

CS405 Introduction to Empirical Modeling

Coursework Assignment 2008-9

Objectives of the assignment

The coursework has two objectives. The first is to assess your understanding of the *Introduction to Empirical Modelling* module through written and modelling exercises that relate to a common theme of your own choice. The second is to acquaint you with the process of submitting research papers for publication - this should serve as a valuable learning experience whether or not you continue your studies to postgraduate level.

Background to the assignment

The assessment of the CS405 module is 50% by examination and 50% by coursework. The coursework exercise for 2008-9 entails contributing a short paper, together with an associated modelling study, to the 5th Warwick Electronic Bulletin on Empirical Modelling (WEB-EM-5), to be published on the intranet in due course. Your paper and documented modelling study should relate to a specific area of potential application for Empirical Modelling linked to one of the eight principal application areas listed in the Call for Papers. The term 'modelling study' is to be broadly interpreted - it might refer to the construction of an entirely new and original EM model, and/or to the extension, comprehension or documentation of an existing EM model. To give you greater flexibility in deciding how much emphasis to give to the written and modelling components of your coursework, you will be allowed to nominate the relative weight to be given to these in assessment, within the range 30%:70% to 70%:30%.

To carry out the coursework, your first task is to consult the Call for Papers, and decide upon the theme for a suitable paper/modelling submission. To assist you in making this choice, an index of resources is attached. This lists three relevant publications relating to each of the principal areas of application of EM, some of which will be further discussed in CS405 sessions later in the term. There will also be opportunities for brief consultations about your choice of theme with Dr Beynon and Dr Russ, the editors-in-chief of the Bulletin, in and after the Monday laboratory sessions later this term. The editors-in-chief may be assisted in their evaluation of submissions by co-opted members of the editorial board.

The sole item for assessment as coursework for CS405 will be the final written/modelling submission accepted for publication in WEB-EM-5. This should be submitted electronically via BOSS not later than noon **Tuesday 5th May 2009**. The assessment of your contribution will be assisted by an informal interactive session (not itself formally assessed) at which you will be able to present your paper / demonstrate your model to the editorial board. This will take place on Thursday 7th May 2009. In order to guarantee acceptance of your contribution, you are first required to make a preliminary submission prior to noon **Wednesday 25th February 2009**, consisting of a provisional title for your paper, together with a brief abstract (300-500 words), a description of your modelling study (300-500 words), a list of references to be consulted in addressing your chosen topic (such as publications, both within and outside the EM literature, and EM models) and a provisional indication of the weight to be given in assessment to your written and modelling work. The editorial board will respond to your preliminary submission prior to the end of term, normally to confirm acceptance of your proposed contribution, possibly subject to specified revisions to be taken into account in preparing your final submission.

Call for Papers

The editorial board of the *5th Warwick Electronic Bulletin on Empirical Modelling* request original and high quality papers relating to Empirical Modelling and its applications supported by a relevant documented modelling study. The principal areas of application to be featured in the Bulletin are:

- Interactive Graphics and Design
- Concurrent Systems Modelling
- Concurrent Engineering
- Human Computing
- Artificial Intelligence
- Educational Technology
- Software Development
- Humanities Computing

Applications outside the scope of these eight areas may be considered, subject to the agreement of the editors-in-chief.

Your contribution to WEB-EM-5 should comprise a paper of prescribed length and format together with accompanying documentation of your modelling study to be presented in such a way and in sufficient detail for its inclusion in the archive of EM models (see <http://empublic.dcs.warwick.ac.uk/projects/>). Precise guidelines for these submissions will be issued at a later stage. In evaluating your written/modelling contribution, the editorial committee will consider issues such as quality of analysis and insight, originality, scholarship, technical accomplishment, organisation and presentation of ideas. Your paper should have a theme to be set out in a brief abstract of not more than 300 words and illustrated with reference to your modelling study. Discussion of your modelling study in your paper should focus on the key features that are relevant to your theme and give the reader a high-level understanding of how far you have achieved your objectives whether or not they are familiar with your modelling activity in detail. You should assume that readers are familiar with EM principles and concepts, so that a detailed introduction to EM is not necessary.

