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SUPERIOR COURT OF CALIFORNIA  
COUNTY OF SANTA CLARA

Satrajit Chatterjee,

Plaintiff,

v.

Google, Inc.,

Defendant

Case No.: 22CV398683

**VERIFIED FIRST AMENDED  
COMPLAINT FOR DAMAGES AND  
DEMAND FOR JURY TRIAL**

*[Assigned for All Purposes Hon. Peter  
Kirwan, Dept. 19]*

6. Violation of Labor Code Section 1102.5  
7. Wrongful Termination in Violation of  
Public Policy

Action Filed: May 6, 2022  
Trial Date: TBD

**CASE OVERVIEW**

Dr. Satrajit Chatterjee was a well-respected senior researcher and manager for Google until he blew the whistle on the company's fraudulent statements claiming to have revolutionized

1 a method for designing the physical layout of computer chips, in a project founded and overseen  
2 by Jeff Dean, the Head of Google's Research division and a direct report to the CEO Sundar  
3 Pichai. Google stated that "despite five decades of research," chip design had "defied  
4 automation." Google claimed to have solved that problem by harnessing artificial intelligence to  
5 automate generating chip floorplan designs, with "superhuman" results that were vastly superior  
6 to existing floor plan designs. These claims were fraudulent, however, because Google was aware  
7 of considerable amounts of experimental data that undermined these claims and of limitations in  
8 key experiments where Google had extensively customized its algorithms for each individual  
9 design while failing to properly configure or correctly install competing tools, effectively –  
10 perhaps deliberately – rigging the results in Google's favor. Neither the data, Google's  
11 customizations, nor the limitations were clearly disclosed. Following the course of conduct  
12 prescribed by Google's Code of Conduct ("don't stay silent"), Dr. Chatterjee raised his concerns  
13 to Google, including his reasonable belief that Google's public statements, unless corrected,  
14 violated the law and were fraudulent. Dr. Chatterjee expressly complained that Google's  
15 statements were fraudulent to shareholders and to third parties, including one with whom Google  
16 was discussing a cloud computing deal in excess of \$100 million. After it became evident that  
17 Dean was not going to cure Google's fraud, Dr. Chatterjee stated he would raise the issue with  
18 Alphabet CEO Sundar Pichai and the Board of Directors. **Google terminated Chatterjee within**  
19 **hours.**

20 Remarkably, Google admitted in a declaration filed in this action that it disciplined and  
21 subsequently terminated Dr. Chatterjee for raising concerns about fraud. Google nonetheless  
22 seeks to evade responsibility for its brazenly illegal termination of a whistleblower. But Google's  
23 vast power and fortune does not make it above the law.

#### 24 **PARTIES AND JURISDICTION**

25 1. Defendant GOOGLE, LLC ("Defendant") is a limited liability company with its  
26 principal place of business at 1600 Amphitheatre Parkway, Mountainview, California. Google,  
27 LLC is a subsidiary of Alphabet, Inc., which is a public company. Defendant was erroneously  
28 sued as GOOGLE, INC. in the original complaint initiating this action. GOOGLE, LLC has

1 appeared in this action.

2 2. Plaintiff SATRAJIT CHATTERJEE (“Plaintiff” or “Dr. Chatterjee”) is a natural  
3 person who resides in Palo Alto, California.

4 3. Venue and jurisdiction are proper because the majority of the events giving rise to  
5 this action took place in Santa Clara County; Defendant was doing business in Santa Clara  
6 County; Plaintiff’s employment was entered into in Santa Clara County; Plaintiff worked for  
7 Defendant in Santa Clara County; the damages sought exceed the jurisdictional minimum of this  
8 Court; and because the majority of witnesses and events occurred in Santa Clara County.

9 **STATEMENT OF FACTS**

10 4. Prior to becoming employed at Google, Plaintiff obtained a Ph.D. in Computer  
11 Science from the University of California, Berkeley, specializing in electronic design automation  
12 for chip design. He then worked in the semiconductor industry (Intel) and in the financial services  
13 industry. Dr. Chatterjee also developed expertise in machine learning.

14 5. Due to Dr. Chatterjee’s training and experience, Google repeatedly tried to recruit  
15 him. Google made an offer of employment to Dr. Chatterjee in 2010 that he declined. From 2011  
16 to 2018, Google recruiters continued to contact him at least once a year.

17 6. In or about June 2018, Google established its principles for artificial intelligence  
18 (“AI Principles”), which are publicly available at <https://ai.google/principles/>.<sup>1</sup> In these AI  
19 Principles, Google promised the public, shareholders, competitors, and actual or potential  
20 business partners that it would “Uphold high standards of scientific excellence.” “Technological  
21 innovation is rooted in the scientific method and a commitment to open inquiry, intellectual rigor,  
22 integrity, and collaboration. AI tools have the potential to unlock new realms of scientific research  
23 and knowledge in critical domains like biology, chemistry, medicine, and environmental sciences.  
24 We aspire to high standards of scientific excellence as we work to progress AI development.”

25 7. In a blog post<sup>2</sup> on June 7, 2018, Alphabet, Inc. and Google CEO Sundar Pichai  
26

27 <sup>1</sup> Plaintiff does **not** allege that the AI Principles (and Defendant’s failure to abide by them) constituted an  
28 adverse employment action.

<sup>2</sup> Plaintiff does **not** allege that the blog post (and Defendant’s failure to abide by it) constituted an adverse  
employment action.

1 wrote that the AI Principles “are not theoretical concepts; they are concrete standards that will  
2 actively govern our research and product development and will impact our business decisions.”

3 8. Moreover, Google promised the public, shareholders, competitors, and actual or  
4 potential business partners in its Code of Conduct “that everything we do in connection with our  
5 work at Google will be, and should be, measured against the highest possible standards of ethical  
6 business conduct” since “[o]ur commitment to the highest standards helps us hire great people.”<sup>3</sup>  
7 Reinforcing that this was a *promise* to shareholders, the Conduct of Conduct was (and still is as  
8 of the date of this First Amended Complaint) published on the Alphabet Investor Relations  
9 website. See <https://abc.xyz/investor/other/google-code-of-conduct/>.

10 9. In the Code of Conduct, Alphabet promised its actual and potential shareholders,  
11 “Google aspires to be a different kind of company. It’s impossible to spell out every possible  
12 ethical scenario we might face. Instead, we rely on one another’s good judgment to uphold a high  
13 standard of integrity for ourselves and our company. We expect all Googlers to be guided by both  
14 the letter and the spirit of this Code. And remember... don’t be evil, and if you see something that  
15 you think isn’t right – speak up!”

16 10. Dr. Chatterjee became employed by Google on or about September 23, 2018. He  
17 was hired into Google’s “Research” division as a “Senior Engineering Manager”, which is a Level  
18 7 position.

19 11. When Dr. Chatterjee was first hired at Google, Tomas Izo was his supervisor.  
20 Plaintiff subsequently joined Anand Babu’s team called “Kernel”, which was also in the Research  
21 Division. Plaintiff began working in Kernel in or about November 2019.

22 12. Babu was Plaintiff’s direct supervisor until Babu left Google in or about April  
23 2021, at which time Senior Director Rahul Sukthankar became Plaintiff’s direct supervisor.  
24 Sukthankar reported to Vice President Jay Yagnik, who reported directly to Jeff Dean, Google’s  
25 Vice President of Research. Dean reported directly to CEO Sundar Pichai.

26 13. Google’s formal evaluations of Dr. Chatterjee stated that he maintained the  
27

28 <sup>3</sup> Plaintiff does **not** allege that the publication of the Code of Conduct or Defendant’s failure to abide by it  
constituted adverse employment actions.



1 “perfect balance” between “brilliant technical contributor and a leader to other people,” that he  
2 was “very considerate, empathetic, and approachable as a people manager”, and made “significant  
3 contributions” to DEI (Diversity Equity Inclusion) in Yagnik’s DEI Accountability Working  
4 Group.

5 14. The lowest evaluation that Dr. Chatterjee received as a manager while employed  
6 at Google was 91% favorable.

7 15. At all times during his employment, Dr. Chatterjee received “meets” or “exceeds”  
8 expectations in his performance reviews.

9 16. Plaintiff alleges, based upon information and belief, that at all relevant times  
10 during his employment, Google considered Dr. Chatterjee to be an excellent employee.

11 **Dr. Chatterjee’s Involvement in Project “Circuit Training” aka “Morpheus”**

12 17. On the Kernel team, a core part of Dr. Chatterjee’s duties was to evaluate the  
13 potential commercial use of Google’s “Circuit Training” research project, otherwise known as  
14 project “Morpheus.”

15 18. Google’s “Circuit Training” research project involved using “Deep Reinforcement  
16 Learning” methods (“DRL-CT”) to improve chip placement. There are many other methods for  
17 chip placement including “mixed size placement” methods and methods based on “simulated  
18 annealing.” If DRL-CT were superior to these methods, it would have significant potential  
19 commercial value and help Google’s Cloud division establish a competitive advantage over  
20 competitors such as Amazon Web Services and Microsoft Azure and among customers in the  
21 semiconductor and electronic design automation industries.

22 19. To commercialize Google’s DRL-CT methods for chip placement by partners and  
23 third parties, Google needed to validate DRL-CT’s purported superiority over competing methods  
24 for chip placement.

25 20. Plaintiff, one of his direct reports on the Kernel team, and other Google employees  
26 were tasked with running experiments to evaluate DRL-CT against competing methods for chip  
27 placement. The goal of these experiments was to validate DRL-CT’s superiority over competing  
28 methods. However, the experiments ran by Kernel did not show that DRL-CT outperformed other

1 methods.

