

SLEEPING WITH THE ENEMY: INFILTRATING AI INTO THE BROADER CURRICULUM

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ABSTRACT

During the past twenty years, Artificial Intelligence teaching has seen a period of growth in importance in the Computing curriculum at Leeds University; but recently, falling student numbers has led to focus on core curriculum in Computing, which has tended to exclude AI. However, I suggest, it may be possible to "infiltrate" the core curriculum by introducing AI concepts and techniques into other modules, which are not "badged" as AI. This could even be extended to teaching subjects beyond Computing.

Keywords

Artificial Intelligence, education.

1. PAST GROWTH IN AI TEACHING

Artificial Intelligence has been a key aspect of the Computing curriculum at Leeds University for two decades. When I first arrived as a Lecturer, twenty years ago, there was a solitary final-year optional module in AI, and I managed to instigate an additional optional module in Natural Language Processing. Over the years, as our AI research group grew, so did the range of modules, culminating at a point where we taught a 1st-year Introduction to Artificial Intelligence which was compulsory for all Computing students and an Elective to others, drawing in classes of several hundreds; followed up by a range of level-2 and 3 option modules reflecting a broad range of Artificial intelligence research interests in the department. The growth in AI teaching was clearly spurred on by the lecturer's research interests: we enjoy teaching about our specialisms, and students benefit from our enthusiasm as well as leading-edge expertise.

2. RECENT DECLINE

However, academic Computing recently has seen a decline in student and staff numbers; this has coincided with a push to reduce the number of

modules taught overall, and to focus on "core computing". "Core computing" became the territory of rival course-teams in Databases, Software Engineering, Human-Computer Interaction, etc. Unfortunately for the AI course team, Artificial Intelligence is no longer seen as "core computing", there is no longer a level-1 AI module, and remaining level2/3 AI are now available to students only as an option or elective: students can graduate in Computing, Computer Science, or Information Systems without taking any AI modules at all.

Many students prefer "safe" options which follow on from level-1 core modules in DB, SE, HCI. This has led to drastic falls in AI class sizes, putting their viability at risk. We still produce some star students who go on to PhD research and academic or industrial AI careers; but these few may not be enough to justify AI modules with class sizes below a dozen.

3. AI IN OTHER MODULES

But maybe there is another route to getting AI back into the curriculum, allowing AI researchers to teach AI and allowing students to benefit from their enthusiasm and state-of-the-art knowledge. If students choose modules from rival course-team areas like DB, SE, HCI, we could still introduce AI concepts and techniques into these "non-AI" areas. For example, I now teach a module on "Technologies for Knowledge Management" which is badged DB32 (and hence attracts students who took DB11, intro to Databases), but this is a natural place to introduce knowledge representation, knowledge based systems, text mining, data mining.

There is also potential to infiltrate curricula beyond Computing. About a decade ago, the HEFCs sponsored a Knowledge Based Systems Initiative, to promote takeup of KBS and AI in academia beyond Computing departments; the KBSI held a workshop here at Cambridge (Atwell 1993), attached to the annual BCS-SGAI conference (just like this workshop!) AI techniques now figure in other academic areas. For example, Machine

Learning is a key part of the Bioinformatics teaching of the School of Biology at Leeds University.

4. CONCLUSIONS

I imagine that AI education has also seen growth followed by some decline in other Universities represented at this workshop. I presume that we are all still keen to promote and teach AI, otherwise we would not be at this workshop. I suggest that trying to teach AI as a separate stream, for "AI students", will be a minority choice for a discerning but diminishing student group. While we may focus on "pure AI" as a niche research topic, we may need to accept there is not enough demand for "pure AI" teaching at undergraduate level. But we can still

contribute to teaching and knowledge transfer to students, if we infiltrate other topics. Of course, lecturers specialising in DB, SE, HCI etc are not really "the enemy", and furthermore I am not really advocating sleeping with them (!), but at least we should get into bed together figuratively...

Reference

- [1] Atwell, E (editor), Knowledge at Work in Universities: Proceedings of the second annual conference of the Higher Education Funding Councils' Knowledge Based Systems Initiative, 147pp, Leeds University Press, 1993