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Anirban. MUKHERJEE

Hannah H. CHANG
Singapore Management University, hannahchang@smu.edu.sg

Jonathan WIBOWO

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Managing the personalization paradox: Lessons from Spotify's AI DJ

Anirban Mukherjee[1], Hannah Hanwen Chang[2] and Jonathan Wibowo[3]

Abstract

This case study uses Spotify's AI DJ to examine the "personalization paradox," where product features designed to deepen user connection can instead cause alienation. An analysis of over 1,400 user comments identifies three core frictions: a perceived loss of user agency, mismanaged expectations for the human-like AI, and a scalability bottleneck that led to repetitive content. Students are placed in the role of a product manager tasked with developing a prioritized roadmap to address these issues, forcing them to grapple with the critical trade-offs between technological capability and user psychology.

Keywords

AI, personalization, product management, customer experience (CX), AI governance, user autonomy, anthropomorphism

The personalization paradox

Companies from Google, which has mandated AI integration across its product suite,[1] to Samsung, which launched a "new era of mobile AI" in its flagship phones,[2] are committing billions to generative AI to redefine customer personalization. The scale of the investments is immense, with enterprise spending projected to reach $143 billion by 2027[3] and the total market forecast to exceed $1 trillion by 2034.[4]

This strategy is a direct response to overwhelming market demand; recent reports show that 76% of consumers have grown frustrated by generic interactions and are more likely to buy from a company that offers personalized content; 78% said such content made them more likely to repurchase.[5] Reflecting this focus on personalization, 73% of customers felt brands treated them as unique individuals in 2024, up from 39% in 2023.[6]

The financial returns seem to justify the spending. Firms that master personalization generate 40% more revenue from these activities[7] and can achieve up to an 8x return on investment.[8] A recent EY survey found that a remarkable 97% of senior leaders whose organizations are investing in AI are seeing positive ROI, often from initiatives aimed directly at improving customer experience and increasing revenue.[9] Analysis of Spotify data shows that even a 1% increase in customer retention can boost customer lifetime value by over 15%, making it the single most powerful lever for long-term profitability.[10]

Consequently, adoption has become a mainstream imperative. OpenAI, for example, reports that over 92% of Fortune 500 companies use its platform, while a separate industry survey found that 56% of businesses are leveraging AI specifically to improve their personalization efforts.[11] Yet, this widespread adoption is happening alongside significant executive concern over the high cost of implementation and the difficulty in forecasting the return on these massive investments. This dual pressure—to innovate while proving ROI—has created a clear mandate for business leaders: deliver value quickly and avoid costly missteps.

Yet, a paradox has emerged in this high-stakes environment, fueled by a critical blind spot: while a technology's capabilities may be clear, an evidence gap remains in how consumers will react. Technology designed to create personal connection can instead alienate users, making it exceedingly difficult to forecast the true return on these massive investments. While the payoff for getting it right is significant—personalization done well consistently boosts satisfaction, loyalty, and long-term value—[12] the risks of a misalignment are severe, as a

[1]Avyayam Holdings, Singapore
[2]Marketing, Lee Kong Chian School of Business, Singapore Management University, Singapore
[3]University of California Berkeley, Berkeley, CA, USA

Corresponding author:
Anirban Mukherjee, Avyayam Holdings, Paya Lebar Square, Singapore 409051.
Email: anirban@avyayamholdings.com

Table 1. Spotify's decade-long strategy of acquiring AI capabilities laid the foundation for the AI DJ.

Year	Company acquired	Strategic capability gained
2013	Tunigo	Music discovery and playlist curation
2014	The echo nest	Music recommendations and data analysis
2017	Sonalytic	Audio detection for playlist improvement
2017	Niland	AI-based recommendation enhancement
2022	Sonantic	Hyper-realistic AI voice platform

majority of customers (63%) report they would switch to a competitor after just one poor experience.[13] The fallout from Snapchat's 'My AI' chatbot illustrates this danger vividly: user backlash was so intense it dropped the app's average rating to 1.67 stars.[14]

Spotify's experience with its AI DJ provides the ideal laboratory to examine gaps between technological promise and user reality. The company invested heavily to create the feature—a "personalized AI guide"—with the effort including a €93 million acquisition of the voice-AI firm Sonantic.[15] The goal was to create a new, deeply personal listening experience that would solidify Spotify's market leadership. However, following its launch, the promising new feature was met with a wave of polarized user feedback. Analysis of 1,442 online user comments surfaces three recurring frictions: (1) a perceived loss of agency (the DJ felt like radio the user could not steer), (2) mismanaged expectations created by a human-like voice that could still err or feel unfamiliar, and (3) a scalability bottleneck in commentary that led to noticeable repetition. The product team now faces a critical mandate: develop a roadmap to evolve the AI DJ from a source of friction into a driver of retention.

