

1 Fred Norton (SBN 224725)
2 Bree Hann (SBN 215695)
3 Matt Turetzky (SBN 280997)
4 THE NORTON LAW FIRM PC
5 299 Third Street, Ste 106
6 Oakland, California 94607
7 Telephone: (510) 906-4900
8 Fax: (510) 906-4910
9 fnorton@nortonlaw.com
10 bhann@nortonlaw.com
11 mturetzky@nortonlaw.com

12 Attorneys for TESLA, INC.

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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA**

TESLA, INC., a Delaware corporation,

Plaintiff,

v.

GUANGZHI CAO, an individual,

Defendant.

CASE NO.

COMPLAINT

JURY TRIAL DEMANDED

SUMMARY OF THE ACTION

1
2 1. Tesla, Inc. (“Tesla”) leads the world in the design and production of all-electric
3 vehicles, as well as clean energy generation and storage products. Defendant Guangzhi Cao was a
4 member of Tesla’s Autopilot team, an elite group of engineers developing Tesla’s industry-leading
5 Autopilot features, including its full self-driving technology – a crown jewel of Tesla’s intellectual
6 property portfolio. As part of the Autopilot team, Cao had access to crucially important, and highly
7 confidential, Tesla trade secrets, including source code.

8 2. On January 3, 2019, Cao abruptly announced that he was quitting his job at Tesla,
9 effective the very next day. Although he did not tell anyone at the time, Cao had accepted a job
10 doing the same work for Xiaopeng Motors Technology Company Ltd. (“XMotors”), a Tesla imitator
11 also pursuing self-driving and electric vehicle technology.

12 3. As Tesla has now learned, Cao began searching for a new job by November 2018.
13 Long before he left, Cao began uploading complete copies of Tesla’s Autopilot-related source code
14 to his personal iCloud account – more than 300,000 files and directories, in violation of Tesla’s
15 policies and its agreements with Cao. Then, as he was looking to leave Tesla, Cao created .zip files
16 of Tesla’s complete Autopilot-related source code repositories, making them smaller and easier to
17 move.

18 4. Unbeknownst to Tesla, Cao had at least a verbal offer from XMotors by November
19 26, 2018. Cao then traveled to China (the home of XMotors) between December 5 and 9, without
20 telling his manager where he was going or why. He received a written employment offer from
21 XMotors on December 12.

22 5. Tesla does not know when Cao accepted his job offer. However, as Tesla now
23 knows, Cao deleted over 120,000 files in the month of December and disconnected his iCloud
24 account from his Tesla-issued computer on December 26. Between December 27 and January 1,
25 Cao repeatedly logged into Tesla’s secure networks, and he cleared his browser history by January
26 4, his last day at Tesla.

27 6. When he left, Cao did not return Tesla’s highly confidential information, nor disclose
28 that he had made copies. Tesla thus believes that Cao still has, can access at will, and may be using

1 all the source code needed to replicate Tesla’s proprietary Autopilot technology, none of which he
2 has a legal right to possess.

3 7. Needless to say, Tesla’s confidential information is not safe in the hands of XMotors
4 or its employees. Inspired by and on a mission to beat Tesla, XMotors reportedly designed its
5 vehicles around Tesla’s open-source patents and has transparently imitated Tesla’s design,
6 technology, and even its business model. XMotors has also introduced reportedly “Autopilot-like”
7 features (called X-Pilot), and now employs at least five of Tesla’s former Autopilot employees,
8 including Cao. And, as discussed below, this would not be the first time that a new XMotors recruit
9 tried to bring his former employer’s trade secrets to XMotors.

10 8. Tesla has spent hundreds of millions of dollars and more than five years developing
11 Autopilot. Now that investment is at risk. Tesla must learn what Cao has done with Tesla’s IP, to
12 whom he has given it, and the extent to which Tesla has been harmed. Tesla files this lawsuit to
13 compel the return of its valuable IP and protect it from further exploitation, and for all other relief as
14 the facts may warrant.

15 **THE PARTIES**

16 9. Tesla is a Delaware corporation with its headquarters and principal place of business
17 in Palo Alto, California.

18 10. Defendant Guangzhi Cao is an individual who, on information and belief, resides in
19 Cupertino, California. From April 24, 2017 until January 4, 2019, Cao worked for Tesla in Palo
20 Alto, California.

21 **JURISDICTION AND VENUE**

22 11. This Court has jurisdiction pursuant to 28 U.S.C. § 1331 because this matter involves
23 claims under the Defend Trade Secrets Act (“DTSA”), 18 U.S.C. §§ 1836 *et seq.* This Court has
24 supplemental jurisdiction over the remaining claims pursuant to 28 U.S.C. § 1367, as the remaining
25 claims form part of the same case or controversy: Cao’s access to, taking of, and use of Tesla’s
26 intellectual property and confidential information.

