Propose a vacation student project for Summer 2017

Deadline for making your proposal(s): 09:00 Monday 10 April. This is a hard deadline.

Please fill in and submit this form multiple times for multiple proposals. Any queries, do ask - Toby.

Project supervisor email *

Renate.Schmidt@manchester.ac.uk
Title and objective of the project

EVALUATION AND COMPARISON OF FORGETTING SOLUTIONS

The project will research an aspect of a non-standard automated reasoning task called forgetting. In computer science the importance of forgetting can be found in the knowledge representation literature, specification refinement literature and the area of description logic-based ontology engineering. In ontology-based information processing, forgetting allows users to focus on specific parts of ontologies in order to create decompositions or specific views for in depth analysis or sharing with other users. Forgetting is also useful for information hiding, explanation generation and ontology debugging. Because of these many applications forgetting is a very hot topic in several subareas of Artificial Intelligence.

Current research in the School (published in top places: IJCAI, AAAI, IJCAR) has developed the first practical tools for forgetting in description logics. The specific aims of the project are:

- A comprehensive evaluation of these tools (LETHE, DSQEL and SCAN) on real-world ontologies and compare their solutions. As the tools use different methods and for languages of different expressivity, the solutions are not necessarily equivalent, and it would be interesting to establish what the relationship is between the solutions.

- Empirically test a conjecture concerning the relationship between solutions of SCAN and solutions of LETHE.

- Case study and analysis of symbol selection strategies.

Number of students requested (with justification if more than 1) *

1

Start date, end date, total duration (weeks) *

June to mid July for 4 weeks
**The benefit to the School**

Contribution to ongoing research in the School in a very hot area in AI.

**The benefit to the student**

The internship position is an excellent opportunity to get hands-on experience working with a team of leading researchers and contributing to an internationally leading research project on knowledge processing and management using a non-traditional data model and techniques from Artificial Intelligence.

**Skills needed by the student.**

Expected qualifications, knowledge, skills and experience:

- Enrolled on a BSc(Hons) or MEng degree in Computer Science; (incl. CM, SE, AI options);
- First class average;
- Strong programming skills in Java;
- Excellent analytical skills;
- Background and keen interest in the following topics is advantageous:
  Artificial Intelligence, description logics, first-order logic,
  ontologies/OWL API, experience using automated reasoning tools.

**Details of the work that the student would do**

See aims above. The project will extend a tool developed in an excellent third year project from comparing SCAN and LETHE. This will need to be extended to several ways and also include comparison with the third tool, DSQEL. In addition to SCAN, LETHE and DSQEL, which will be made available, the project will use the OWL API and publicly accessible ontologies.

**Infrastructure requirements and any required staff support other than the project supervisor**

Possibly access to a cluster of computers; possible UG or MSc PCs.
Supervision arrangements throughout the duration of the project (named staff and dates covering the entire duration) *

The project will be supervised by Renate Schmidt

Location of the project work (building/room) *

Kilburn building, possibly one of the PhD offices (to be arranged)