Spotify's high-stakes bet on personalization

Founded in Sweden in 2006, Spotify is the global scale leader in music streaming. As of Q1 2025, the company serves 678 million monthly active users, including 268 million paying subscribers—more than double its nearest competitor.[16]

The company operates on a "Freemium" model, using its free, ad-supported tier as a crucial funnel to convert listeners into paying subscribers, who generate 87% of its revenue.[17] With a library of over 100 million tracks, helping users navigate this vast collection is not just a feature; it is central to both conversion and retention. Personalization is core to Spotify's value proposition: 81% of its listeners cite personalization as what they like most about the service,[18] a loyalty built on a decade of features like Discover Weekly, which was streamed for over 2.3 billion hours in its first 5 years alone.[19]

The financial stakes of getting personalization right are immense. To pursue this strategic prize, Spotify embarked on a decade-long strategy of acquiring key AI capabilities to build a durable lead in personalization (see Table 1).

This journey culminated in the AI DJ. Rolled out in February 2023 from its position of market dominance (see Figure 1), the AI DJ combined recommendation algorithms with generative AI to create a hyper-realistic radio host.[20] The company viewed the feature as so integral to its value proposition that it was cited as a key innovation justifying its 2023 global price increase.[21] The launch itself followed a classic "Bowling Alley Strategy," beginning with a beachhead market (U.S. and Canada) before expanding to other regions based on user demand.[22] Early engagement metrics were highly encouraging: on days users tuned in, they spent 25% of their listening time with the DJ, and over half of first-time listeners returned the next day.[23]

The promise: How the AI DJ was designed to win

Spotify's AI DJ was a strategic attempt to deepen the user relationship through three core innovations designed to make music discovery feel more personal, contextual, and human. Each element was carefully crafted to address a specific weakness in traditional algorithmic recommendation systems and transform a passive listening experience into an interactive dialogue.

The DJ delivered *contextual audio explanations*, moving beyond simple "because you liked X" justifications. By providing brief, spoken introductions about an upcoming song, artist, or genre, the feature aimed to give users a reason *why* they were hearing something new. As Spotify's Head of Global Music and Discovery, J.J. Italiano, noted, this context "gives the listener a deeper connection and experience when hearing an artist or song."[24] This approach, a form of explainable AI (XAI), was designed to build trust and make users more open to exploring recommendations they might otherwise skip, with Spotify's own data confirming that users are more willing to try new music when commentary is provided.[25] The use of audio was also a key design choice, allowing Spotify to deliver this rich context without creating the visual clutter or cognitive overload that text-heavy explanations can cause on a mobile interface.[26]

The feature introduced *AI-assisted commentary at scale*. Manually scripting unique, culturally relevant commentary for a library of over 100 million tracks would be impossible, and the DJ would be of little value without scalability. To