By way of illustration, suitable themes for your contribution might include:

- the discussion of an original model to illustrate how EM might be used in an application
- a comparison of how EM principles and conventional approaches address a particular application
- an analysis of how EM tools could be improved with reference to a particular area of application
- a detailed evaluation of how well an existing EM model is adapted to its application
- a critical assessment of the advantages claimed for EM in application in previous EM publications
- a study of what is entailed in extending and/or combining existing models, and the implications

Summary of submission requirements and deadlines detailed above

By noon on **Wednesday 25th February 2009**, you should submit:

- (a) a provisional title for your paper
- (b) a brief abstract (300-500 words)
- (c) a preliminary description of your modelling study (300-500 words)
- (d) a list of references to be consulted in addressing your chosen topic
- (e) a provisional indication of the weighting to be used in assessment.

A web form will be made available to enable you to submit items (a)-(e). The submissions will be reviewed prior to the end of term, at which point feedback will be given regarding problematic issues (if any) identified by the editorial board.

By noon on **Tuesday 5th May 2009**, you should submit:

1. your final paper on the theme introduced in its abstract.
2. a practical study in Empirical Modelling that relates to the theme of your paper.

3. details of the weighting to be given to these components in assessment.

Your written/modelling submission should conform to guidelines to be specified in a subsequent document: these will relate to the length and format of your paper, and to the documentation and presentation of your modelling study. The weighting to be given to your work on assessment should be specified:

- A. Paper 70%, Model 30% - with paper not to exceed 7 pages
- B. Paper 60%, Model 40% - with paper not to exceed 6 pages
- C. Paper 50%, Model 50% - with paper not to exceed 5 pages
- D. Paper 40%, Model 60% - with paper not to exceed 4 pages
- E. Paper 30%, Model 70% - with paper not to exceed 3 pages

Your submission should be made electronically via the BOSS system.

By default, papers and models submitted to the fifth edition of the Warwick Electronic Bulletin on Empirical Modelling together with author attributions will appear on the intranet in due course. Please advise the Editorial Board if you do not wish your contribution to be published, or prefer it to be published anonymously. Subject to submissions of sufficiently high standard being received, prizes will be awarded for the best paper, best modelling study and most original submission.

Postscript

If your paper is deemed to be of suitable quality by the editorial board, then the course organisers may request permission to use your paper as a basis for a future conference/journal submission, and you would of course be an author on the paper. With this in mind, you may wish to propose the name and website (if appropriate) of a possible conference or journal to which it might be appropriate to submit your paper.

Index of resources relating to each application area

This index lists three EM publications relating to each of the eight application areas identified in the Call for Papers. These papers can be downloaded in .pdf format from the `/dcs/emp/empublic/publications` directory.

- **Interactive Graphics and Design**
 - 001. Definitive notations for interaction
 - 005. Definitive principles for interactive graphics
 - 011. Evaluating definitive principles for interactive graphics
- **Concurrent Systems Modelling**
 - 003. The LSD notation for communicating systems
 - 007. Definitions for modelling and simulating concurrent systems
 - 017. Definitive specification of concurrent systems
- **Concurrent Engineering**
 - 034. A Computational Model for Multiagent Interaction in Concurrent Engineering
 - 035. A New Computer-Based Tool for Conceptual Design
 - 040. An Agent-oriented Framework for Concurrent Engineering
- **Human Computing**
 - 053. Computer-mediated communication: a Distributed Empirical Modelling perspective
 - 058. The Temposcope: a Computer Instrument for the Idealist Timetabler

- 061. A New Paradigm for Computer-Based Decision Support

- **Artificial Intelligence**

- 027. The Interpretation of States: a New Foundation for Computation?
- 050. Empirical Modelling and the Foundations of Artificial Intelligence
- 078. Radical Empiricism, Empirical Modelling and the nature of knowing

- **Educational Technology**

- 047. Empirical Modelling for Educational Technology
- 074. Empirical Modelling principles to support learning in a cultural context
- 080. Computer support for constructionism in context

- **Software Development**

- 051. Formal Specification from an Observation-Oriented Perspective
- 052. Interactive Situation Models for Information Systems Development
- 071. Business and IT Perspectives on AMORE: a Methodology for Object-Oriented in Re-engineering Enterprises

- **Humanities Computing**

- 082. Human Computing: Modelling with Meaning
 - 091. Humanities' Computings
 - 094. Mathematics and Music - Models and Morals
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