IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

MAPLEBEAR INC. DBA INSTACART, a Delaware corporation, Plaintiff, v. JOHN DOES 1-2, CONTROLLING AND OPERATING A MALICIOUS APPLICATION KNOWN AS SHOPPER HELPER, Defendants.	Civil Action No: 1:21-cv-00474

DECLARATION OF HENRY LEVIN IN SUPPORT OF INSTACART'S APPLICATION FOR AN EMERGENCY *EX PARTE* TEMPORARY RESTRAINING ORDER AND ORDER TO SHOW CAUSE RE PRELIMINARY INJUNCTION

I, Henry Levin, declare as follows:

1. I work for Maplebear Inc. dba Instacart ("Instacart") as a Senior Security Engineer. I have worked at Instacart since May 2019, and manage a team focusing on infrastructure and cloud security. I make this declaration in support of Instacart's Application for An Emergency Temporary Restraining Order and Order To Show Cause Re Preliminary Injunction. I make this declaration of my own personal knowledge or on information and belief where indicated and based on my review of records Instacart maintains in the ordinary course of business.

I. INSTACART'S SERVICES AND APPLICATIONS

A. Instacart's Customer Application and Shopper Application

2. Instacart operates a multi-sided technology and communications platform via the Instacart website and its smartphone applications ("Instacart Platform") that facilitates fast on-demand grocery and retail delivery services by connecting customers who wish to purchase

grocery items from Instacart's local retail partners with personal shoppers ("Shoppers") who will shop for and/or deliver the orders.

3. Customers can order groceries and other retail products through Instacart's website or through the Instacart customer mobile application. Accessing either the website or the app, customers can select a local retailer where shopping and/or delivery is available by a Shopper.

4. Shoppers are independent service providers with whom Instacart enters into written agreements to perform services as independent contractors. To accept and fulfill customer orders, Shoppers use a mobile application, the Instacart Shopper App ("Shopper App") (available on Android or iOS devices), which is distinct from the Instacart customer app.

B. Access to Shopper App Data and Technical Countermeasures to Prevent Unauthorized Access

5. Instacart does not sell ownership rights, copyright, or other intellectual property rights to its Shopper App. Instead, Instacart's Shoppers must obtain a license, which grants Shoppers limited rights to install the Shopper App and to access and use the Shopper App, including accessing and viewing batches of orders, subject to Instacart's technical security measures.

6. Instacart's servers and information contained in the Shopper App (e.g., batches of orders) are not open to the general public. Rather, each call to Instacart's servers requires Instacart to authorize and permit the Shopper seeking to access Instacart's servers to view orders on the Shopper App. This is because Instacart's servers are protected by sophisticated defenses designed to prevent unauthorized access and abuse, and which evaluate whether to grant each request made to Instacart's servers.

7. Instacart works hard to protect the integrity and security of its network and systems. Among other things, it employs an array of technological safeguards and barriers designed to prevent data scrapers, bots, and other automated systems from accessing and copying its data on a large scale or from accessing its systems without proper authorization.

8. Among other technical measures, Instacart deploys SMS verification and/or a

password barrier to verify the user. When a user logs into the Shopper App, they are required to enter their password or request a temporary SMS verification number, which confirm the user's telephone number associated with their shopper profile. The information contained in Instacart's Shopper App (e.g., batches of orders) is behind this password or SMS verification barrier. This is a built-in security system that controls access to Instacart's servers and the orders managed by the Instacart Platform. Because the Shopper App is authentication protected, the general public is not authorized to access any data or information available on the Shopper App beyond the password or SMS verification barrier. This technical security measure controls the integrity and quality of the Shopper App and protects sensitive information from public disclosure in accordance with Instacart's license terms.

9. Another technical countermeasure that application developers can use to combat scraping or any unauthorized access to servers is through the use of security authentication tokens. An authentication token allows users to confirm their identity in order to access an application. Each time a user wishes to use a legitimate version of an application on a mobile device, the application will communicate with a server to verify a token. An authentication token is issued to the user's mobile device upon successful verification of the user's credentials. If the user's profile cannot be verified as a user of a legitimate application, then the authentication server will not issue a token and the user will be unable to access the application. Once a token has been issued, that user can access the application for which the token has been issued. The user retains access to the application until the user logs out of the application.