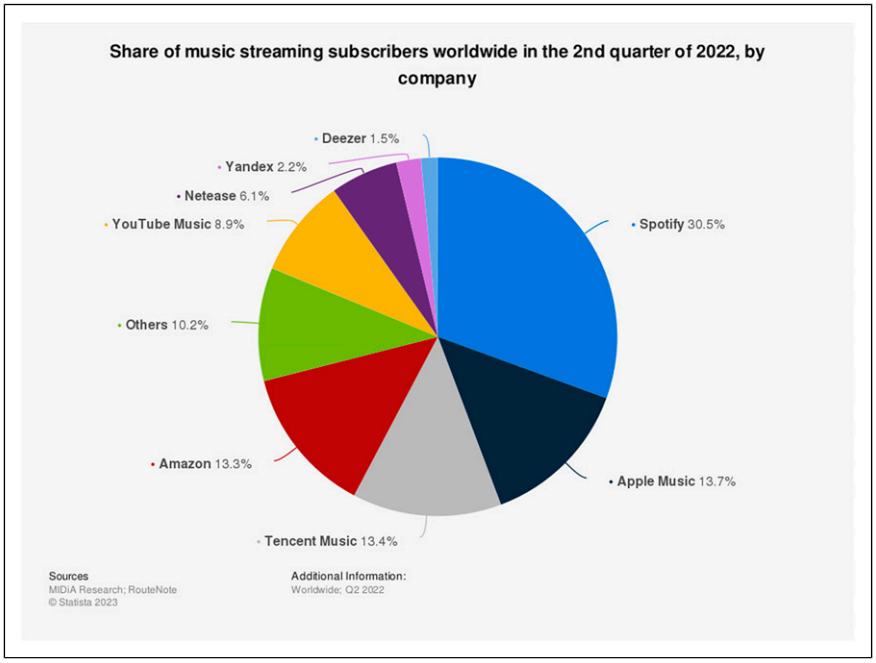

Figure 1. Spotify's dominant global market share in Q2 2022, the period immediately preceding further AI expansions.

solve this, Spotify created a hybrid system where its team of music experts and scriptwriters collaborated with OpenAI's generative AI technology.

This human-in-the-loop model allowed Spotify to generate a massive volume of personalized commentary while maintaining a high degree of accuracy and brand safety. However, it also revealed the challenges of scalability. While the AI DJ's output demonstrated several techniques to build rapport, key implementation flaws could break immersion. For instance, on the one hand, it fostered familiarity through direct personalization, incorporating the user's name and the current day (*"Hey what's going on [user's name]! You're back here with your DJ X, jumping right into Saturday…"*). It also showed data-driven curation by referencing recent listening history (*"Next, I got some songs you've been keeping on repeat"*) and attempted mood-based curation to enhance discovery (*"Up next is time for a vibe, and that vibe is healing, starting with AKMU"*). On the other hand, a frequent user complaint was the mispronunciation of an artist's name (*"…one of your top artists LANY (mispronounced as laning)"*), an error that highlights the difficulty of maintaining quality at scale and, as our analysis shows, was a significant source of user frustration.

The DJ was built around an *anthropomorphic, human-like voice*. Using the AI voice-cloning technology from its Sonantic acquisition, Spotify modeled the DJ's voice on a real person—Xavier "X" Jernigan, one of its own executives. This was a deliberate strategic choice to move away from the robotic, impersonal nature of typical text-to-speech assistants. The goal was to leverage the power of the human voice to create a sense of familiarity and warmth, which is particularly effective for subjective tasks like music recommendation where perceived human-likeness increases user engagement.[27] By making the recommender system feel more like a trusted human companion, Spotify aimed to foster a deeper emotional connection with its users, transforming the algorithm from a tool into a brand personality.

Together, these innovations aimed to turn passive listening into an engaging, human-like conversation, setting a new standard for AI-driven personalization. However, the feature's ambitious design soon collided with the complex and often unpredictable reality of user experience. The launch revealed the AI personalization paradox. Tech press and users complained of repetitive song loops and an off-putting persona—as *Wired* bluntly put it, the feature "Has No Soul."[28] This user and media sentiment highlighted a clear disconnect between the feature's design and its reception.

Analysis: Where the user experience broke down

Online communities are crucial sources for capturing the "unfiltered voice of the customer," providing rich data on user reactions to new technologies.[29] The social media platform Reddit, known for its candid and in-depth user discussions, is an especially valuable data source for management research.[30]

Data was collected from two prominent Spotify-focused subreddits, *r/spotify* (over 2 million members) and *r/truespotify* (over 100,000 members), covering the first 2 months after the feature's launch in February 2023. After cleaning the initial scrape of 1,808 comments by removing

Table 2. Key topics from user comments on the AI DJ.

Topic	% Of comments	Example keywords
Song selections	32%	Songs, dj, playlist, discovery, repeat
Availability/Rollout	20%	Access, countries, beta, update
DJ's voice	17%	Annoying, accent, female option, grating
Other Spotify features	17%	Stream on, hifi, quality, creators
Outliers & miscellaneous	14%	Skip, radio, april fools

deleted posts and comments under 30 characters, a final dataset of 92 posts and 1,442 comments was developed.