2 21. On or about April 22, 2020, Google released a paper regarding DRL-CT titled  
3 “Chip Placement with Deep Reinforcement Learning” (hereinafter the “arXiv” paper).<sup>4</sup> Dean was  
4 the most senior employee listed as an author in the paper.

5 22. In the abstract to the paper, Google boasts “we show that, in under 6 hours, our  
6 method can generate placements that are superhuman or comparable on modern accelerator  
7 netlists, whereas existing baselines require human experts in the loop and take several weeks.”  
8 However, the ArXiv paper did not include any comparisons on public or externally reproducible  
9 benchmarks, commercially available tools, or other methods of placement such as simulated  
10 annealing or “mixed-size” placement.

11 23. Prior to the arXiv paper, Dr. Chatterjee had suspicions about the results of the  
12 work being performed by the Morpheus team, which was boasting that DRL-CT was besting  
13 commercial tools in experiments. For example, a member of the Morpheus team had privately  
14 told Dr. Chatterjee in early 2020 that simulated annealing, a classical method for placement, was  
15 beating DRL-CT, but the lead researchers on the team, Anna Goldie and Azalia Mirhoseini, did  
16 not want to acknowledge that. (Plaintiff alleges, based upon information and belief, that simulated  
17 annealing was in fact beating DRL-CT in experiments as of early 2020 and Goldie and Mirhoseini  
18 refused to acknowledge such.) But at that point in time in early 2020, Dr. Chatterjee had not yet  
19 formed the belief that Google was violating the law.

20 24. In the course of the summer of 2020, the Kernel team conducted more  
21 experiments. The results of these experiments were not consistent with the claim of “superhuman”  
22 superiority in the arXiv paper. Dr. Chatterjee gradually formed the belief that the core claims  
23 made in the arXiv were false and fraudulent, in violation of state and/or federal statutes. Dr.  
24 Chatterjee believed that the core claims in the ArXiv paper were fraudulent on at least three levels.  
25 **First**, Google and a third party electronic design automation company, “Company S”<sup>5</sup>, were  
26 discussing a potential \$120 million cloud computing deal. Dr. Chatterjee was concerned that the

27 \_\_\_\_\_  
28 <sup>4</sup> Plaintiff does **not** allege that the arXiv paper or any fraudulent representations or omissions contained in  
it constituted an adverse employment action.

<sup>5</sup> A pseudonym is used in place of the company’s real name throughout this First Amended Complaint.

claims in the arXiv paper could fraudulently induce Company S to reach a deal with Google out of fear that it would be at a severe competitive disadvantage without Google’s supposedly revolutionary DRL-CT technology. **Second**, Google is part of one of the most valuable and prominent companies in the world, Alphabet, Inc. The scientific community, competitors, and investors all pay careful attention to Google’s research and development. Particularly, advanced chip design capability would be a strong competitive advantage for Google in reducing its infrastructure costs versus other cloud providers such as Amazon AWS and Microsoft Azure and in the competitiveness of its cellphone and other consumer products versus Apple. Dr. Chatterjee was concerned that overstating DRL-CT could fraudulently influence Alphabet’s stock price in violation of securities laws and federal and state laws criminalizing fraud. (This theory of fraud is commonly referred to as fraud-on-the-market theory.) **Third**, the arXiv paper also broke Google’s promises to shareholders contained in its AI Principles and Code of Conduct because the Morpheus team was using a deeply flawed experimental protocol that was not clearly disclosed in the arXiv paper. Dr. Chatterjee, who is not a lawyer and does not have a law degree, reasonably and in good faith believed that these broken promises to shareholders violated securities laws and federal and state laws criminalizing fraud.<sup>6</sup>

**Dr. Chatterjee Blows The Whistle On Fraudulent Claims In The arXiv Paper**

25. In the summer and fall of 2020, Dr. Chatterjee worked internally within Google to attempt to cure Google’s fraud by seeking to publish data<sup>7</sup> that provided a more complete picture. In the course of so doing (and as will be described in more detail below), Dr. Chatterjee disclosed information that he had reasonable cause to believe disclosed violations of or noncompliance with state and federal statutes to persons with authority over him and persons with authority to investigate, discover, or correct violations or noncompliance of state and federal statutes (hereinafter persons with such authority are referred to as “superiors” in the plural or “superior”

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<sup>6</sup> Relevant state and federal statutes include, but are not limited to: Cal. Corp. Code § 25401 (securities fraud); Cal. Penal Code § 484 (deceit or fraud); Cal. Penal Code § 532 (theft by false pretenses); Cal. Penal Code §§ 182-185 (conspiracy); 8 U.S.C. § 1341 (mail fraud); 18 U.S.C. § 1343 (wire fraud); 8 U.S.C. § 1348 (securities fraud); 18 U.S.C. § 1349 (attempt or conspiracy).

<sup>7</sup> Plaintiff does **not** allege that Google’s refusal to publish any of his papers or the Kernel team’s findings somehow constituted an adverse employment action.

1 in the singular).

2 26. As will be described in more detail, Dr. Chatterjee also disclosed to superiors  
3 information regarding the retaliation that his subordinates suffered for attempting to cure the  
4 fraudulent statements contained in the arXiv paper and/or refusing to participate in the fraud.  
5 These disclosures were also legally protected because Dr. Chatterjee had reasonable cause to  
6 believe that the retaliation these subordinates suffered violated state and federal whistleblower  
7 protection laws.

8 27. In or about the summer of 2020, Dr. Chatterjee and the Kernel team internally  
9 published a slide deck containing the team's findings titled, "Takeaways and Notes on the Auto-  
10 placer Benchmarking Study" (the "Takeaways deck"). (Dr. Chatterjee later provided a copy of  
11 the Takeaways deck to Dean, who, Plaintiff alleges, based upon information and belief, was a  
12 person with authority over him and a person with authority to investigate, discover, or correct  
13 violations of state and federal law. Plaintiff alleges, based upon information and belief, that Babu  
14 also provided the Takeaways deck to Dean.)

15 28. The Takeaways deck summarized the results of the Kernel team's experiments,  
16 which were contrary to Google's claims in the arXiv paper. The Takeaways deck concluded,  
17 "Modern commercial macro auto-placers such as Cadence CMP and [product from Company S]  
18 are competitive with Morpheus (and can beat manual floorplans in cases). [¶] This makes it more  
19 challenging to justify build-vs-buy of Morpheus beyond a research tool."

20 29. The Takeaways deck recommended that Google "communicate to [Company S]  
21 that their tool is competitive with Morpheus and others that we have tried. [¶] Therefore, we are  
22 deciding not to pursue productionalization with them at this time, but may revisit in the future as  
23 the research evolves."

24 30. The Takeaways deck noted several methodological flaws with the Morpheus  
25 studies to date, which Google has never publicly disclosed (and were not disclosed in a subsequent  
26 paper in the journal *Nature*). For example, two of the tools that DRL-CT was compared against,  
27 from Company S and Cadence, were not installed or optimized by the respective vendors, which  
28 is inconsistent with industry practice. More than a third of Cadence CMP flows were not able to

complete, i.e., failed. Rather than investigate the issue further (which may have revealed, for example, that the tool was not properly installed), the Morpheus team simply concluded that DRL-CT beat Cadence CMP in that run.

31. Another methodological flaw exposed in the Takeaways deck (a flaw that Google has never publicly disclosed, including in the later *Nature* paper) was that the Morpheus team used default configurations for the Cadence and Company S tools. However, the Morpheus team extensively customized the algorithms, cost functions, post-processing, and hyper parameters of Morpheus for each design. (At best, these customizations unintentionally biased the experiments in Google’s favor. At worst, the customizations were a deliberate effort to rig the experiments in Google’s favor. Either way, the customizations were not clearly disclosed and the authors knew or should have known this was a material omission that created a misleading impression to business partners and actual or potential shareholders.)

32. Correcting for the above (and other) methodological flaws, the experiments by the Kernel team found the results for DRL-CT were decidedly mixed – a far cry from “superhuman” or revolutionary.

33. By publishing the Takeaways deck internally to Dean and other superiors, Dr. Chatterjee disclosed information which he had reasonable cause to believe disclosed a violation of state and federal law because it undermined the core claims in the arXiv paper, as explained earlier.

34. Furthermore, by publishing the Takeaways deck (which recommended informing Company S that its tool was competitive with Morpheus, to avoid defrauding Company S), Dr. Chatterjee refused to engage in conduct that would have resulted in a violation of a state or federal statute.

35. Plaintiff alleges, based upon information and belief, that Google perceived the Takeaways deck as Dr. Chatterjee refusing to engage in conduct that would result in violations of a state or federal statute.

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1           36. Dr. Chatterjee’s belief that Google was defrauding (or attempting to defraud)  
2 shareholders and Company S was bolstered by emails exchanged between two of the lead  
3 researchers on the Morpheus team, Goldie and Mirhoseini, and Dr. Chatterjee’s supervisor at that  
4 time, Babu. The emails, which Babu shared with Chatterjee in September 2020, show in  
5 unmistakable terms that Goldie and Mirhoseini were aware that 1) they were overstating DRL-  
6 CT and 2) deliberately withholding material information from Company S to induce it to sign a  
7 cloud computing deal.

8           37. In the emails, Babu, Goldie, and Mirhoseini discussed a request by Company S for  
9 data from the Morpheus experiments. At 5:59 p.m. on September 1, 2020, Babu wrote, “Two  
10 things that are important for us to make clear are (a) what we have is not yet a universal win  
11 across blocks (i.e. [Company S]+cdn got almost as many 1<sup>st</sup> place wins as morpheus) – and (b)  
12 that there’s still work to do on generalization v. typical EDA productization.”

