

OLLSCOIL NA hÉIREANN
THE NATIONAL UNIVERSITY OF IRELAND, CORK
COLÁISTE NA hOLLSCOILE, CORCAIGH
UNIVERSITY COLLEGE, CORK

SAMPLE EXAM

CS6120 Intelligent Media Systems

Dr. D.G. Bridge,
Mr. A. P. O’Riordan

Answer **both** questions.
Silent non-programmable calculators may be used.

Time allowed: 90 minutes

1. (25 marks) Answer **five out of six** parts of this question (5 marks each).

- i) Describe some ways in which search engines can take the user's *context* into account.
- ii) Explain in detail how the *user-based nearest-neighbours collaborative filtering algorithm* makes predictions.
- iii) Describe how to overcome the *cold start* problems associated with launching a new collaborative filtering service.
- iv) Explain *similarity-based* retrieval and *diversity-enhanced* similarity-based retrieval, and why the latter is needed.
- v) Compare using *explicit ratings* and *implicit ratings* in the context of an online radio station that streams music to the user's computer.
- vi) Explain what the click-distance problem is for people who are browsing the mobile Internet. Describe how personalization technology might solve the problem.

2. (35 marks) Choose **one** of the following two domains:

- finding an apartment or house to rent, or
- music recommendation.

Describe the considerations that would influence the design of a recommender system for your chosen domain.

For example, you might do some or all of the following:

- Identify two different *user situations* in which such a recommender might be used.
- Explain what makes the two situations *different*.
- Explain anything that you think makes this domain or these user situations *special*.
- Describe the types of background *domain knowledge* that the recommender might contain.
- For each of the two user situations, describe the *user input* (types, modality).
- For each of the two user situations, describe the *output* (types, delivery, presentation).
- Describe the kinds of *algorithms* you would use, and why.
- Describe the *problems* you might encounter (e.g. technical problems with the algorithms; problems of user acceptance; problems that are matters of on-going research; etc.)
- Describe possible *solutions* to some or all of these problems.
- Describe how you would *evaluate* the recommender system once it is built.

But feel free to include discussion of other issues that you think are relevant but are not covered by the above list.