10. As part of its technical countermeasures, Instacart deploys a security authentication token in order to prevent unauthorized access to Instacart's servers by unauthorized users or unauthorized applications. Each time a Shopper enters their credentials in the Shopper App, the Shopper's mobile device will connect with an authentication server to verify the Shopper's credentials. Once the Shopper's credentials have been verified, the Shopper can access the legitimate Shopper App and Instacart's associated servers. Each Shopper's access

token will be disabled once the Shopper logs out of the application.

11. The Shopper App for mobile devices is available through Google Play or the Apple App Store. In order to serve as a Shopper, members of the public must download the Shopper App and create a Shopper account with an email and a mobile phone number. Shoppers who download the Shopper App and creates an account must accept Instacart's Shopper Terms and Conditions ("Shopper App Terms"). This licensing arrangement, along with various technical means, is one of many ways Instacart protects the Instacart Platform from conduct that can threaten the integrity and reputation of Instacart and its users.

12. I refer the Court to the declaration of Dylan Tonti, co-declarant in this matter for further information on Instacart's Shopper App Terms, including how Shoppers manifests assent to Instacart's Shopper App Terms.

II. INSTACART SHOPPERS AND THE SHOPPER APP

A. Instacart's Shoppers

13. Shoppers are integral to the Instacart platform. Their role is at the core of Instacart's business and the services they provide are essential to its success. Without enough Shoppers, customer confidence in their ability to receive fast and reliable deliveries would be compromised. Maintaining a positive relationship with Shoppers is essential to Instacart's success and it is committed to addressing issues that affect Shoppers' ability to use the platform.

14. Instacart has strived to create a platform and app that Shoppers can use to maximize the value they get from the platform while creating a level playing field for all Shoppers. Additionally, Instacart has worked to create an app that is easy for Shoppers to navigate, offering details about batches to help Shoppers choose whether to accept them. Instacart has safeguards in place to make sure more desirable batches are fairly distributed to Shoppers across the platform.

B. The Shopper App

15. The Shopper App is the primary way that Shoppers interact with Instacart. After

accessing the Shopper App, the Shopper can indicate their availability to receive and accept orders at their discretion. The Shopper App provides an automated matching function to offer customer orders to Shoppers, using proprietary software. Orders are offered in "batches" consisting of one or more customer orders to be shopped and delivered together.

16. Instacart has developed complex algorithms to offer batches to available Shoppers, considering numerous factors including fairness to the Shoppers. Once the algorithm processes the batches, a Shopper can then review a list of available batches and accept or decline those batches based on criteria such as the size of the orders (i.e., number of items to shop), batch payment amount, and the location of the retailer of the goods.

17. The servers that support the functionality of the Shopper App and associated services are located in Northern Virginia. Instacart hosts its software and services that support the Shopper App with Amazon Web Service's ("AWS") on servers located in the Northern Virginia region. AWS provides, in essence, a network of physical computer servers that store computer data for internet companies.

III. THE SHOPPER HELPER APP

A. Overview of the Shopper Helper App

18. Shopper Helper is an unauthorized third-party mobile application that leverages Instacart's Shopper App's user interface and core functionality to enable users to improperly circumvent Instacart's Shopper App—and Instacart's algorithms that are thoughtfully designed to promote efficiency and fairness—and attempt to gain an unfair advantage in selecting order batches.

19. Once installed, Shopper Helper runs certain scripts on Instacart's Shopper App that automatically snatch batches prior to other Shoppers. These scripts include, for example, the geographic proximity of the grocery store, the delivery distance, and the earning potential.

20. Instacart has engaged Nisos Holdings, Inc., as a technical consultant to investigate the Shopper Helper application. I refer the Court to the declaration of Adam Gayde, Managing

Director of Research and Development at Nisos, for further information on other aspects of Shopper Helper, including Shopper Helper's technical functionalities to circumvent Instacart's anti-circumvention technology and access batch information from Instacart's infrastructure without authorization, and the plan for disrupting its operations.

B. Defendants Accessed Instacart's Infrastructure in the Eastern District of Virginia

21. The Shopper Helper application contains functionality that misuses code, features and functionality within the Shopper App, and which requires interaction with Instacart's AWS servers. In particular, the Shopper Helper code that misuses Instacart authentication tokens and other technical measures, described above, requires interaction with Instacart's AWS servers. When the Defendants created the Shopper Helper application, they necessarily accessed Instacart software, services and data that are located on Instacart's AWS servers. When in use, Defendants' Shopper Helper application repeatedly accesses Instacart's AWS server software, services and data to obtain batch information.