13           38. At 6:28 p.m. that same day, Goldie responded (with emphasis added), “We don’t  
14 actually have evidence that Morpheus does or does not generalize beyond [blocks from Google’s  
15 machine learning accelerators], so it seems safest not to make claims either way, since our goal  
16 is to build/maintain trust with [Company S]. I thought your original statement (“overall Morpheus  
17 compared favorably to [a placement tool from Company S]”) seemed reasonable, so maybe we  
18 could just stick with that? **If we say that we do not wish to focus on productionizing Morpheus**  
19 **at this point, [Company S] will naturally assume that Morpheus doesn’t compare \*that\***  
20 **favorably, so maybe that’s enough to close out this thread. :)**”

21           39. At 6:52 p.m., that same day, Babu responded, “Stepping back, one important thing  
22 to keep in mind is that [Company S] (and others in the industry) see sometimes hyped press  
23 coverage about our research and then extrapolate. So often their starting point is ‘those folks at  
24 google have figured out the recipe to disrupt our entire Industry and they are holding it back for  
25 their own gain’. So they are actually naturally inclined to assume that we have the crown jewels  
26 and we're holding them back for some reason.” (This statement, in particular, bolstered Dr.  
27 Chatterjee’s concerns about fraud toward shareholders and Company S.)

28 //

1           40.     Babu later stated in the same email, “So as one example – if we haven't yet proved  
2 that Morpheus can generalize (totally understandable), we should be clear about that – since  
3 ultimately that is a critical precursor for an EDA company that has to support 1000s of chip starts  
4 across all kinds of customer workflows, etc.”

5           41.     Babu subsequently forwarded the thread to Dr. Chatterjee for his input regarding  
6 Goldie’s suggested response to [Company S]. At 10:39 p.m., on September 1, 2020, Dr.  
7 Chatterjee wrote (with emphasis in the original), “I worry that this says that all is well with  
8 Morpheus and we should move to Phase 2 of the collaboration where now we get additional  
9 designs from [Company S] (to test generalization) and do the comparisons on that broader set. So  
10 I totally wouldn't send this since it sends the exact opposite message. We **have** to convey that  
11 Phase 1 did not pass the gating condition to move to Phase 2.”

12           42.     Later in the same email, Chatterjee wrote, “Alternatively, earlier she said ‘they  
13 will infer that Morpheus is not that much better’, so how about we say that explicitly (i.e. back to  
14 some version of Morpheus not having an overwhelming advantage)?”

15           43.     In writing the aforementioned email of September 1, 2020, Dr. Chatterjee  
16 disclosed information to a superior which he had reasonable cause to believe disclosed a violation  
17 of state or federal law, attempted fraud of [Company S]. The email also constituted a refusal to  
18 participate in acts that would have resulted in a violation of state and federal law.

19           44.     In a subsequent email in the thread between Chatterjee and Babu at 11:01 p.m., on  
20 September 1, 2020, Babu questioned why the ArXiv paper did not include data comparing  
21 Morpheus DRL-CT with simulated annealing and shared his concern that the data was being  
22 withheld from Company S so that Google could close a cloud computing deal. “I skimmed the  
23 RL vs SA doc. Do you recall what their stated reason was for not including this in their paper?  
24 On sharing with [Company S] (assuming Richard signs off), what’s the upside? Could this  
25 somehow strengthen our partnership in cloud? Does this answer meaningful research questions  
26 for them?” Babu’s concerns further bolstered Dr. Chatterjee’s concern that Google was violating  
27 state and federal law by attempting to defraud Company S.

28 //

1           45. Dr. Chatterjee responded to Babu at 11:26 p.m., on September 1, 2020. The email  
2 stated, in relevant part:

3           Yes, generalization is key but we could be making two statements (conveying  
4 two very different impressions) regarding generalization:

5           (a) Our generalization tests so far have been successful ("we always beat [a  
6 placement tool from Company S] on whatever new thing we throw at it"), but  
7 we don't know what the next 1000 cases will bring.

8           (b) Our generalization so far has been lacking ("we know we don't do as well as  
9 [a placement tool from Company S] on some designs").

10           A2<sup>[8]</sup> want us to say (a) but conveying that to [Company S] means Phase 1 was  
11 successful, and it's time to move on to Phase 2 with the big library of [Company  
12 S] designs.

13           Conveying (b) means Phase 1 was not successful and so no point moving on to  
14 Phase 2.

15           Therefore it is important that we convey (b) which is reality and not (a).

16           46. In writing the aforementioned email, Dr. Chatterjee disclosed information to a  
17 superior which he had reasonable cause to believe disclosed a violation of a state or federal statute,  
18 Google's attempt to defraud Company S. This email also constituted a refusal by Dr. Chatterjee  
19 to participate in acts that would have resulted in a violation of a state or federal statute.

20           47. The next day, September 2, 2020, Dr. Chatterjee emailed Babu:

21           Thinking about this fresh, I think we need to reset with A2 here on the BS and  
22 convey straightforwardly what we learnt from the study. I really like the direction  
23 you started yesterday:

24           From our study we found that:

25           (a) Morpheus won some blocks and [a placement tool from Company S]  
26 won some blocks.

27           (b) On the blocks Morpheus won, [a placement tool from Company S]  
28 results were competitive.

          As a result we do not think that the current state of RL has sufficient  
improvement over [a placement tool from Company S] that it is worth

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<sup>8</sup> A2 is an acronym that refers to Anna Goldie and Azalia Mirhoseini.

investing more in commercialization (given all the complexities, additional features, etc.). Instead we are focussing on basic research.

This study was not so much about generalization, so we can just not talk about it, and keep our assessment simple and in line with the results.

WDYT?

Sat

48. In writing the aforementioned email, Dr. Chatterjee disclosed information to a superior which he had reasonable cause to believe disclosed a violation of state or federal statute. This email also constituted a refusal by Dr. Chatterjee to participate in acts that would have resulted in a violation of a state or federal statute.

49. In or about October 2020, Plaintiff expressly raised concerns orally to Babu, Sukthankar, and Richard Ho, a principal engineer, that Google **could be charged with fraud** if it continued to represent DRL-CT as being superior to competing methods for chip placement to a third party or partner for commercial agreements. By expressly using the word fraud, Dr. Chatterjee disclosed information to superiors which he had reasonable cause to believe disclosed a violation of a state or federal statute.

50. On October 13, 2020, Dr. Chatterjee sent Dean, Goldie, Azalia, Babu, and others a summary of the results from the Kernel team's experiments comparing reinforcement learning with simulated annealing, a classical approach to placement optimization within the Morpheus system. These ablation experiments were designed to correct for confounding factors in previous studies, which had (either intentionally or unintentionally) biased the results in Google's favor. Dr. Chatterjee, in more diplomatic terms, explained the methodological differences employed by Kernel. Dr. Chatterjee then wrote:

Our main findings are:

A. SA seems to reliably outperform RL, GRL and Random. Random does the worst but provides a natural scale to judge how well the other algorithms are doing.

B. GRL does better than RL (though note that we did not control for memorization/overfitting and simple regurgitation of optimal solutions computed during training; we have some ideas on how to do that but that would be future work).

1           51.     The October 13, 2020 email also included a link to the full report.

2           52.     In writing the aforementioned email and linking to the report, Dr. Chatterjee  
3 disclosed information to superiors which he had reasonable cause to believe disclosed a violation  
4 of a state or federal statute, i.e. that the core claims of ArXiv were fraudulent for the reasons  
5 discussed earlier in this Complaint.

6           53.     Despite knowledge of data discussed earlier which undermined the core claims of  
7 the arXiv paper, in November 2020, Google submitted a version of the arXiv paper on DRL-CT  
8 to the prestigious journal *Nature*. Plaintiff alleges, based upon information and belief, that Google  
9 did not share the data from the Kernel team with the reviewers at *Nature*. Nor did Google disclose  
10 to *Nature* the sharp internal disagreement within Google about the claims being made by the  
11 Morpheus team. The contrary data was not disclosed in the paper that was ultimately published.<sup>9</sup>

12           54.     Google did not submit the *Nature* paper through its customary internal publication  
13 review process (“pubapprove”) before submitting it to *Nature*.<sup>10</sup>

14           55.     Dr. Chatterjee was not aware of the November 2020 submission of the *Nature*  
15 paper at the time. He did not learn about the paper until it was published on June 9, 2021.

16           56.     In November 2020, Dr. Chatterjee distributed a memorandum to Sukthankar,  
17 Babu, Vice President of Product Management Eli Collins, Vice President of Google Brain Megan  
18 Kacholia, Senior Director of Google Brain Samy Bengio, and Quoc Le, the direct supervisor of  
19 Goldie and Mirhoseini.

20           57.     The memorandum stated at its outset, “There have been concerns raised by several  
21 members of the Morpheus team over the course of this year that the core claim of Morpheus (that  
22 RL outperforms existing algorithms) is simply not true.”

23 //

24 //

25 \_\_\_\_\_  
26 <sup>9</sup> Plaintiff does **not** allege that Google’s decision to publish the *Nature* paper and subsequent refusal to  
27 retract or cure the fraudulent statements contained in it somehow constituted an adverse employment  
28 action. Likewise, Plaintiff does not allege that any of Google’s representations or omissions to reviewers  
at *Nature* constituted an adverse employment action.

<sup>10</sup> Plaintiff does **not** allege that Google’s failure to follow its customary internal publication review process  
somehow constituted an adverse employment action.



1           58.     The memorandum notes, “attempts to share these concerns directly with Anna and  
2 Azalia have not succeeded, and in fact, have been met with extreme hostility (though perhaps less  
3 so on Azalia’s part than on Anna’s). Rather than being open to the issues being pointed out, and  
4 working constructively to address them, the concerns are dismissed by a combination of (a)  
5 turning the team member into an outsider, (b) engaging in bad-faith discussions to block progress  
6 in endless back-and-forth (often on tangential issues), and (c) by escalation to senior Brain  
7 leadership. Note that all 3 techniques are being employed at present.”