A two-stage analysis was carried out. For sentiment analysis, a RoBERTa-based model, a tool robustly optimized for social media text because its training corpora include data from Reddit, was employed.[31] For topic modeling, the analysis used a BERTopic model, which is more effective than traditional models for identifying coherent topics in short, contextual social media posts.[32] Seven distinct topics were extracted, the most relevant of which are detailed in Table 2 (the last row collapses 3 minor topics).

The analysis revealed a sharp disconnect between the AI DJ's strategic rationale and its reception. User reaction was polarized, with negative sentiment (34%) notably outweighing positive sentiment (26%). Crucially, the friction was not with the concept of generative AI itself, but with specific, recurring failures in its implementation. Three core problems emerged from the user feedback: misaligned recommendations, an inflexible and sometimes irritating voice, and a perceived loss of user control.

The most frequent complaint centered on the DJ's core function: the music recommendations themselves. Users reported that the recommendations often felt repetitive, recycling the same few artists and songs instead of fostering new discovery. Others found the selections poorly aligned with their tastes, with the DJ frequently defaulting to mainstream pop genres even for listeners who actively avoid them. A common frustration was the feature's failure to introduce *new* music, instead relying heavily on a user's existing listening history, defeating a key purpose of a discovery tool.

The second major point of friction was the DJ's much-touted anthropomorphic voice. While intended to be warm and engaging, many users described the voice as "grating," "annoying," and "irritating." The specific American accent was also a point of contention, with international users in particular finding it "jarring" and expressing a desire for local accents or other options, such as a British or Australian voice. A significant number of users called for the option of a female voice, highlighting a demand for customization that the single, unchangeable voice could not meet.

Finally, the AI DJ's design inadvertently stripped users of a fundamental element of the Spotify experience: control. In a normal listening session, users have full autonomy to search, select, and queue their music. The AI DJ, however, functions more like a traditional radio broadcast, making decisions *for* the user. Users expressed a desire for more agency, requesting the ability to provide input or feedback beyond simply skipping a song. They wanted to tell the DJ what they were in the mood for, to exclude certain genres, or to fine-tune the recommendations. Without these mechanisms, many felt trapped in a listening experience they could not steer, transforming the promise of hyper-personalization into a reality of rigid, top-down programming.

A framework for success: Three actionable lessons

These friction points in user feedback—from misaligned recommendations to a perceived loss of control—reveal a critical gap between AI's technical capabilities and the psychological needs of its users. From these insights we can glean three actionable lessons for success.

Lesson 1: Prioritize agency over efficiency

Users felt trapped in a listening experience they could not steer, which undermined the feature's goal of creating a positive connection. When users perceive a loss of autonomy, they often experience psychological reactance—a negative feeling that motivates them to reassert their freedom.[33] A feature that ignores the user's need for agency, no matter how efficient, is designed to be rejected.

The solution is to implement feedback mechanisms to create a dialogue. For instance, a "skip" button is a blunt instrument; a "dislike," "not this vibe," or "play less of this artist" button is a tool for partnership. Spotify's own "Dislike/Hide song" feature, used in past and current playlists, provides a clear precedent for this approach.[34] Such features serve a dual purpose: they satisfy the user's innate need for control, making them feel heard and respected, while providing the AI with high-quality, explicit data to rapidly improve its recommendation model.

Lesson 2: Manage anthropomorphic expectations

When an AI acts human, users subconsciously expect it to learn, adapt, and empathize like one. The negative reaction to the DJ's voice highlights this "anthropomorphism trap": the more human-like the AI, the higher the user's expectations, and

the greater the disappointment when those expectations are violated.[35] The desire for different accents or a female voice was not just a matter of preference; it was a response to a feature that felt personal yet was not *personally adaptable*.

To avoid this pitfall, pursue a two-part strategy. First, temper expectations by being transparent about the AI's current limitations. A simple, upfront message like, "I'm still learning your tastes, so let me know what you think," can frame the interaction as a work-in-progress and inoculate against frustration. Second, offer simple customization. While providing fully customizable, user-generated AI voices carries significant ethical and safety risks,[36] offering a small, curated selection of pre-approved voices (e.g., different accents, genders, or tones) can satisfy the demand for personalization. This would give users a sense of choice and allow them to select a voice that they best connect with, mitigating the risk of alienation while maintaining brand safety.

