Modernizing UVA CS Curriculum: Emphasizing AI

(Technical Report)

The Competition to Determine AI's Legitimate Role in Healthcare

(Sociotechnical Research Paper)

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Preface

The proliferation of machine learning and of artificial intelligence have introduced innumerable problems requiring researchers' attention, including the preparation of engineers in higher education and the optimum application of medical AI in healthcare.

The computer science program at the University of Virginia offers students few opportunities to study machine learning (ML). Instead, it emphasizes low-level computing in two courses: Computer Systems, and Organization 1 and 2. To open room in the curriculum for ML, combining these courses into a single course is proposed. Such a modified curriculum would offer hardware-related courses as electives so that interested students may still pursue such subjects. In the proposed new curriculum, existing low-level computing content would be condensed, an ML course would be mandated, and department approval would be necessary for hardware electives. By training students in AI, this restructuring would better prepare students for industry while retaining sufficient flexibility to permit students to study hardware.

In the United States, tech companies, healthcare providers, advocacies and insurance companies are competing to influence the application of AI in medicine. Healthcare in the US is characterized by high costs and inequitable access to care. Some proponents of medical AI consider it a means of reducing costs and improving access. Others, however, caution that medical AI too often substitutes for physicians' expert judgment, serves as an excuse to increase patient loads per caregiver, and obscures chains of responsibility.