8           59.     The memorandum continued, “(c) is particularly concerning due to Jeff’s  
9 involvement. He is Morpheus’ most public-facing champion, his perceived involvement and  
10 support for the project, and perceived close personal relationship with Anna and Azalia serves as  
11 an effective deterrent for most people on the project who choose to remain quiet rather than risk  
12 possible retaliation.”

13           60.     The memorandum noted that if the nature of the internal concerns surrounding  
14 Morpheus became public, it could be damaging to Google’s brand. “This puts us in a difficult  
15 position. So rather than specifically allege wrongdoing on what has gone before, and ask for an  
16 investigation into scientific misconduct (a likely protracted process with increased chances of a  
17 leak), we decided to document our findings in a constructive manner that would invite  
18 constructive dialog.”

19           61.     Dr. Chatterjee noted that the findings of the Takeaways deck were in “direct  
20 contradiction with the conclusions put forth by the Morpheus team (and presented by Jeff [Dean]  
21 recently which mis-represent our findings[.]”

22           62.     The memorandum showed a screenshot from a recent slideshow presentation  
23 delivered by Dean. The slide for Dean’s presentation states, “Reinforcement learning approach  
24 generates superhuman macro placements in several hours (decreasing)” and “Outperforms  
25 academic state-of-the-art and strongest commercial auto macro placers[.]”

26           63.     Immediately below the screenshot, the memorandum continues, “To be clear, we  
27 do NOT have evidence to believe that RL outperforms academic state-of-art and strongest  
28 commercial macro placers. The comparisons for the latter were done so poorly that in many cases

1 the commercial tool failed to run due to installation issues. In other cases, Morpheus only  
2 succeeded in after extensive per-benchmark finetuning of cost functions and algorithms by its  
3 core development team, i.e., extreme amounts of cherry picking, and even then, it only ‘won’ in  
4 half the cases.”

5 64. The memorandum also notes that Google was in discussions with Company S  
6 regarding a large cloud deal but the relationship had become “somewhat rocky” due to Company  
7 S’s “reasonable questions regarding Morpheus vis-a-vis their own offerings, and our avoidance  
8 of clear and direct answers to them. This has been compounded by our public statements and hype  
9 on Morpheus (which, as noted above, we do not think are well-substantiated). At the present  
10 moment, the relationship is on a much stronger footing as a result of much deeper technical  
11 conversations and honesty on both sides, but we want to ensure that this is not jeopardized by ill-  
12 conceived attempts to productize Morpheus either directly (through Cloud) or with a competitor  
13 to [Company S].”

14 65. In writing the November 2020 memorandum, Dr. Chatterjee disclosed information  
15 to superiors which he had reasonable cause to believe disclosed violations of a state or federal  
16 statute as described earlier. Moreover, Dr. Chatterjee’s email constituted a refusal to engage in  
17 acts that would result in violations of a state or federal statute.

18 66. The memorandum spurred a lengthy email discussion that lasted for much of  
19 November 2020. Five months later, Google later unlawfully disciplined Dr. Chatterjee for the  
20 legally protected disclosures contained in the memorandum and email thread. The legally  
21 protected disclosures of information in the email thread include (with emphasis in the original):

- 22 • “We believe that based on the results Morpheus has generated, the  
23 representations that Anna and Azalia are making about Morpheus are  
24 untrue. **Since selling those representations to [Company S] would be**  
25 **highly misleading, we decided to halt further productization efforts**  
26 **with [Company S].”**
- 27 • Commenting on Dean’s slide that claimed Morpheus outperformed  
28 academic state-of-the art and the strongest commercial auto macro placers,

Dr. Chatterjee stated, **“The reality: Morpheus is nowhere close to outperforming a commercial macro placer.** On each benchmark that Morpheus won, it did so after extensive cherry picking including per-benchmark custom cost functions and algorithms! There are several other problems with the benchmarking process outlined (perhaps too kindly) in the slides above. [¶] **To summarize: Given the evidence we have, for us to represent to [Company S] that we have a breakthrough in Morpheus would be highly misleading, particularly, in the context of on-going negotiations for a 120 MM/5 year Cloud contract that is driven to a large extent by their desire to engage in joint research (based on their perception and our implied consent that we are leaders in applied AI/ML).** [¶] Furthermore, to make things worse, the benchmarking which is used for the false claim above was financed partly by [Company S] through licenses of their tool and associated training sessions as a specific gating step towards productization.”

- “Since there are many senior people on this thread, let us ask ourselves as to how we got here, i.e., we are discussing the possibility of potential fraud with a 3rd party that very likely would have gone through were Kernel not in the picture to prevent it.”

67. In the same email thread, Le, who worked on Morpheus, accused Dr. Chatterjee of undermining, and trying to shut down Morpheus. Bengio accused Dr. Chatterjee of “undermining [colleagues] behind their back[.]”

68. However, Babu, Collins, and Kacholia all defended Dr. Chatterjee. Babu encouraged everyone to focus on the issues and commented, “have observed a tendency from Morpheus TLs to avoid engaging dissenting voices/work. I’ve given azalia@ constructive feedback on this in the past, and going forward suggested they shape the research agenda to be less intertwined with commercial flows (enabling more meaningful research community engagement.) Despite this feedback, the TLs are still pushing to productize Morpheus internally

1 and engage partners externally (neither of which in my view serves the research agenda.)”

2 69. Collins stated, “I’d don’t see ‘cheating’, I see some researchers who are excited  
3 about their early results, perhaps hype them and are operating in environments we endorse  
4 (conferences, Perf) with lots of incentives to do so. I don’t see ‘bullying’, I see a skeptical  
5 researcher rationally worried about the negative consequences of overselling a key partner.”

6 70. Plaintiff alleges, based upon information and belief, that Collins intended to refer  
7 to Dr. Chatterjee when he wrote, “I don’t see ‘bullying’, I see a skeptical researcher rationally  
8 worried about the negative consequences of overselling a key partner.” Plaintiff further alleges,  
9 based upon information and belief, that Collins (and, by extension, Google) therefore believed  
10 that Dr. Chatterjee had reasonable cause to raise the concerns he raised in the memorandum and  
11 email thread. Stated differently, Collins and Google were consciously aware that Dr. Chatterjee  
12 was raising his concerns professionally and in good faith – and yet disciplined and later terminated  
13 him anyway.

14 71. Kacholia responded to Collins above statement by writing, “+1 to all that Eli called  
15 out here[.]”

16 72. Plaintiff alleges, based upon information and belief, that Kacholia believed that  
17 Dr. Chatterjee was not bullying anyone and that Dr. Chatterjee was a skeptical researcher  
18 rationally worried about the negative consequences of overselling a key partner.

19 73. The email thread with Babu, Sukthankar, Le, Bengio, Collins, and Kacholia  
20 concluded with a suggestion that a “reconciliation” study be undertaken to “unify the different  
21 perspectives on the technical side” between the Morpheus and the Kernel teams.

22 74. In or about March 2021, the Kernel team internally published the results of the  
23 "reconciliation" study. The study observed that:

- 24 • "SA [simulated annealing] and RL [reinforcement learning] reach similar optimal  
25 values on most blocks. On remaining ‘crowded’ blocks where macros have high  
26 utilization SA is better."
- 27 • "SA reached optimal faster than RL and did not use TPUs."

28 //

1           75. Morpheus team member Joe Jiang independently reviewed and reproduced the  
2 experiments in the study. He stated that his “[r]eproduced results are consistent with [the] study’s  
3 observation[.]”

4           76. The “reconciliation” study and Joe Jiang’s review further bolstered Dr Chatterjee’s  
5 belief that the arXiv paper was fraudulent and in violation of a state or federal statute.

6                   **Dr. Chatterjee’s Whistleblowing Results in Illegal Written Discipline**

7           77. In or about February 2021, Google’s Employee Relations contacted Dr. Chatterjee.

8           78. Plaintiff alleges, based upon information and belief, that Employee Relations  
9 became involved due to a complaint by either or both of Goldie and Mirhoseini.

10          79. Plaintiff alleges, based upon information and belief, that Dr. Chatterjee’s protected  
11 disclosures of information as described herein were a contributing factor in the complaint being  
12 made to Employee Relations.

13          80. Plaintiff alleges, based upon information and belief, that Dr. Chatterjee’s refusal  
14 to engage in acts that would result in a violation of a state or federal statute as described herein  
15 was a contributing factor in the complaint being made to Employee Relations.

16          81. Dr. Chatterjee shared the memorandum and email thread with Courtney Laster in  
17 Employee Relations, which in itself was a legally protected disclosure of information which Dr.  
18 Chatterjee had reasonable cause to believe disclosed a violation of a state or federal statute.  
19 Plaintiff alleges, based upon information and belief, that Laster was a superior.

20          82. In the email forwarding the thread to Laster on February 10, 2021, Dr. Chatterjee  
21 wrote (with emphasis added):

22               As I mentioned, I believe this is a bad faith complaint caused by our refusal to  
23 suppress negative results and/or by a TpGM on this project who had performance  
24 problems (and was closely involved in the data evaluation process that is under  
25 suspicion) and was asked to find a new role.

26               Since there have been long running concerns about **potential fraud** in Morpheus,  
27 certainly conversations with folks in and around the team have centered around  
28 discussions of honesty/fraud/scientific misconduct in an attempt to understand what  
is going on. Please see this background document (shared with leadership) that  
outlined the concerns I have heard from people and what I personally experienced.  
I had forgotten but rereading it now, I see that I had captured the concern regarding



perceived favoritism in this document (that you brought up).

Here is the email chain based on this document. **The discussion also touches on potential fraud (at a time we were in delicate negotiations with a 3P)** and our opinion as to whether further investment in Morpheus is justified or not.

