Frontend Internship Experience: UI Interfaces and Functionality
(Technical Paper)

How Online Services Companies Earn the Trust of Their Customers
(STS Paper)

A Thesis Prospectus
In STS 4500
Presented to
The Faculty of the
School of Engineering and Applied Science
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In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science in Computer Science

By
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Technical Team Members:

On my honor as a University student, I have neither given nor received unauthorized aid
on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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General Research Problem

How is trust established, maintained, and strengthened in market exchanges?

Commerce depends upon trust. Trust may be established formally or informally, and socially or digitally.

Frontend Internship Experience: UI Interfaces and Functionality

How may a program more optimally match clients' needs to the vendors and services that provide them?

The capstone requirement for Computer Science that I have chosen to take is CS 4991 with an extra elective. My technical research paper is thus on my internship experience at a company called Thumbtack, an online services company that matches customers with local professionals to complete a service that the customer needs. The internship was entirely remote, and I did not work with any collaborators in my internship projects.

The goals of all the projects I worked on were to increase the rate of contact between professionals and customers, in order for customers to complete more projects. To reach these goals, I did front-end software engineering to design UIs and queries to improve the customer experience on the web app. While the entire internship was technical in nature in order for the app to run smoother and have more functionality, all of the technical developments and changes to the web app were also done in order to make customers feel better about contacting "unknown" and "random" professionals in order for them to come to the customer's house (or event location) and perform their service. Therefore, it is crucial for customers to feel safe and trust that Thumbtack, as a company, won't let the customers down or feel threatened.

This technical project was completed over the past summer. I coded 'experiments,' which were test features like an improved filters sidebar or new functionality like making profile photos clickable, and deployed those experiments to Thumbtack's official web app. These experiments would run for a few weeks, with data being collected about how many and how often customers were engaging with the experiment's features. The current state of the art is to code the new features using a JavaScript library called React and setting up software that would track customer data such as where they clicked the screen and where they would often hover their mouse. The tracking data would then be analyzed at the end of the experiments, where an upward trend in customer-professional contacts would make the experimented feature a permanent one.

Out of 3 experiments, the first one improving the app's filters sidebar had negative results, the second one making profile photos clickable had neutral results, and the final experiment allowing customers to save certain professionals' profiles is still ongoing. So far, no coded features have been added to the web app permanently.

How Tech Companies Earn the Trust of Their Employees and Customers

How do online service companies earn, strengthen, and maintain customers' trust?

Companies that lose consumers' trust may lose market share with it. They can earn trust in part by demonstrating that their values are consistent with those of their customers. According to Yeomans (2018), "young people want more sustainable products, services, and experiences. … They want companies to back up their sustainability claims with evidence of action." Consumers compare products and read reviews before paying for online services, compelling vendors to ensure quality.

Participants include online services companies (like Facebook, Yelp, and Thumbtack) which defend their services (Arlen, 2021), customers who trust the companies (Danville, 2019), and customers who distrust the companies and therefore forego their services (Thumbtack Reviews, 2021).

Corporate Advisory Boards advise companies in customer trust-building efforts (AICD, 2021). According to the Corporate Advisory Boards' Big Tech Health Data Study, in 2019 only 11 percent of patients trust online services with their health data, but 72 percent of patients are willing to share their health data with physicians and health insurance companies (Kilbridge, 2019). Digital companies' highly publicized failures to protest user data likely eroded trust. For example, in 2018, following the Cambridge Analytica scandal, Facebook usage declined 8 percent (Baer, 2018), reversing a decade long growth trend. Some stayed on Facebook just to persuade others to stop using it (Cheng, 2020). Among the 11 percent of respondents willing to share their health data with some online service companies, Facebook ranked among the companies they were least willing to share data with. Only IBM ranked lower than Facebook; Google and Amazon ranked the highest. According to the Advisory Board of health care, securing user data is essential to trust building (Kilbridge, 2019).

The Electronic Frontier Foundation (EFF) is a nonprofit advocacy that defends consumers' privacy rights through litigation and by demanding transparency from tech companies. In August 2021, EFF accused Facebook of engaging in a "war on accountability" by thwarting researchers' efforts to track disinformation in paid advertising. The researchers were using ProPublica's Ad Observer project to reveal the sensitive and discriminatory categories that Facebook uses to target advertisements toward specific users (Doctorow, 2021). Facebook has

alleged that Ad Observer is misleading and that its use itself is a violation of users' privacy. EFF

defends Ad Observer as an opensource project.

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