27 12. Venue is proper in this District pursuant to 28 U.S.C. § 1391(b)(2) because a
28 substantial part of the events giving rise to the claims occurred in this District. For example, Tesla

1 employed Cao in Palo Alto, which is within the Northern District; Cao downloaded Tesla’s source
2 code while physically present at or connected to his Tesla workplace.

3 **FACTUAL BACKGROUND**

4 **A. Tesla’s Industry-Leading Autopilot Technology And Autopilot Source Code**

5 13. Tesla’s Autopilot technology is widely regarded as the most advanced, safest, and
6 most reliable technology of any consumer advanced driver-assistance system solution. Today,
7 Autopilot is an advanced driver assistance system that augments drivers’ perception, improves their
8 decision-making, and assists in controlling their vehicles. Autopilot offers advanced driver
9 assistance features including lane-keeping, adaptive cruise control, and automatic parking. More
10 recently, Tesla introduced Navigate on Autopilot, which guides a car from a highway’s on-ramp to
11 off-ramp, including suggesting and making lane changes, navigating highway interchanges, and
12 taking exits (in each case under the driver’s supervision). Tomorrow’s Autopilot will make Tesla’s
13 vehicles fully autonomous, capable of driving short and long distances without driver involvement.

14 14. Tesla has a global fleet of more than 500,000 cars, which have driven more than a
15 billion collective miles with Autopilot activated. Every day, thousands of Autopilot-enabled Tesla
16 vehicles provide real-time feedback to Tesla’s servers, yielding voluminous data that Tesla uses to
17 continually improve the Autopilot system. This fleet gives Tesla exponentially more data than its
18 autonomous vehicle competitors, who generally have only small fleets of prototype vehicles, and
19 has allowed Tesla to accelerate its autonomy technology in a way no other company can.

20 15. Tesla uses multiple, highly confidential kinds of source code for its Autopilot
21 features, including the firmware, Autopilot, and neural net source code repositories (the “Autopilot
22 Trade Secrets”). Firmware source code executes core tasks on Tesla’s vehicles, such as motor
23 controls, steering, and infotainment functions. Autopilot source code executes Autopilot-related
24 functions, such as semi-autonomous driving, in response to environmental and driver-supplied
25 inputs, and uses the neural net to process (and “see”) information from onboard cameras to make
26 decisions. The neural net source code does not run on Tesla’s vehicles directly but is used to “train”
27 the neural net using a massive dataset via machine-learning processes. Each of these source code
28 repositories is highly valuable in its own right. Taken together, the Autopilot Trade Secrets would

1 give a competitor an enormous advantage in attempting to replicate Tesla's current self-driving
2 technology, and in anticipating future developments.

3 16. Tesla derives independent value from maintaining the secrecy of its source code and
4 other proprietary information related to Autopilot and the functioning of its vehicles. Tesla's source
5 code reveals how Tesla has approached and solved problems in vehicle autonomy, and disclosure of
6 that source code could give competitors an unfair, and unearned, advantage.

7 17. For example, unlike many of Tesla's competitors, Tesla's self-driving functionality is
8 primarily based on cameras and radar, without the use of another expensive sensor, LIDAR. The
9 source code reveals in great detail how Tesla has used camera and radar to solve problems in
10 autonomous driving.

11 18. As another example, the source code also reflects and contains improvements that are
12 built on Tesla's massive volume of fleet telemetry data. If disclosed to a competitor, that competitor
13 could use Tesla's source code to copy Tesla's work, compete with Tesla, or otherwise accelerate the
14 development of its own vehicle autonomy technology.

15 19. Similarly, across all of its source code (including firmware, Autopilot, and neural net
16 source code), Tesla has invested enormous time and expense to write and incrementally improve its
17 source code over time. Disclosure of this source code to Tesla's competitors could give them access
18 to off-the-shelf code that they could use in operating their own vehicles or vehicle autonomy
19 software. If Tesla's source code is disclosed to competitors, those competitors will unfairly receive,
20 for free, the fruit of Tesla's labor and investment over many years to develop, improve, and refine its
21 various kinds of source code.