Please do keep me updated, and let me know how I can help.

83. In writing the above statements, Dr. Chatterjee disclosed information to superiors which he had reasonable cause to believe disclosed violations of a state or federal statute, including the three levels of fraud discussed earlier and whistleblower retaliation.

84. On April 15, 2021, Google violated California Labor Code sections 1102.5(b) and (c) by disciplining Dr. Chatterjee for his legally protected activity in a “written warning”.

85. The written warning acknowledges that Google was punishing Dr. Chatterjee for his protected activity. The warning was delivered by Eli Collins – the same Collins who defended Dr. Chatterjee in the email thread that Google was now labeling as unprofessional to justify its illegal discipline. The warning stated in pertinent part, “HR received a complaint about your conduct and during the investigation, it was revealed that you verbally raised concerns about another team’s research in an unprofessional tone and manner, which included making unbelievable claims of **fraud** and academic misconduct . . .” (Emphasis added.)

86. The warning also falsely accused Dr. Chatterjee of calling the Morpheus project a “train wreck” and “tire fire.”

87. The warning also falsely accused Dr. Chatterjee of “admitting” that he did not have proof that Googlers engaged in fraud or academic misconduct. In reality, Dr. Chatterjee had extensive evidence of such.

88. The warning continues, “This behavior was inappropriate and in possible violation of Google’s conduct policies.” It later states, “You have demonstrated poor judgement in this matter, all of which causes me concern with respect to your performance. Thus, your Perf rating will be negatively impacted, your compensation will align with that negatively impacted rating and you will be ineligible for Promo this upcoming 2021 YE cycle.” Thus, by Google’s own admission, the written warning materially and negatively impacted Dr. Chatterjee’s terms, privileges, and conditions of employment, constituting an adverse employment action.

1           89.     The written warning also violated California Labor Code section 1102.5(a), which  
2 states “An employer [. . .] shall not make, adopt, or enforce any rule, regulation, or policy  
3 preventing an employee from disclosing information to [. . .] to a person with authority over the  
4 employee, or to another employee who has authority to investigate, discover, or correct the  
5 violation or noncompliance, if the employee has reasonable cause to believe that the information  
6 discloses a violation of state or federal statute, or a violation of or noncompliance with a local,  
7 state, or federal rule or regulation, regardless of whether disclosing the information is part of the  
8 employee’s job duties.” The written warning was a rule prohibiting Dr. Chatterjee from engaging  
9 in legally protected activity – an unlawful rule that Google would (unlawfully) use to justify  
10 terminating Dr. Chatterjee a year later.

11           90.     Plaintiff alleges, based upon information and belief, that Google acted with malice,  
12 oppression, and fraud and/or ratified and approved the malice, oppression, and fraud of the  
13 complainants when it punished a whistleblower in conscious disregard of his rights.

14           91.     During the cursory “investigation” of the complaint, Employee Relations never  
15 asked Dr. Chatterjee whether he used the terms “tire fire” or “train wreck.” Nor did Google ask  
16 Dr. Chatterjee to identify witnesses who could corroborate that he did not use those terms. (Dr.  
17 Chatterjee did not use those terms in either the email thread or the memorandum.) In fact,  
18 Employee Relations never interviewed the person who allegedly witnessed these comments or do  
19 anything to assess this person’s credibility and motives. Employee Relations disciplined Dr.  
20 Chatterjee based upon hearsay.

21           92.     Moreover, Employee Relations did not ask Dr. Chatterjee about the substance of  
22 his fraud concerns.

23           93.     Plaintiff alleges, based upon information and belief, that the reason Google  
24 conducted a shoddy investigation is because it was not genuinely interested in discovering the  
25 truth. Google was not genuinely interested in curing or correcting Google’s violations of law.  
26 (Indeed, Employee Relations personnel do not have the training, education, or experience to  
27 investigate the scientific merits of the ArXiv paper or the Morpheus team’s research.) Google  
28 simply wanted an excuse to punish a whistleblower. Plaintiff further alleges, based upon

1 information and belief, that an employee using the terms “tire fire” and “train wreck” – which, to  
2 be clear, Dr. Chatterjee did not use to describe Morpheus or the researchers on that team – would  
3 typically result in nothing more than a verbal reprimand, if that. To put it differently, had Dr.  
4 Chatterjee not engaged in legally protected activity by disclosing fraud to superiors, he would not  
5 have received a written warning.

6 94. Plaintiff alleges, based upon information and belief, that Google did not discipline  
7 or reprimand Le and Bengio for their comments in the email thread, which Plaintiff alleges, based  
8 upon information and belief, that Google considered significantly more unprofessional than the  
9 legally protected disclosures made by Dr. Chatterjee.

10 **Google Doubles Down On Its Fraud With The *Nature* Paper**

11 95. On June 9, 2021, Google’s *Nature* paper was published. This paper not only  
12 suppressed the data generated by the Kernel team, *but it also omitted data generated by the*  
13 *Morpheus team* that were contrary to the bold claims in the *Nature* paper.

14 96. These omissions are analogous to a pharmaceutical trial where 11 participants take  
15 an experimental drug and 5 of them suffer adverse reactions. It would be disingenuous for  
16 researchers to ignore the 5 participants who suffered adverse reactions and proclaim that 6 out of  
17 6 participants suffered no adverse reaction. But that is the equivalent of what Google did in the  
18 *Nature* paper.

19 97. The omissions in the *Nature* paper were not only unethical and violated Google’s  
20 AI Principles and Code of Conduct, but Dr. Chatterjee believed, reasonably and in good faith,  
21 they were fraudulent to shareholders and Company S in violation of a state or federal statute. The  
22 fraud in the *Nature* paper was considerably worse due to the prestige of the journal.

23 98. The *Nature* paper captured considerable attention in the industry.

24 99. Plaintiff alleges, based upon information and belief, that the arXiv paper, the  
25 public presentations on Morpheus by Dean and others, and the *Nature* paper resulted in extensive  
26 inbound commercial interest for AI and Cloud partnerships from multiple large semiconductor  
27 and electronic design automation companies.

28 //

100. While the *Nature* paper attracted praise, it also triggered skepticism. One of the reviewers of the *Nature* paper noted in an accompanying commentary that the results “seem magical” but that “[t]he authors’ intention to make their code available is invaluable in this light.” Although at the time Google promised to make the code and data fully available, it never did. As the same reviewer noted in a recent article titled “Assessment of Reinforcement Learning for Macro Placement” that was invited to the 2023 International Symposium on Physical Design, “[e]valuation of Nature and CT has been hampered because neither data nor code in these works is, to date, fully available.” “To date, the bulk of data used by Nature authors has not been released, and key portions of source code remain hidden behind APIs.” Plaintiff alleges, based upon information and belief, that Google has not made the full code and data fully available because doing so would reveal Google’s fraud.

101. Zoubin Ghahramani, VP of Google Brain, and direct report of Dean, tweeted on April 7, 2022, that the work in the *Nature* paper had been “independently replicated” and “open-sourced.”<sup>11</sup> This statement was brazenly false, not just because key components of the code were not open-sourced then (or now) but also because the main results of the *Nature* paper (as described in its Table 1) were based on proprietary designs from Google’s TPU chips, designs that have not been released publicly. Plaintiff alleges, based upon information and belief, that Ghahramani made this false statement to reassure Google’s current and prospective shareholders and partners and customers in the semiconductor and electronic design industries in response to the leak of the Stronger Baselines paper (which will be discussed in more detail later).

102. On June 12, 2021, Yann LeCun, a respected computer scientist who works at Meta, Inc., tweeted, “UPDATE: the rumor on the street is that the comparison with existing tools from commercial EDA houses is not as favorable as the paper claims. [¶] A story to follow.....” (Dr. Chatterjee was not the source of the leak to LeCun.)

103. That same day, June 12, 2021, Research Scientist Amir Yazdanbakhsh emailed Dr. Chatterjee asking to be added back as an author on the report comparing reinforcement learning to simulated annealing so that his contributions would be recognized. Dr. Yazdanbakhsh,

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<sup>11</sup> Plaintiff does **not** allege that Ghahramani’s tweet was an adverse employment action.

1 who had worked on the study, had previously asked for his name to be removed at the request of  
2 his manager, James Laudon, a director in Google Brain. “I am afraid of retaliation from my  
3 managerial chain because the results in this study have potential implications on the claims made  
4 in the recently published nature paper and my manager is an author on the paper (I have separately  
5 filed a complaint about previous retaliation).” Noting that Dr. Chatterjee’s manager at that time  
6 (Senior Director Sukthankar) was supportive at the time, Dr. Yazdanbakhsh asked for protection  
7 from further retaliation. Dr. Yazdanbakhsh wrote, “Please note that since Jeff [Dean] is an author  
8 on this paper, this is a matter of some sensitivity.”

9 104. Per Dr. Yazdanbakhsh’s request, Dr. Chatterjee shared the email with Sukthankar.  
10 Plaintiff alleges based upon information and belief that shortly thereafter Dean was made aware  
11 of Dr. Yazdanbakhsh's (legally protected) email and that Google never investigated Dr.  
12 Yazdanbakhsh's complaint. In fact (as will be seen), Laudon and Google continued to retaliate  
13 against Dr. Yazdanbakhsh, Plaintiff alleges, based upon information and belief.

14 105. Worried that Dean’s actions were further exposing Google to legal and  
15 reputational harm by virtue of the *Nature* paper, Dr. Chatterjee emailed Google CEO (and Dean’s  
16 manager) Sundar Pichai, Sukthankar, and Yagnik on June 13, 2021. By writing this email, Dr.  
17 Chatterjee disclosed information which he had reasonable cause to believe disclosed a violation  
18 of a state or federal statute, the attempt to defraud shareholders and Company S. The email states  
19 (with emphasis in the original):

20 Sundar, Jay, Rahul:

21 (Sundar, I am escalating this to you in order to create a safe space for Jay  
22 and Rahul to operate. Happy to work directly with Jay and Rahul on this.)

