

## **Thesis Project Portfolio**

**Summer 2024 Technology Internship: Internal Data Discrepancies in Customer Servicing Platform**  
(Technical Report)

**Artificial Intelligence's Effect on the Customer Service Industry**  
(STS Research Paper)

An Undergraduate Thesis

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

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## Executive Summary

### **Technical Project Abstract**

Over the summer of 2023 I worked for a prominent North American banking company, one that has struggled with a critical issue in its newly developed customer agent servicing platform—an issue involving internal data discrepancies that affects around 20,000 customers. To address the challenges stemming from this issue, my team and I utilized Vue.js and Node.js to develop the front-end and back-end of a system that detects an internal data discrepancy in a customer’s account and promptly notifies the customer service agent through a modal. My team utilized an agile methodology to streamline and coordinate our workflow, and we used different javascript libraries to develop and test our code. I also practiced cross-team communication skills, and gained the ability to work in an enormous codebase. This project is expected to reduce customer agent incident tickets by 5-10 weekly, and decrease agent handling time by an average of 20%. This system will be extended to other components of the customer agent servicing platform, and will be maintained as the platform continues to develop.

### **STS Project Abstract**

In recent years, Artificial Intelligence (AI) has transitioned from a niche technological innovation to a household technology, significantly reshaping industries worldwide. With the advent and popularization of AI-powered tools that allow human-like interactions, the customer service sector is undergoing a profound transformation. Multiple studies have shown that the overwhelming majority of customers have had experience with a chatbot customer service agent, and some customers even prefer it. This spike in chatbot activity has been driven by AI technologies for customer service, such as adapted tools using ChatGPT, Intercom, and IBM Watson Assistant. As the popularity of customer service AI chatbots continues growing,

questions are raised about how this will affect the customer service industry from the customer's, business', and customer service associate's perspectives. My analysis will explore how AI chatbots have affected the customer service industry, and offer predictions about the future of this AI chatbot and customer service integration. For my paper, I first introduce the methods I used to conduct my research as well as the framework I use to view my research question. I then discuss the results of my research and conduct a literature review. This provides insight into the current state of AI chatbots, shows benefits and concerns of using AI chatbots, and illuminates how customers and businesses have reacted to this integration. Following the presentation of my results, I then perform an analysis of AI's impact on efficiency of customer service, ethical considerations of using AI chatbots in customer service, and discuss effects deployed AI chatbots have had for businesses. I then provide a broader discussion of my predictions for the future of AI chatbots in customer service.

### **Connection**

During my summer internship, I developed a new feature for a company's customer agent servicing platform, which connects my technical report to my STS project through customer service. As I was leaving the company, there were discussions about integrating AI into their customer service platforms, which struck my curiosity as to the ramifications, benefits, and possible concerns about that business decision. While this integration promises enhanced efficiency, it also raises intricate questions about customer satisfaction, data privacy, and the overall impact on business-customer relationships. Researching the questions that come with the integration of AI into customer service is paramount to ensuring that this technology does not discriminate and perpetuate existing biases, but rather provides more efficient and effective services to all customers equally with 24/7 availability.