22 **B. Tesla Vigorously Protects The Confidentiality Of Its Confidential Information**

23 20. Tesla's policies and practices robustly protect confidential and proprietary
24 information, including the Autopilot Trade Secrets. For example, Tesla requires all its employees to
25 enter into agreements that obligate them to safeguard the company's confidential information,
26 including trade secrets and source code. Employees must sign confidentiality agreements as a
27 condition of their employment, such as Tesla's Employee Non-Disclosure and Inventions
28

1 Assignment Agreement (“NDA”), and must periodically re-sign as the company revises and updates
2 its agreements.

3 21. Tesla secures its physical facilities by restricting access to authorized personnel, and
4 then monitoring actual access with security guards and cameras. Visitors to Tesla’s headquarters in
5 Palo Alto (“Deer Creek”), where the Autopilot team is located, must check in with a receptionist or
6 security guard, sign a nondisclosure agreement, and submit to a photograph. While at Deer Creek,
7 they must be escorted by a Tesla employee at all times.

8 22. Tesla also protects its confidential information with stringent information security
9 policies and practices. Tesla’s network and servers are themselves password-protected and firewall-
10 protected and are accessible only to current Tesla employees with proper credentials. And after an
11 employee resigns or is terminated, Tesla promptly deactivates that user’s network, active directory,
12 and email permissions, which cuts off access to Tesla’s source code repositories. In addition, Tesla
13 prohibits employees from storing confidential Tesla information on unsecured systems, such as
14 iCloud, Google Drive, or DropBox – which Cao violated here.

15 **C. Tesla Guards The Autopilot Source Code Even More Strictly**

16 23. The Autopilot Trade Secrets are extremely valuable, and Tesla takes extreme care to
17 keep them secret. Each of Tesla’s 200 Autopilot team members must sign Tesla’s NDA, which
18 requires employees to keep confidential all of Tesla’s confidential and proprietary information,
19 including technical data, trade secrets, source code, and other business information. The Autopilot
20 team members are also subject to Tesla’s general policies and practices, as described above. In
21 addition, the Autopilot team is physically separated from the other employees at Deer Creek.
22 Employees with approved access rights to the Autopilot team area must badge into the area and pass
23 through a turnstile, which prevents “tailgating” by other people who are not authorized to enter the
24 restricted area. This physical separation ensures that other Tesla employees, or authorized guests,
25 cannot see or learn what the Autopilot team is doing. The Autopilot team’s work is top secret, even
26 within Tesla.

27 24. Tesla stores the Autopilot Trade Secrets on a Tesla-owned server, protected behind
28 Tesla’s firewall. Of Tesla’s approximately 45,000 employees worldwide, only about 800 have

1 access to the firmware source code, while only about 200 have access to any portion of the Autopilot
2 source code. Access to both firmware and Autopilot source code is granted and monitored by high-
3 level managers in the Autopilot group. Tesla restricts the neural network source code most
4 stringently: currently, only about 40 people have access to this source code, which is granted on a
5 strict “need-to-know” basis and only by the head of Artificial Intelligence at Tesla. As noted above,
6 by virtue of his position and responsibilities, Cao had access to all three types of source code.

7 **D. XMotors Copies Tesla To Catch Up**

8 25. Given Tesla’s success with its electric and autonomous cars, numerous companies are
9 trying to catch up. One such company is XMotors.¹ XMotors is one of many Tesla-inspired
10 startups, and its copying of Tesla is well documented.² For example, XMotors’ first vehicle, the G3,
11 has been called a “Tesla clone” based on visual similarities in the vehicles’ styling, touchscreen,
12 user interface, instrument cluster, headlights, and more. XMotors has also announced that it will
13 operate a broad “super charging” network (Tesla’s global fast-charging network is called the
14 “Supercharger” network), and will operate a direct sales and service network, like Tesla has done
15 since its inception.

16 26. XMotors has also pursued Tesla’s employees. In 2017, XMotors hired a former Tesla
17 Autopilot team member as its Vice President of Autonomous Driving. Tesla is informed and
18 believes that this employee is now responsible for the self-driving research and development team
19 for XMotors. At least five former Autopilot team members have now gone to XMotors, including
20 Cao.

21 27. XMotors has previously gained notoriety in connection with competitors’ trade
22 secrets. In July 2018, a former Apple employee was arrested at the San Jose International Airport

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24 ¹ On information and belief, the parent company, based in China, is Xiaopeng Motors Technology
25 Company Ltd., often referred to as Xpeng Motors. According the website www.xmotors.ai,
26 “XMotors is a fully-owned subsidiary of XPENG Motors.” On information and belief, the XMotors
27 entity that hired Cao is formally known as XMotors.ai, Inc.

28 ² <https://interestingengineering.com/is-xpeng-set-to-be-the-tesla-of-china>;
<https://qz.com/1362926/chinese-ev-unicorn-xpeng-motors-wouldnt-exist-without-tesla/>;
<https://electrek.co/2018/12/13/tesla-inspired-ev-startup-xiaopeng-all-electric-suv/>;
<https://electrek.co/2018/04/10/ev-startup-tesla-clone-alibaba-foxconn-xiaopeng/>.

