AI Teaching and Learning KR, Neuro Symbolism and Reliability Notable Interlinked Gaps

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Abstract: AI is a popular subject in Computer Science covering a wide range of topics from robotics to machine learning. In graduate and postgraduate studies worldwide course content is largely driven by western universities and by the global tech industry mostly due to the fact that the main language for reference materials is English, the lingua franca in science and technology, and because education is typically geared towards professional careers and employment. The topics taught and the choice of resources adopted for each course however can vary from school to school, depending on the degree of autonomy of instructors, In developing a comprehensive global syllabus for teaching Responsible AI, in consideration of epistemic and regional diversity, the need arose for tangible data to understand the state of the art in this field of education. During this work, certain issues in the teaching of Knowledge Representation (KR) typically taught as a subtopic of AI, emerged as worthy of further investigation. KR is a vast subject that lies at the heart of AI and cannot be separated from it. Understanding the breadth of scope of KR and many of its roles not only in devising AI, as well as in other types of systemic risks also a key to other spheres of human interest. Adequate KR is also necessary to designing, implementing and evaluating reliable and accountable AI. The paper presents the rationale and preliminary findings of research spanning multiple countries, regions, languages investigating how KR is taught, leading to the hypothesis that this lack of adequate KR education may be contributing to increasing risks in irresponsible AI, as well as to other systemic risks including systemic deviation. One of the early findings of the research so far is that there are notable gaps and inconsistencies in the teaching of Knowledge Representation and in particular, the complete lack of Neuro Symbolic KR and AI ethics in curricular topics and teaching materials and courses, and their relation as co -factors in systemic dysfunction.

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