Thesis Project Portfolio

College Marketplace: Providing a Secure Digital Marketplace for College Students to Participate in E-Commerce Activity

(Technical Report)

Designing a Privacy-Aware, Secure Peer-to-Peer E-commerce Platform for College Students: An Analysis of Privacy and Security Issues in Existing P2P Platforms and Their Impact on Social Environments

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

My technical report focuses on the design and implementation of an online marketplace that is student-specific and addresses the issues of security and privacy in existing e-ecommerce platforms. The objective of this project was to create a safe and reliable digital marketplace, exclusively for college students, that streamlines the process of posting listings online and protects its users from unauthorized access and fraudulent activity. I successfully developed a platform that has in-place multiple methods of verification to ensure only students associated with a respective institution have access.

My STS research paper focuses on the growing trend of individuals choosing to opt online when addressing their daily needs, including entertainment, payment processing, media streaming, and much more. Specifically, in light of the technical topic, the growing number of individuals navigating existing ecommerce platforms that lack security and privacy has led to a drastic rise in fraud related incidents. This phenomenon is analyzed and addressed through technological determinism and socio-technical theory, where respectively, one addresses the cause of this trend, highlighting consumers are going digital for the sake of efficiency and convenience, whereas the other helps us understand how technology impacts our social lives, and how online shopping scams ultimately have a detrimental effect on society as social interactions occur in a heightened state.

The synthetic connection between the technical report and the STS research paper is the growing use of P2P ecommerce platform. P2P online marketplaces have become the go-to platforms for individuals to make cost-effective purchases, however that also means individuals have to routinely maneuver through webs of scams. As P2P platforms are increasingly becoming a major sociotechnical phenomena, and the growing number of users that navigate them, we can analyze the drawbacks of existing platforms and emplace more robust solutions to safeguard users.