1 for stealing self-driving intellectual property from Apple.³ Like Cao, that individual had accepted a
2 job with XMotors and left his old job with valuable trade secrets he had no right to possess.

3 **E. Cao Agreed to Protect Tesla's Confidential Information**

4 28. Cao was subject to confidentiality agreements throughout his employment at Tesla.
5 Even before he was hired, he expressly assented to a non-disclosure agreement as part of his pre-
6 employment interview process. The day before his first day as an employee, on April 23, 2017, he
7 agreed to a Tesla Motors, Inc. Employee Proprietary Information and Inventions Agreement, which
8 included restrictions on his use of Tesla's confidential information. *See Exhibit A* (the "First
9 NDA"). On June 4, 2018, Cao agreed to an updated agreement with substantially similar provisions.
10 *See Exhibit B* ("Second NDA," and together with Exhibit A, the "NDAs").

11 29. The NDAs cover all of Tesla's technical data, trade secrets, source code, and other
12 business information, and require employees to keep that information confidential. *See Exhibit A* at
13 § 1, Exhibit B at § 1. Both NDAs explicitly require an employee, upon termination, to
14 "immediately" return to Tesla all Tesla hard copy and electronic documents and materials. *See*
15 Exhibit A at § 4, Exhibit B at § 4. Both prohibit current and former employees from soliciting Tesla
16 employees on behalf of another company for 12 months after they leave Tesla. *See Exhibit A* at §
17 8.2; Exhibit B at §§ 9.2.1, 9.2.2.

18 **F. Cao Misappropriates The Autopilot Trade Secrets**

19 30. Cao started as a full-time employee at Tesla on April 24, 2017, as a Staff Computer
20 Vision Scientist, working as part of the team building the neural net that is the foundation for Tesla's
21 self-driving technologies. Because of his position and job duties, Cao had extensive access to
22 Tesla's confidential information, including all of the Autopilot Trade Secrets. While at Tesla, Cao
23 worked on Autopilot with the former Tesla employee who later left to become XMotors' current
24 Vice President of Autonomous Driving.

25 31. As Tesla now knows, Cao violated Tesla's policies and his agreements with Tesla
26 from the beginning. Cao used his personal iCloud account from 2017 to 2018 to create backup

27 _____
28 ³ <https://www.reuters.com/article/us-apple-theft/ex-apple-worker-charged-with-stealing-self-driving-car-trade-secrets-idUSKBN1K02RR>.

1 copies of Tesla's highly confidential information, including the Autopilot Trade Secrets. For
2 example, a forensic analysis shows that, between March 25, 2018 and December 26, 2018, he
3 backed up entire repositories for the firmware, Autopilot, and neural net source code repositories –
4 apparently all of the source code to which he had access – including more than 300,000 individual
5 files and directories. Tesla believes that all of this information remains accessible to Cao in his
6 personal iCloud account, in violation of Tesla's policies, Cao's agreements, and his legal
7 obligations.

8 32. Between November 2 and November 13, 2018, Cao created .zip files of all of the
9 Autopilot source code. At the same time, he was looking to leave Tesla for another job. Although
10 Tesla does not know when Cao began talking to XMotors about employment, Cao's wife referred to
11 an offer from Xiaopeng in a November 26, 2018 iMessage to Cao. On December 1, Cao began
12 deleting files from his laptop. And from December 5 through 9, 2018, Cao quietly traveled to
13 China, where XMotors is located, without telling his Tesla supervisor where he was going or why.

14 33. Three days later, on December 12, Cao received his formal XMotors offer letter, for
15 the position of "Senior Director of Engineering, heading the camera perception team."

16 34. Tesla does not know when Cao accepted his offer at XMotors, but he gave notice on
17 January 3, 2019. On December 26, 2018, he logged out of his personal iCloud account,
18 disconnecting that account from his Tesla-issued computer. Between December 27 and January 1,
19 Cao repeatedly logged into Tesla's secure networks; between December 1 and his last day, he
20 deleted more than 120,000 files from his Tesla computer. He cleared his browser history on January
21 4, 2019, his last day at Tesla. No one at Tesla instructed Cao to take these steps, and no one at Tesla
22 was aware he did so until late February 2019 when his misconduct was discovered as a result of
23 Tesla's investigative efforts.

24 35. Cao did not disclose to Tesla that he had copied thousands of files, including the
25 Autopilot Trade Secrets, to his iCloud account. He did not return the electronic copies of those
26 documents when he left the company, as required by the NDAs. There is every reason to believe the
27 Autopilot Trade Secrets remain in Cao's personal iCloud folder today.

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