

No. 25-2366

---

IN THE UNITED STATES COURT OF APPEALS  
FOR THE NINTH CIRCUIT

---

NETCHOICE, LLC,

*Plaintiff-Appellee,*

v.

ROB BONTA,

*In his official capacity as*

*Attorney General of the State of California,*

*Defendant-Appellant.*

---

On Appeal from the United States District Court for the  
Northern District of California

No. 5:22-cv-08861-BLF

The Honorable Beth Labson Freeman, District Court Judge

---

**BRIEF OF DESIGN RESEARCHERS AND PRACTICIONERS AS  
*AMICI CURIAE* IN SUPPORT OF DEFENDANT-APPELLANT**

---

Jason Harrow  
GERSTEIN HARROW LLP  
12100 Wilshire Blvd. Ste. 800  
Los Angeles, CA 90025  
Telephone: 323-744-5293  
jason@gerstein-harrow.com

Mihir Kshirsagar  
CENTER FOR INFORMATION  
TECHNOLOGY POLICY  
305 Sherred Hall  
Princeton, NJ 08540

Meetal Jain (SBN 21437)  
Melodi Dincer  
TECH JUSTICE LAW PROJECT  
660 Pennsylvania Ave. SE  
Suite 303  
Washington, DC 20003

June 17, 2025

## **CORPORATE DISCLOSURE STATEMENT**

Pursuant to Fed. R. App. P. 26.1, *amici curiae* Design Researchers and Practitioners state that they have no parent corporations and that no publicly held corporation owns 10% or more of their stock.

Dated: June 17, 2025

By: /s/ Jason Harrow  
Jason Harrow

## TABLE OF CONTENTS

CORPORATE DISCLOSURE STATEMENT .....	i
TABLE OF CONTENTS .....	ii
TABLE OF AUTHORITIES.....	iii
INTEREST OF <i>AMICI CURIAE</i> .....	1
SUMMARY OF THE ARGUMENT.....	4
ARGUMENT.....	8
I. PROHIBITING DARK PATTERNS PRESERVES PEOPLES’ ABILITY TO MAKE FREE AND INFORMED CHOICES.....	8
A. What Makes Dark Patterns “Dark”?.....	8
B. Companies Are Well-Aware that Dark Patterns That Undermine User Choice Can Be Detrimental to Children’s Wellbeing.....	12
II. CALIFORNIA HAS A LEGITIMATE AND SUBSTANTIAL INTEREST IN PROTECTING MINORS FROM MANIPULATIVE DESIGN PRACTICES. ....	23
III. THE DARK PATTERNS PROVISION IS A REASONABLE MEANS TO PROTECT CHILDRENS’ PRIVACY AND WELL-BEING EVEN IF IT MAY INCIDENTALLY AFFECT SOME EXPRESSIVE CONDUCT. ....	25
CONCLUSION .....	30
CERTIFICATE OF COMPLIANCE .....	31
CERTIFICATE OF SERVICE .....	32

## TABLE OF AUTHORITIES

### Cases

<i>Berger v. City of Seattle</i> , 512 F.3d 582 (9th Cir. 2008), <i>on reh'g en banc</i> , 569 F.3d 1029 (9th Cir. 2009) .....	27, 29
<i>Burns v. Town of Palm Beach</i> , 999 F.3d 1317 (11th Cir. 2021), <i>cert. denied</i> , 142 S. Ct. 1361 (2022) .....	26, 27
<i>City of Austin v. Reagan Nat'l Advert. of Austin, LLC</i> , 596 U.S. 61 (2022) .....	27
<i>Comm. Reasonable Regul. Lake Tahoe v. Tahoe Reg'l Plan. Agency</i> , 311 F. Supp. 2d 972 (D. Nev. 2004).....	27
<i>Fed. Trade Comm'n v. Amazon.Com, Inc.</i> , 71 F. Supp. 3d 1158 (W.D. Wash. 2014)	14
<i>Lemmon v. Snap, Inc.</i> , 995 F.3d 1085 (9th Cir. 2021).....	15, 24
Mem. and Order on Mot. to Dismiss, <i>Suffolk v. Meta Platforms, Inc. et al.</i> , 2024 WL 464835 (Mass. Super. Ct. Suffolk Cty. Oct. 17, 2024).....	24
<i>Moody v. NetChoice LLC</i> , 144 S. Ct. 2383 (2024) .....	4, 5, 6
<i>Nationwide Biweekly Admin., Inc. v. Owen</i> , 873 F.3d 716 (9th Cir. 2017) .....	28
<i>NetChoice, LLC v. Bonta</i> , 113 F.4th 1101 (9th Cir. 2024).....	7, 23, 26
<i>New York v. Ferber</i> , 458 U.S. 747 (1982) .....	28
<i>Porter v. Martinez</i> , 68 F.4th 429 (9th Cir. 2023) .....	28
Ruling on Mot. to Dismiss, <i>State of Vermont v. Meta Platforms, Inc. et al.</i> , 2024 WL 3741424 (Vt. Super. Ct. July 29, 2024) .....	24
<i>U.S. v. O'Brien</i> , 391 U.S. 367 (1968) .....	7
<i>U.S. v. Yazzie</i> , 743 F.3d 1278 (9th Cir. 2014) .....	29
<i>Va. State Bd. Pharmacy v. Va. Citizens Consumer Council, Inc.</i> , 425 U.S. 748 (1976) .....	28