23 The situation with the recent Nature paper from Jeff and team is fraught. I  
24 believe Jeffs sudden post (see below) on this 3 week old thread is in response  
25 to <https://twitter.com/ylecun/status/1403731000392306690> in an attempt to  
26 do some damage control, but I worry that it may cause more damage if not  
27 thought through carefully. Yann is not alone - there is significant concern in  
the academic and industrial community about the paper.

28 **The situation is delicate and may devolve rapidly (like in the situation  
with [Name Omitted]). I believe now would be a good time to ask Jeff to**



1 **recuse himself from this affair, before he says or does something that**  
2 **causes us to double down on a bad hand.** I believe Jeff has a significant  
3 conflict of interest here, and he has shown poor judgement in this matter in  
4 the past 18 months. (For example, in January 2020, he shut me down through  
5 my manager at the time Anand Babu when I asked for baselines. He has  
6 repeatedly turned a blind eye to our findings and/or concerns from external  
7 experts that we surfaced to him.)

8 **Note that the comparison study with commercial alternatives that Jeff**  
9 **refers to below has some significant – one may argue, deliberate –**  
10 **limitations that we surfaced to the rest of the team, but we were ignored.**  
11 **It is important to share those caveats along with the study, otherwise**  
12 **incorrect conclusions could be drawn. I hope he does the right thing by**  
13 **sharing it himself, but if not, I would like to ask for safe harbor to post**  
14 **the link myself on that mailing list.**

15 **Furthermore, Anand and I had already shared the gist of our findings**  
16 **with [Company S] (with agreement from the team) at the time this study**  
17 **was done. The study was done in part as a first step toward potential**  
18 **commercialization with [Company S] (and conducted with resources**  
19 **from [Company S]). Since it was done in the context of a large potential**  
20 **Cloud deal, it would have been unethical to imply that we had**  
21 **revolutionary technology when our tests showed otherwise.** (Anand is not  
22 on this thread since he left Google in part due to his dissatisfaction of how  
23 Jeff has handled this.)

24 I was, of course, unaware of the existence of the Nature submission itself  
25 until the publication this week, since they dropped our team members  
26 (Anand and Sungmin) from the list of authors relative to the earlier arXiv  
27 preprint (presumably since our findings were not positive). There is also  
28 reason to believe that the Nature submission did not go through the normal  
pub-approve process.

Last but not least, we have also been prevented from publishing an important  
related result on the matter. I believe both for scientific integrity, and for our  
reputation, we need to respond carefully with all the known facts here instead  
of doubling down on a difficult-to-defend position in a knee-jerk fashion.

Please let me know if you have any questions or suggestions. My cell phone  
is [Omitted] and I am happy to speak at any time.

Thanks  
Sat

//

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106. Dr. Chatterjee never received the safe harbor to post the caveats on the internal mailing list. Yagnik expressly asked him to refrain from posting the caveats.

107. Plaintiff alleges, based upon information and belief, that Dean learned about Dr. Chatterjee's (legally protected) email shortly after it was sent.

108. On June 14, 2021, Dr. Chatterjee emailed Dean based upon a message he sent in an internal Google mailing list.<sup>12</sup> . The email stated in relevant parts with emphasis in the original:

**The study you referenced CANNOT be used to back up the Nature paper (vis-a-vis your statement in the mailing list "comparing the RL algorithm described in our recent Nature paper vs. Google's physical design engineer human experts vs. two commercial tools") for several reasons:**

1. The Nature paper presents only the GRL algorithm. In the study many, many different algorithms were tried to see what gives best results including GRL, RL, with various cost functions and with SA turned on or off. In fact, in the 13 first place victories for Morpheus, there were 8 different variants. Many more may have been tried behind the scenes. This is reflected in the results table itself from the deck that you link to in your post (slide 25):

To put it in compiler terms, the difficulty in building a good optimization pass is to build a pass that works generally on most programs. If you let a large team build different variants of a pass customized to each benchmark program (since there are only 20 programs, even for a team of 5, it is not too difficult), it is unfair to compare with a pass which you run with a couple of default settings that built without looking at any of these benchmarks.

Furthermore, for the GRL results, we do not know what the test/train separation was. The GRL model may have been trained on the block or on near-dups, so I feel uncomfortable signing off on that without knowing more details.

2. The industrial tools were not set up competitively, or even properly. 1/3 of the [redacted] runs failed and the failures were not diagnosed, but [redacted] was marked as having lost those runs. Sungmin being the diligent person he is, noticed this only days before the presentation to you since someone else was in charge of running the [redacted] tool (and had simply written off [redacted] instead of investigating the failures).

[. . .]

<sup>12</sup> Plaintiff does **not** allege that Dean's message or failure to retract the message constituted an adverse employment action.

4. In spite of the loaded deck, Morpheus variants as a group only won 13/20. I think if we had even one [redacted] or [redacted] support engineer just tweaking the knobs (which we were not allowed to do), let alone their development team scrutinizing the benchmarks, and changing cost functions and algorithms accordingly, I think they would have probably have won all the benchmarks. This is even ignoring their commercial vizier-type AI solutions like [redacted] to tweak the knobs automatically.

It would also be unfair to pick the few benchmarks post facto on which GRL did well and imply that that was the entire benchmark set. To avoid any miscommunication, one then has to say that GRL did not do so well on the rest and share that data as well.

109. Dr. Chatterjee's above email described, in unmistakable terms, how the *Nature* paper had cherry-picked data and fraudulently omitted material data – from the Morpheus team's *own studies* – to create the misleading, false impression that Morpheus had dramatically outperformed other tools in experiments. It described how the Morpheus team had extensively customized DRL-CT and variants while failing to properly install comparator tools, effectively – possibly intentionally – rigging the experiments in Google's favor. Viewed in the worst light, the email disclosed blatant attempted fraud on the market and attempted fraud of Company S. Viewed in the best light, the information disclosed a willful and deliberate failure to comply with Google's public promises to shareholders and business partners to conduct research with integrity, which Dr. Chatterjee also reasonably believed constituted fraud. On July 1, 2021, Dr. Chatterjee forwarded his email thread to CEO Pichai.

110. In or about June 2021, Dr. Chatterjee spoke with Yagnik and asked for guidance. Yagnik said he would not get involved and would not be looking into whether the Morpheus team had engaged in misconduct.

111. That same month, in June 2021, Plaintiff, one of his direct reports Dr. Sungmin Bae, Dr. Yazdanbakhsh, and one other Google employee ("Stronger Baselines Team" or the "SB Team") started work on a paper to report the results of their experiments comparing DRL-CT to competing methods for chip placement. For Dr. Chatterjee, one of the purposes of the paper was to cure Google's fraud by publishing more complete data, thereby allowing readers (including Company S, other current and prospective partners and customers in the semiconductor and electronic design industries, shareholders, and potential shareholders) to draw their own

1 conclusions. Dr. Chatterjee was trying to protect Google from both legal and reputational harm  
2 without triggering further retaliation by Google.

3 112. In or around June 2021, external scientists (non-Google employees) became  
4 involved with the SB Team in comparing DRL-CT methods to an academic method (“RePIAce”)  
5 using publicly available benchmarks that have been used to evaluate progress in the academic  
6 literature for nearly two decades.

7 113. The SB Team’s experiments revealed that RePIAce outperformed DRL-CT and  
8 did so using less computer time.

9 114. The SB Team along with the external scientists prepared a paper for external  
10 publication titled “Stronger Baselines for Evaluating Deep Reinforcement Learning in Chip  
11 Design” (hereinafter, “Stronger Baselines” paper).

12 115. The Stronger Baselines paper included the experimental data of comparisons of  
13 DRL-CT with RePIAce and with simulated annealing.

14 116. An older draft of the Stronger Baselines paper was subsequently leaked after Dr.  
15 Chatterjee’s employment ended. Dr. Chatterjee did not leak the paper. He does not know who  
16 did. The draft that leaked, however, is authentic. The data in the Stronger Baselines paper  
17 contributed to Dr. Chatterjee’s belief that the *Nature* paper was fraudulent and in violation of state  
18 and federal law. Pertinent data that contributed to Dr. Chatterjee’s belief include:<sup>13</sup>

- 19 • “We find that RePIAce produces 26% better wirelength [a common  
20 early-stage design metric targeted by placement tools] than RL while  
21 using 5 orders of magnitude [that is, 100,000 times] less computation”
- 22 • “Our main result is that even if RL is pre-trained for 48 hours on the *same*  
23 set of blocks on which it is fine-tuned for a further 6 hours, it is not  
24 enough to beat SA [simulated annealing] running for only 6 hours.”

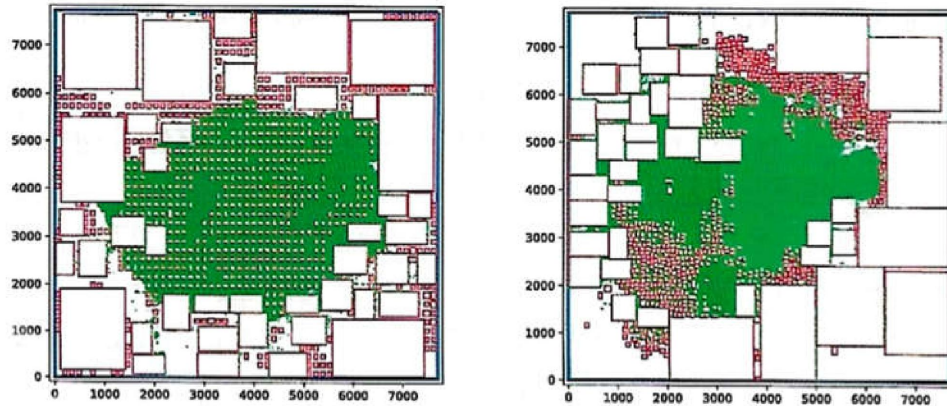
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<sup>13</sup> These excerpts are now in the public domain due to the leak.