22. Therefore, through my investigation, I have determined that Defendants affirmatively targeted and accessed Instacart's AWS servers to obtain batch information without authorization. The servers reside in Northern Virginia, within the Eastern District of Virginia.

IV. HARM TO INSTACART CAUSED BY THE SHOPPER HELPER APP

A. Shopper Helper Causes Harm by Diminishing Confidence Among Shoppers in the Fairness of Instacart's Services

23. Through its misuse of Instacart's software, Shopper Helper disrupts the distribution of batches among Shoppers. Shopper Helper seeks to give its users an unfair advantage that harms legitimate Instacart shoppers. By circumventing Instacart's batch algorithm, the Shopper Helper app can cause Shoppers using the legitimate Instacart Shopper App to miss out on opportunities for batches that would otherwise be available to them. This causes dissatisfaction with Instacart's Shopper App and services and diminishes Shopper confidence in the Instacart Platform.

B. Shopper Helper Causes Harm by Making Unauthorized Changes To Instacart's Shopper App

24. Shopper Helper inflicts damage on Instacart whose products and trademarks Defendants systematically misuse as part of Shopper Helper's operations. For example, once Shopper Helper is installed on a Shopper's mobile device, it compromises the underlying code of Instacart's Shopper App through the creation and operation of a counterfeit, adulterated version of the Shopper App. However, as shows in **Figures 1** and **2**, the compromised Shopper App does not appear any different to party viewing that app on the mobile device. Anyone viewing the Shopper Helper app, thus, would think that the compromised Shopper App, in the form of Shopper Helper, is developed and distributed by Instacart, despite the fact that it is the operators of Shopper Helper that are compromising the Shopper App. This harms Instacart's reputation and goodwill among the public, and particularly among Shoppers who may incorrectly believe that Shopper Helper is sanctioned, sponsored, or associated in some manner with Instacart.

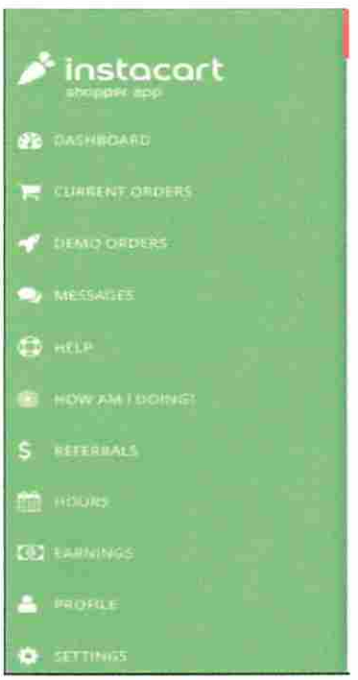

Figure 1 – Instacart's Legitimate Shopper App

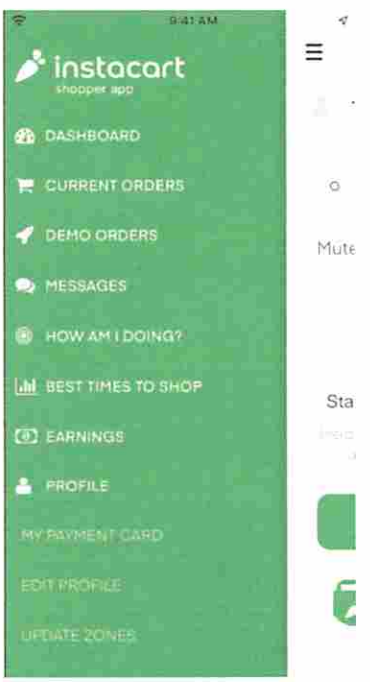

Figure 2 – Malicious Shopper Helper App

25. As can be seen, Shopper Helper appears to the public to be identical to Instacart's

Shopper App because it uses Instacart's trademarks, content and protected user interfaces, but it is instead a fraudulent, counterfeit and adulterated version of Instacart's Shopper App. Defendants are trading on Instacart's trademarks to deceive users of Instacart's Shopper App and to trade on the legitimacy of Instacart's brand. Trademark registrations for the marks infringed by Defendants are attached to Instacart's Complaint as **Exhibit B**. For example, Instacart's Shoppers who do not use Shopper Helper wrongly perceive Instacart as approving, endorsing or having some association with the use of the Shopper Helper app.

