Thesis Project Portfolio

Evaluation of University Curriculum in Internship Preparation
(Technical Report)

Limits of Artificial Intelligence Treatment for Depression and Anxiety
(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

New technologies such as artificial intelligence are beginning to play a stronger role in American society. With the benefits of AI becoming increasingly recognizable, professionals from other fields are trying to reap the benefits, such as the medical industry. Due to the recent coronavirus pandemic, depression and anxiety in adults have fluctuated rapidly, and the demand for mental health assistance is growing at such an accelerated rate that America's current mental health system cannot meet these needs. AI has the potential to narrow the unfulfilled demands in psychiatry. Although AI offers boundless benefits and potential to aid patients and clinicians, it can also exacerbate more issues in psychiatric care if implemented carelessly. The motivation behind the project is to discuss the cautions as well as the limitations and rules that should be placed for AI implementation in psychiatric care.

The technical report focuses on improving the UVA computer science curriculum. Although computer science students receive a strong academic foundation from UVA, having a degree is not enough to stand out amongst other applicants during the job search. Employers look for students with a robust resume filled with projects that reveal interests and passion. Unfortunately, the cs curriculum at UVA do not prepare students well for job interviews and is not flexible enough to allow students to explore specialized topics. The technical report will evaluate UVA courses and suggest course improvements that aim to better prepare students for real world opportunities and internships.

The technical topic discusses how UVA computer science courses helped students with real-world opportunities and ways these classes can be improved. Students have a hard time gaining job opportunities outside of school due to lack of experience and interesting projects on resume. The UVA curriculum has a heavy emphasis on general education requirements for BSCS students. Although this allows for a strong foundational knowledge in cs topics, this leaves little room for students to explore interests in elective courses. The lack of flexibility in UVA cs curriculum makes it difficult for students to show employers their interests and passions. Classes such as discreet math, software methods, algorithms, and human-computer interactions can be improved upon to improve student experience and learning.

Although these classes improved coding skills and leadership skills, it also failed to meet my expectations with poor group creation, lack of projects, or emphasis on trivial information.

The STS portion dives into the cautions of implementing AI technology in the psychiatric field. Due to the covid pandemic, more Americans suffer symptoms of depression and anxiety. However, the influx of patients cannot currently be met through the current mental health system. Thus, AI technology can be used to reduce current gaps in mental health care through increased availability, efficiency, and potential to improve current treatment options. The topic is analyzed under the framework of technological fix which focuses on the negatives of technology and unnoticed problems that occurs from a bias towards technology. This STS framework cautions people about the potential problems that can appear from using technology to solve problems. Through this discussion, professionals will be able to implement rules and limits for AI technology and prevent deleterious consequences from occurring. By focusing on both the strengths and weaknesses of AI technology, professionals will be able to understand how to best harness this technology in mental health care.

The technical and STS portion written simultaneously offered insight on the importance of application and effects of technology in real world context. Although the research paper does not address education and aiding students towards real-world success, it explores the great potential and effects technology has on the world. The STS portion focuses on assessing the cautions of AI technology in the psychiatric field while the technological portion discusses ways to improve students for real world success. The dual focus on impact of technology and better educating students to prepare for real world success provides more perspectives on the importance of understanding users while developing technology. It encourages educators to think more ways to rely more on project-based learning to teach students the importance of designing for society.