Lesson 3: Scale safely with tiered governance

The repetitiveness that users noted in the AI DJ's commentary was not a failure of generative AI's raw capabilities, but a direct consequence of Spotify's conservative, human-in-the-loop safety model. To prevent the AI from generating inaccurate, inappropriate, or off-brand content, a team of human experts reviewed and scripted much of the commentary. While this ensured quality and safety, it created a scalability bottleneck that results in a limited and repetitive user experience.[37]

This reveals the core operational challenge: how to maintain control over an AI's output without sacrificing the dynamic, varied content needed for personalization at scale. A tiered governance model may strike this balance.[38] For high-risk content areas—such as commentary on sensitive topics or new, unvetted artists—we can maintain a strict human review and approval process. However, for low-risk, high-volume content—such as providing context on a well-known song or transitioning between familiar genres—we can grant the AI more autonomy to generate commentary dynamically. This "liberalized" tier can be supported by robust automated monitoring systems, including sentiment analysis and keyword flagging, to catch and escalate any problematic outputs. This risk-adjusted approach allows firms to ensure brand safety where it matters most while still leveraging the full power of generative AI to create a rich, varied, and truly personalized experience at scale.[39]

The crossroads

By late 2023, after more than 6 months on the market, the AI DJ is not the unqualified success the company envisioned. Its performance presents a complex picture. On one hand, promising adoption and engagement metrics validate the strategic bet on generative AI: users who try the feature spend significant time with it. On the other, the product team is increasingly concerned by the polarized user feedback detailed in the preceding analysis.

As the 2024 product planning cycle begins, as the Group Product Manager for AI Personalization, you are responsible for the AI DJ's future. You have just met with Spotify's Chief Product Officer, who delivered a clear mandate: *"The AI DJ is a strategic bet we must win. Your job is to take the user feedback seriously and develop a plan to evolve the feature from a polarizing novelty into a core, habit-forming experience that solidifies our market leadership."*

The analysis is complete, and the three core lessons—regarding user agency, the anthropomorphism trap, and the need for scalable safety—are clear. The problem is no longer *what* to fix, but *how* to fix it, especially under the real-world constraints of limited engineering resources and intense pressure to show a return on investment.

Your task is to translate these lessons into a concrete and achievable product plan. At the upcoming quarterly product review, you will present a proposed 2024 roadmap for the AI DJ, structured to address the following challenges and meet the specific requirements outlined below.

Core challenges

(1) Designing for Agency: The most significant source of user friction is a perceived loss of control. The core design challenge is to transform the AI DJ's monologue into a genuine dialogue. How can you implement intuitive feedback mechanisms that empower users without cluttering the interface or disrupting the seamless "lean-back" listening experience?
(2) Calibrating the Persona: The negative reaction to the DJ's voice highlights the "anthropomorphism trap." The team must develop a coherent strategy for the DJ's persona that balances user demand for choice against the technical, ethical, and brand safety risks of voice-cloning technology. What level of customization is appropriate and safe, and how can the interface better manage user expectations?
(3) Engineering for Scale and Safety: The repetitive commentary is a direct result of a conservative safety model that has become a scalability bottleneck. The challenge is to create a governance model that grants the AI more autonomy to generate content in real-time while maintaining rigorous quality control. What operational framework can deliver dynamic commentary without compromising the safety and quality users expect from Spotify?

Roadmap requirements

Your roadmap must outline the following:

(1) A Set of Key Initiatives: For each of the three challenges—Designing for Agency, Calibrating the

Persona, and Engineering for Scale and Safety—propose specific product features, UI/UX changes, or operational processes to resolve the core friction.

(2) A High-Level Roadmap: Organize your proposed initiatives on a 12-month timeline (Q1–Q4 2024). Distinguish between "Quick Wins" that can be rolled out in the next quarter (Q1) to address the most severe user issues and "Strategic Investments" that require longer-term R&D (Q2–Q4). Be prepared to justify your prioritization based on impact and effort.