26. Shopper Helper's fraudulent app also harms Instacart's Shopper App's functionality by interfering with the batch selection process. For example, Shopper Helper's users can configure Shopper Helper to crawl Instacart's batch end points and automatically select the batches of the highest dollar value. By automatically selecting batches, Shopper Helper is making unauthorized changes to Instacart's Shopper App by systematically disrupting Instacart's algorithms for the batching process, rendering batches unavailable to genuine users.

27. Instacart also received multiple bug reports from users of the Shopper Helper app, reporting issues with Shopper Helper to Instacart's engineering team. This harms Instacart by requiring Instacart to dedicate engineering resources to research the reports and also further demonstrates the confusion Shopper Helper causes to Shoppers and the public who believe Instacart sanctions, sponsors, or is otherwise associated with Shopper Helper.

C. Shopper Helper Unauthorized Access to Instacart's Servers

28. Each time Shopper Helper is launched, it accesses Instacart's Shopper App and misuses code, features and functionality of the Shopper App. The software and services that support Instacart's Shopper App are located on AWS infrastructure. Because Shopper Helper contains and misuses code, features and functionality of Instacart's Shopper App, it is also accessing without authorization Instacart's AWS servers, which are physical computers located in Northern Virginia.

29. Instacart's investigation into Shopper Helper has consumed significant company

time and resources. For example, Instacart engineers have spent considerable time analyzing Shopper Helper, its technical architecture, and attempting to identify Shopper Helper's developers. I refer the Court to the declaration of Adam Gayde, co-declarant in this matter, for further information on Shopper Helper's technical functionalities.

30. Instacart's cost to investigate Shopper Helper has exceeded $5,000.

D. Shopper Helper Causes Severe Harm To Instacart's Reputation, Brands, and Goodwill With Its Shoppers and the Public

31. Shopper Helper harms Instacart and Instacart's Shoppers by damaging Instacart's proprietary Shopper App installed on Shoppers' mobile devices. Shopper Helper is specifically designed to infect and run on mobile devices equipped with Instacart's Shopper App. In fact, Shopper Helper cannot operate unless the user has at some point downloaded the Instacart Shopper App and created an account. The Instacart Shopper App is licensed by Instacart to its users. Once the Shopper creates an account with Instacart's Shopper App, Shopper Helper will leverage the Shopper's credentials (e.g., credential harvesting) in order to operate the counterfeit, adulterated version of the Instacart Shopper App.

32. Instacart devotes significant computing and human resources to combating bots like Shopper Helper. Instacart, as a provider of the Instacart Shopper App, as well as other products, must also incorporate security features in an attempt to stop installation of Shopper Helper and other bots. Instacart has expended significant resources to investigate and track the Shopper Helper Defendants' illegal activities and to counter and remediate the damage caused by Shopper Helper to Instacart, its Shoppers, and the general public.

33. Shopper Helper irreparably harms Instacart by damaging its reputation, brands, and Shopper goodwill. Defendants physically alter and corrupt Instacart's Shopper App.

34. In effect, once altered and controlled by Shopper Helper, the Instacart Shopper App ceases to operate normally and becomes a tool for Defendants to conduct their unauthorized access to batch information on Instacart's servers and automated processes. Yet, they still bear Instacart's trademarks. This misleads Instacart's Shoppers and the public generally into wrongly believing

that Instacart condones, facilitates or somehow is associated with the use of Shopper Helper. Instacart has invested substantial resources in developing high-quality products and services. Due to the high quality and effectiveness of Instacart's products and services and the expenditures of significant resources by Instacart to market those products and services, Instacart has generated substantial goodwill with its Shoppers, has established strong brands, and has developed the Instacart name and the names of its products and services into strong and famous world-wide symbols that are well-recognized within its channels of trade. Instacart has registered trademarks representing the quality of its products and services and its brand, including Instacart®.

35. The activities of Shopper Helper injure Instacart and its reputation, brand, and goodwill because Shoppers subject to the negative effects of this automated and malicious application incorrectly believe that Instacart and Instacart's Shopper App are the sources of their inability to obtain order batches that otherwise would be available. There is a great risk that users may attribute imbalance and inability to receive select orders to Instacart and associate these problems with Instacart's products, thereby diluting and tarnishing the value of the Instacart trademarks and brands.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge.

Executed this 14th day of April 2021, in San Francisco, CA

Henry Levin