

Examination Form 2: Independent Report

MPhil in Machine Learning and Machine Intelligence 2022

Candidate's Name	Assessor's Name
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This is for your **independent report** on the project (around 200-400 words). Assessors are reminded that this independent report will be made available to the candidate by the Degree Committee for the Department of Engineering.

Alejandro Santorum Varela's thesis is entitled "Multimodal Coreference Resolution" for which I am the second assessor. The work concerns the task in a dialogue system of identifying which entity the user is referring to and can make use of both natural language and visual information. The thesis is organised in six chapters. After the introduction which includes a list of contributions, there is a chapter on the Transformer style models that are used in state-of-the-art coreference resolution. The following chapter describes these systems with a focus on the recent DSTC10 challenge task and the results of various systems on the MM-Coref track. The chapter ends by replication experiments for some of the key systems which are all from Open Source code. These chapters are generally good and clearly written. The next chapter focuses on further experiments and improvements on these systems. The performance of the models in two dialogue domains is compared and evaluated on unseen domains and previously unseen scenes. There is good error analysis and this analysis motivated various refinements including the use of an auxiliary task head that predicts the number of items referred to by the user in the last dialogue turn. The experiments presented are extensive and impressive and excellent final performance is obtained. The next chapter further investigates the task and the level of human performance on this task from three human annotators. The thesis closes with conclusions and further work and references. Overall the thesis is well written with only a small number of issues. The work clearly merits the award of the MPhil degree.

Please send this form to the Course Administrator (mlmi-mphil-admin@eng.cam.ac.uk) no later than 12:00 noon on Monday 5th September 2022.

Assessor's Signature 	Date 5 th September 2022
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