117. The Stronger Baselines paper provided a scientific explanation for the poor performance of DRL-CT in comparison to RePIAce,” as explained (for example) in Figure 2 of the leaked paper and its caption:



**Figure 2:** The final placement from RL (left) and RePIAce (right) for the **ibm10** benchmark. The coarse grid constraint imposed in the RL formulation (in order to have a manageable action space) can lead to unnecessary spreading of small macros which can increase wirelength (and congestion).

118. On October 12, 2021, Employee Relations contacted Dr. Chatterjee regarding alleged concerns about the experiments being run by Kernel team. Plaintiff alleges, based upon information and belief, that either or both of Goldie or Mirhoseini instigated the investigation.

119. Based upon how Google had twisted his words in its last investigation, Dr. Chatterjee asked to respond in writing. He also noted, “[T]his is a delicate and potentially legally sensitive matter[.]”

120. Dr. Chatterjee subsequently submitted a lengthy written statement to Employee Relations. After answering the questions posed by Employee Relations, Dr. Chatterjee explained the broader context. He expressed his fear that the inquiry was retaliation for his work on Morpheus, including for expressing that the core claims being made about Morpheus were not true. He explained how the *Nature* paper “lacked data from our comparisons and made claims that I was concerned were misleading or incorrect.” Dr. Chatterjee also disclosed the unlawful retaliation that he had suffered and reiterated his concerns about shareholder fraud:

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I am also concerned that I am being retaliated against for reporting information that might conflict with public statements by Google, available to its shareholders, including in Alphabet’s 2020 Proxy Statement about Google’s AI principles, including upholding high standards of scientific excellence, open inquiry, intellectual rigor, integrity and collaboration, in addition to publishing educational materials, best practices and research that enable more people to develop useful AI applications— something that would be impeded by any inaccurate or misleading publications.

121. The written statement reiterated that Dr. Chatterjee had been misquoted in the (illegal) written warning and had never stated that he lacked evidence of fraud.

122. In submitting the written statement, Dr. Chatterjee disclosed information to superiors which he had reasonable cause to believe disclosed violations of a state or federal statute.

123. On or about November 1, 2021, the SB Team requested permission from Google to publish the “Stronger Baselines” paper, a request that was eventually denied.<sup>14</sup>

124. The Employee Relations investigation ended on November 11, 2021, with a finding that Dr. Chatterjee had not violated company policy. However, Google reiterated its earlier (illegal) written warning.

125. Yagnik established an *ad hoc* “resolution committee” regarding the Stronger Baselines paper. The committee, however, was chaired by Jon Orwant, who reported up to Dean. Moreover, Yagnik himself reported directly to Dean. In or about November 2021, Dr. Chatterjee spoke with Yagnik and expressed his concern that the committee was not truly independent. Yagnik refused to establish a truly independent committee.

126. In January 2022, Dr. Chatterjee asked Employee Relations to permit him to submit a written response to the written warning to be maintained in his employment file. Google granted the request to put his response in the personnel file, but refused to correct the written warning.

127. In an email on February 10, 2022, Bernita Jameson, Senior Director in Employee Relations, reiterated that the written warning was due to Dr. Chatterjee’s legally protected activity. Specifically, Jameson wrote, “The investigation found that you made inappropriate and

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<sup>14</sup> Plaintiff does not allege that Google’s refusal to publish the Stronger Baselines paper somehow constituted an adverse employment action.

unprofessional comments about other Googlers - specifically, that you made baseless claims of **fraud** and academic misconduct against other Googlers and shared unprofessional criticism about their work during several verbal conversations.” (Emphasis added.)

128. In February 2022, Dr. Chatterjee had ongoing discussions with the resolution committee regarding the Stronger Baselines paper, which included a meeting on February 17, 2022, and a lengthy email thread in which Dr. Chatterjee continued engaging in legally protected activity.

129. In an email on February 18, 2022, Dr. Chatterjee wrote (with emphasis added), “Not publishing our paper before further experiments are conducted while letting the Nature paper stand without an on-going dialogue could undermine Google’s credibility and reflect a failure of Google to adhere to its own AI principles (including accountability and high standards of scientific excellence across the board). Worse yet, we risk distorting the scientific record and misleading the scientific community about what has been achieved. [ . . . ] **Needless to say, this is not only the ethical thing to do, but also the legal thing to do:** It would allow us as a company to stay true to the representations we have been making to our shareholders and general public about our AI research.”

130. In or about either late February 2022 or March 2022, Dr. Chatterjee spoke with Yagnik. Dr. Chatterjee reiterated that the committee was not independent. Dr. Chatterjee stated that if the committee did not permit publication of the paper (and thus cure Google’s fraud), that he was going to have to raise the issue with CEO Pichai and the Alphabet Board. Dr. Chatterjee stated that he believed company policy required him to escalate the issue since it involved Dean, a direct report of the CEO.

131. On March 3, 2022, Orwant expressly informed Dr. Chatterjee that the committee would not be investigating whether the *Nature* authors behaved inappropriately. Orwant said such concerns should be raised with Employee Relations. Dr. Chatterjee subsequently raised the concerns with Employee Relations. Plaintiff alleges, based upon information and belief, that Google never investigated whether the *Nature* paper was fraudulent or whether its authors had engaged in academic misconduct.

1           132. On March 14, 2022, Dr. Chatterjee was yet again contacted by Employee  
2 Relations. Plaintiff alleges, based upon information and belief, that this third investigation was  
3 instigated by Goldie and Mirhoseini. Plaintiff alleges, based upon information and belief, that Dr.  
4 Chatterjee was accused of using the word “fraud” during the February 17, 2022 meeting. While  
5 Dr. Chatterjee concedes that his statements implied fraud (and were legal protected just the same),  
6 he avoided using that term explicitly at the meeting due to Google’s illegal written warning a year  
7 earlier.

8           133. Numerous witnesses attended the February 17, 2022 resolution committee  
9 meeting. Dr. Chatterjee identified witnesses who could corroborate what was (and was not) said  
10 at that meeting. Plaintiff alleges, based upon information and belief, that Google did not interview  
11 these witnesses because Google did not care about discovering the truth. Google was simply  
12 looking for an excuse to fire a whistleblower.

13           134. On March 23, 2022, the resolution committee informed Dr. Chatterjee that it was  
14 denying publication of the Stronger Baselines paper. Concerned that Google was refusing to cure  
15 its fraud, Dr. Chatterjee stated his intent to raise the issue with CEO Pichai and the Alphabet  
16 Board of Directors. Dr. Chatterjee reiterated, “It is in the best interests of Google to have this  
17 paper out to the scientific community both to provide an opportunity to ensure completeness and  
18 accuracy of the scientific record (given the issues we have raised with the Nature paper) and to  
19 avoid misleading the scientific community by withholding material negative results. Doing so  
20 would also ensure that we are not violating the principles of scientific excellence and transparency  
21 that we have promised to our shareholders and the public as part of our AI Principles.”

22           135. Plaintiff alleges, based upon information and belief, that Yagnik requested  
23 permission to terminate Dr. Chatterjee on May 23, 2022, after Dr. Chatterjee threatened to  
24 disclose information to CEO Pichai and the Board that divulged Google’s fraud. Plaintiff alleges,  
25 based upon information and belief, that Yagnik’s request to terminate Dr. Chatterjee specifically  
26 mentioned Dr. Chatterjee’s protected activity (specifically that Dr. Chatterjee had alleged  
27 “fraud”) and for violating the (illegal) written order of April 15, 2021.

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1 136. Plaintiff was fired on May 23, 2022. Plaintiff alleges based upon information and  
2 belief that his extensive protected activity as described in detail in this First Amended Complaint  
3 were, either individually or as a whole, a contributing factor in the decision to terminate him.

4 137. Google's reasons for terminating Dr. Chatterjee were not legitimate. Nor were  
5 Google's reasons for terminating Dr. Chatterjee independent of his protected activity. Just the  
6 opposite: Google's reasons for terminating Dr. Chatterjee are *dependent* on his protected activity  
7 because Google has already admitted that it fired Dr. Chatterjee for "baselessly" alleging fraud to  
8 managers.

9 138. Plaintiff alleges, based upon information and belief, that Google and/or its  
10 managing agents acted with malice, oppression, and fraud in terminating him.

11 139. Plaintiff alleges, based upon information and belief, that after his unlawful  
12 termination, Google retaliated against at least one other whistleblower who worked on the  
13 Stronger Baselines paper, Dr. Yazdanbakhsh. Plaintiff alleges, based upon information and belief,  
14 that Dr. Yazdanbakhsh's manager (and author of the *Nature* paper) James Laudon told  
15 Dr. Yazdanbakhsh in about April 2022 that he was being denied promotion because he "spent  
16 considerable time on SB paper despite guidance to focus his efforts elsewhere[.]" Plaintiff alleges,  
17 based upon information and belief, that Google was referring to the Stronger Baselines paper.  
18 Plaintiff alleges, based upon information and belief, that Google denied promotion to  
19 Yazdanbakhsh in or about April 2022 because it perceived him as having disclosed information  
20 which disclosed violations of state and federal law and for his refusal to participate in acts that  
21 would have resulted in a violation of state and federal law.