(3) A Framework for Measuring Success: For each of your key initiatives, define the primary metrics you will use to determine if it is successful. For example, how will you measure whether your changes are improving the user experience and driving Spotify's core business goals of engagement and retention? Be specific and include a mix of metric types:
   - Agency & UX Metrics: For example, *% of sessions using new feedback buttons, skips per hour, in-app satisfaction scores.*
   - Engagement & Retention Metrics: For example, *30-day retention of DJ users* vs. *a control group, share of listening time with DJ, next-day return rate for first-time users.*
   - Quality & Safety Metrics: For example, *commentary repetition index, mispronunciation reports per 10,000 tracks, flagged content rate.*

ORCID iD

Anirban Mukherjee https://orcid.org/0000-0001-6381-814X

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Data Availability Statement

The primary data used in the development of this case study is available on request from the authors.

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33. The concept of psychological reactance was first proposed by Brehm, J. W., in *A Theory of Psychological Reactance*, Academic Press, 1966. Its application in technology adoption highlights that users resist systems that feel overly controlling.
34. See Spotify Help, "How to hide and unhide songs," accessed August 20, 2025, available at https://support.spotify.com/us/article/hide-unhide-songs/.
35. Research has shown that when anthropomorphic agents raise consumer expectations, their subsequent failures lead to greater dissatisfaction and lower firm evaluations. See Crolic,

C., et al., "Blame the Bot: Anthropomorphism and Anger in Customer-Chatbot Interactions," *Journal of Marketing* (86:1), 2022, pp. 132-148, available at https://doi.org/10.1177/00222429211045687. Chang, Hannah H., and Anirban Mukherjee, "The Persuasive Effect of AI-Synthesized Voices," *ANZMAC 2023 Conference Proceedings*, December 4-6, 2023, pp. 89-91, available at https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=8416&context=lkcsb_research, show that multiple AI synthesized voices can enhance persuasion when attention is low but backfire with high processing costs.

36. The misuse of voice-cloning technology for deepfakes and scams is a growing concern for practitioners. See Alex Hern, "OpenAI deems its voice cloning tool too risky for general release," *The Guardian*, March 31, 2024, https://www.theguardian.com/technology/2024/mar/31/openai-deems-its-voice-cloning-tool-too-risky-for-general-release; and Dan Milmo, "Company worker in Hong Kong pays out £20m in deepfake video call scam," *The Guardian*, February 5, 2024, https://www.theguardian.com/world/2024/feb/05/hong-kong-company-deepfake-video-conference-call-scam. For a broader compliance overview, see AIMultiple Research, "AI Compliance: Top 6 Challenges & Case Studies in 2025," August 19, 2024, https://research.aimultiple.com/ai-compliance/.
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Author biographies

Dr. Anirban Mukherjee (anirban@avyayamholdings.com) is Principal at Avyayam Holdings, where he focuses on AI and quantitative marketing strategies. He holds a Ph.D. from Cornell University and was previously Assistant Professor at Singapore Management University, with visiting roles at Cornell University, INSEAD, and Columbia University. His research on consumer behavior, quantitative marketing, and the business impact of AI has appeared in leading journals including the *International Journal of Research in Marketing*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Retailing*, and *Management Science*.

Dr. Hannah H. Chang (hannahchang@smu.edu.sg) is Associate Professor of Marketing at Singapore Management University, where she also serves as Chair of its Institutional Review Board. Her research examines how consumer behavior intersects with emerging digital technologies like AI to inform evidence-based marketing and public policy. She is an Area Editor at the *International Journal of Research in Marketing* and was an Associate Editor at the *Journal of Consumer Psychology*. Her work has appeared in premier journals including the *Journal of Consumer Research*, *Journal of Marketing Research*, and *Psychological Science*. She holds a PhD from Columbia University.

Jonathan Wibowo (jonathanw@berkeley.edu) is a Master's student in Computational Social Science at the University of California, Berkeley, where he specializes in applying machine learning to analyze user behavior. He holds a Bachelor of Social Sciences with Highest Distinction from the National University of Singapore. His work has been recognized with a Kaggle award for predictive modeling. As a Research Assistant at Singapore Management University, he conducted the primary data collection and analysis for this study.