?

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Code

- Reproduce all the results, images and plots in the report

- Based on comp0197-cw1 conda environment

- Three additional pip-installable packages (optional) – provide "requirements.txt"

- Will be assessed using Ubuntu 20.04

- Tell the markers how to run your code in "instruction.txt"

- The LNCS template, no more than 6 pages (excluding references).
- Exceeding will be penalised.

- Introduction
- Methods
- Experiments
- Results
- Discussion
- Conclusion

Scientific soundness, technical accuracy, completeness, presentation, critical appraisal, novelty (for OEQ)

Grouping: 8 students per group, self-forming + random (Moodle announcement)

Peer assessment

Support
Usual: Teams, emails, Moodle
Due on 15th April 2024
Optional group sessions (~1h). Please message/email and book!