22 **SIXTH CAUSE OF ACTION**

23 **Violation of Labor Code section 1102.5**

24 140. The allegations set forth in this complaint are hereby re-alleged and incorporated  
25 by reference.

26 141. This cause of action is asserted against Google LLC.

27 142. At all relevant times, Plaintiff was an employee of Defendant.

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1           143. Labor Code section 1102.5, subdivision (a), states that “an employer, or any  
2 person acting on behalf of the employer, shall not make, adopt, or enforce any rule, regulation, or  
3 policy preventing an employee from disclosing information to a government or law enforcement  
4 agency, to a person with authority over the employee, or to another employee who has authority  
5 to investigate, discover, or correct the violation or noncompliance, or from providing information  
6 to, or testifying before, any public body conducting an investigation, hearing, or inquiry, if the  
7 employee has reasonable cause to believe that the information discloses a violation of state or  
8 federal statute, or a violation of or noncompliance with a local, state, or federal rule or regulation,  
9 regardless of whether disclosing the information is part of the employee’s job duties.

10           144. Labor Code section 1102.5, subdivision (b), states that “[a]n employer, or any  
11 person acting on behalf of the employer, shall not retaliate against an employee for disclosing  
12 information, or because the employer believes that the employee disclosed or may disclose  
13 information, to a government or law enforcement agency, to a person with authority over the  
14 employee or another employee who has the authority to investigate, discover, or correct the  
15 violation or noncompliance, or for providing information to, or testifying before, any public body  
16 conducting an investigation, hearing, or inquiry, if the employee has reasonable cause to believe  
17 that the information discloses a violation of state or federal statute, or a violation of or  
18 noncompliance with a local, state, or federal rule or regulation, regardless of whether disclosing  
19 the information is part of the employee’s job duties.”

20           145. Labor Code section 1102.5, subdivision (c), states that an “employer may not  
21 retaliate against an employee for refusing to participate in an activity that would result in a  
22 violation of state or federal statute, or a violation or noncompliance with a state or federal rule or  
23 regulation.”

24           146. As described in this First Amended Complaint, Plaintiff repeatedly disclosed  
25 information to persons with authority over him and persons with authority to investigate, discover,  
26 or correct violations of state and federal statutes, rules, or regulations. Dr. Chatterjee had  
27 reasonable cause to believe that this information disclosed violations of numerous state and  
28 federal statutes, which include but are not limited to Cal. Corp. Code § 25401 (securities fraud);

1 Cal. Penal Code § 484 (deceit or fraud); Cal. Penal Code § 532 (theft by false pretenses); Cal.  
2 Penal Code §§ 182-185 (conspiracy); Cal. Labor Code §1102.5 (whistleblower retaliation); 8  
3 U.S.C. § 1341 (mail fraud); 18 U.S.C. § 1343 (wire fraud); 8 U.S.C. § 1348 (securities fraud); 18  
4 U.S. Code § 1349 (attempt or conspiracy).

5 147. As described in this First Amended Complaint, Plaintiff repeatedly refused to  
6 engage in acts that would have resulted in a violation of state or federal law, including California  
7 Labor Code § 1102.5(a); Cal. Corp. Code § 25401 (securities fraud); Cal. Penal Code § 484  
8 (deceit or fraud); Cal. Penal Code § 532 (theft by false pretenses); Cal. Penal Code §§ 182-185  
9 (conspiracy); Cal. Labor Code §1102.5 (whistleblower retaliation); 8 U.S.C. § 1341 (mail fraud);  
10 18 U.S.C. § 1343 (wire fraud); 8 U.S.C. § 1348 (securities fraud); 18 U.S. Code § 1349 (attempt  
11 or conspiracy).

12 148. Dr. Chatterjee's protected activity as described herein was a contributing factor in  
13 Google's decision to issue a written warning, terminate him, and create the overall hostile terms  
14 and conditions of employment, which each constituted an adverse employment action in violation  
15 of California Labor Code section 1102.5, subparts a, b, and c.

16 149. The conduct of Defendant and its managing agents and employees were a  
17 substantial factor in causing Plaintiff's harm.

18 150. As an actual and proximate result of the aforementioned violations, Plaintiff has  
19 been harmed in an amount according to proof, but in an amount in excess of the jurisdiction of  
20 this Court.

21 151. As an actual and proximate result of Defendant's retaliation, Plaintiff has lost  
22 wages, benefits, and other out-of-pocket expenses.

23 152. As an actual and proximate result of Defendants' aforementioned acts, Plaintiff  
24 suffered emotional distress and physical sickness in an amount according to proof at time of trial.

25 153. The above-described actions were perpetrated and/or ratified by a managing agent  
26 or officer of Defendant. These acts were done with malice, fraud, oppression, and in reckless  
27 disregard of Plaintiff's rights. Further, said actions were despicable in character and warrant the  
28 imposition of punitive damages in a sum sufficient to punish and deter Defendant's future

1 conduct.

2 **SEVENTH CAUSE OF ACTION**

3 **Wrongful Termination in Violation of Public Policy**

4 154. The allegations set forth in this complaint are hereby re-alleged and incorporated  
5 by reference.

6 155. This cause of action is asserted against Google LLC.

7 156. At all relevant times, Plaintiff was an employee of Defendant.

8 157. Each of the following statutes codify fundamental public policies: Cal. Corp. Code  
9 § 25401 (securities fraud); Cal. Penal Code § 484 (deceit or fraud); Cal. Penal Code § 532 (theft  
10 by false pretenses); Cal. Penal Code §§ 182-185 (conspiracy); Cal. Labor Code §1102.5  
11 (whistleblower retaliation); 8 U.S.C. § 1341 (mail fraud); 18 U.S.C. § 1343 (wire fraud); 8 U.S.C.  
12 § 1348 (securities fraud); 18 U.S. Code § 1349 (attempt or conspiracy).

13 158. As alleged herein, Dr. Chatterjee engaged in protected activity by (1) refusing to  
14 violate the above statutes; (2) exercising his statutory rights under California Labor Code section  
15 1102.5; and (3) reporting alleged violations of the aforementioned public policies.

16 159. Dr. Chatterjee's protected activity was a substantial motivating reason for his  
17 written warning, termination, and the creation of the overall hostile terms and conditions of  
18 employment.

19 160. The conduct of Defendant and its managing agents and employees were a  
20 substantial factor in causing Plaintiff's harm.

21 161. As an actual and proximate result of the aforementioned violations, Plaintiff has  
22 been harmed in an amount according to proof, but in an amount in excess of the jurisdiction of  
23 this Court.

24 162. As an actual and proximate result of Defendant's retaliation, Plaintiff has lost  
25 wages, benefits, and other out-of-pocket expenses.

26 163. As an actual and proximate result of Defendants' aforementioned acts, Plaintiff  
27 suffered emotional distress and physical sickness in an amount according to proof at time of trial.

28 //

164. The above-described actions were perpetrated and/or ratified by a managing agent or officer of Defendant. These acts were done with malice, fraud, oppression, and in reckless disregard of Plaintiff's rights. Further, said actions were despicable in character and warrant the imposition of punitive damages in a sum sufficient to punish and deter Defendant's future conduct.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff prays for relief as follows:

1. For general damages according to proof on each cause of action for which such damages are available;
2. For special damages, according to proof on each cause of action for which such damages are available;
3. For compensatory damages, according to proof on each cause of action for which such damages are available;
4. For punitive damages, according to proof on each cause of action for which such damages are available;
5. For prejudgment and post-judgment interest according to law;
6. For reasonable attorneys' fees incurred in this action on those causes of action for which such fees are recoverable under the law;
7. For costs of suit incurred in this action; and
8. For other relief as this Court deems just and equitable.

Dated: February 21, 2023

By: 

Lawrance A. Bohm, Esq.  
Kelsey K. Ciarimboli, Esq.  
Brandon P. Ortiz, Esq.

Attorneys for Plaintiff  
SATRAJIT CHATTERJEE

**DEMAND FOR JURY TRIAL**

Plaintiff hereby demands trial by jury for this matter.

Dated: February 21, 2023

By: 

Lawrance A. Bohm, Esq.  
Kelsey K. Ciarimboli, Esq.  
Brandon P. Ortiz, Esq.

Attorney for Plaintiff  
SATRAJIT CHATTERJEE

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3 I, SATRAJIT CHATTERJEE, have read the attached First Amended Complaint for  
4 Damages and hereby attest that the same is true of my own knowledge, except as to those matters,  
5 which are therein stated on my information or belief, and as to those matter that I believe it to be  
6 true.

7 I declare under penalty of perjury under to the laws of the State of California that the  
8 foregoing is true and correct.

9 This Verification was executed on February 21, 2023, in Palo Alto, CA.

*Satrajit Chatterjee*

SATRAJIT CHATTERJEE

*Chatterjee v. Google, Inc.*  
Superior Court of California, County of Santa Clara  
Case No.: 22CV398683

**PROOF OF SERVICE BY ELECTRONIC SERVICE**

I, the undersigned declare that I am employed in the County of Sacramento, State of California. I am over the age of eighteen (18) years and not a party to the within action; my business address is: 4600 Northgate Boulevard, Suite 210, Sacramento, California 95834.

On February 21, 2023, I served the within:

**VERIFIED FIRST AMENDED COMPLAINT FOR DAMAGES AND DEMAND FOR JURY TRIAL**

XX By sending a true copy thereof electronically to the individual(s) and electronic service address(s) as set forth below from the electronic service address:  
[jburtan2@bohmlaw.com](mailto:jburtan2@bohmlaw.com).


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**Attorney for Plaintiff (Co-Counsel)**  
SATRAJIT CHATTERJEE

I declare under the penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that this declaration was executed on February 21, 2023 in Sacramento, California.

  
Jenni Burton  
Paralegal Manager