

**Thesis Portfolio**

**Course Scheduling Platform**

(Technical Report)

**Cybersecurity Infrastructure Status in the United States**

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science  
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In Fulfillment of the Requirements for the Degree  
Bachelor of Science, School of Engineering

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## Sociotechnical Synthesis

The rapid digitization of society on a global scale and steadily increased reliance on technology in everyday life. Alongside this dependence on emerging technologies is the need for data security in order to maintain information privacy and societal workflow. Cybersecurity is becoming largely integrated with critical physical infrastructure, and in order to prevent constant data breaches cybersecurity infrastructure needs to mirror this pace of development.

My capstone project proposes a new tool intended to help UVA students plan their classes out by suggesting courses to take based on work preferences and remaining requirements. My personal experience with scheduling based on using current resources available to students has led to semesters where coursework becomes overwhelming and hard to manage. The use of AWS services in the tool allows for the integration of multiple levels of data privacy and authentication based on encryption standards and practices. By providing a platform for students to have a foundation to use while researching classes for scheduling, the scheduling process should become a less tedious and more effective overall process.

My thesis continues the theme of data privacy and cybersecurity by examining the state of cybersecurity infrastructure within the United States through the perspective of the Actor Network Theory. The large amount of diversity coupled with other distinctive sociotechnical aspects of western society is mirrored in the resulting network, and the examination of such relationships gives insight into necessities and developments.