### Statutes

Cal. Civ. Code § 1798.140 .....	6
Cal. Civ. Code § 1798.99.31(7).....	8

### Other Authorities

Agnieszka Kitkowska, <i>The Hows and Whys of Dark Patterns: Categorizations and Privacy</i> , in Hum. Factors Priv. Rsch. 173 (2023) .....	11
Am. Acad. Sleep Medicine, <i>Sleep Prioritization Survey: Social Media Impact on Sleep</i> (2022) .....	18
Anna Lembke, <i>Dopamine Nation: Finding Balance in the Age of Indulgence</i> (2021) .....	20

Arunesh Mathur, et al., <i>What Makes a Dark Pattern...Dark?</i> , Proc. 2021 CHI Conf. Hum. Factors Comput. Sys. (2021) .....	11
Brett Frischmann & Evan Selinger, <i>Re-Engineering Humanity</i> (2018).....	12
Colin M. Gray et al. <i>The Dark (Patterns) Side of UX Design 1</i> , Proc. 2018 CHI Conf. Hum. Factors Comput. Sys. (2018); Alessandro Acquisti et al., <i>Nudges for Privacy and Security: Understanding and Assisting Users' Choices Online</i> , 50 ACM Comput. Surv., 1 (2018) .....	9
Compl., <i>Fed. Trade Comm'n v. Amazon.Com, Inc.</i> , No. 2:14-cv-01038 (W.D. Wash. July 10, 2014) .....	15
Compl., <i>In the Matter of Epic Games Inc.</i> , File No. 192-3203.....	14
Emily Weinstein & Carrie James, <i>Behind Their Screens: What Teens Are Facing (And Adults Are Missing)</i> (2022).....	18
<i>Facebook's Documents About Instagram and Teens, Published</i> , Wall St. J. (Sept. 29, 2021) .....	10
Fed. Trade Comm'n, <i>Bringing Dark Patterns to Light</i> (Sept. 2022).....	13
Gaia Bernstein, <i>Unwired: Gaining Control over Addictive Technologies</i> (2023) .....	9
Georgia Wells, Jeff Horwitz, and Deepa Seetharaman, <i>Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show</i> , Wall St. J. (Sept. 14, 2021) .	18
Harry Brignull, <i>Dark Patterns: Inside the Interfaces Designed to Trick You</i> , Verge (Aug. 29, 2013) .....	8
Jacqueline Nesi et al., <i>Teens and Mental Health: How Girls Really Feel About Social Media</i> (2023).....	21
Jamie Luguri & Lior Strahilevitz, <i>Shining a Light on Dark Patterns</i> , 13 J. Legal Analysis 43 (2021).....	11
Jeff Horwitz, <i>His Job Was to Make Instagram Safe for Teens. His 14-Year-Old Showed Him What the App Was Really Like</i> , Wall St. J. (Nov. 2, 2023) .....	18
Johanna Gunawan, et al. <i>A Comparative Study of Dark Patterns Across Web and Mobile Modalities</i> . 5 Proc. ACM Hum.-Comput. Interact. 377 (2021) .....	9
Nat'l Telecomms. & Info. Admin., <i>Online Health and Safety for Children and Youth: Best Practices for Families and Guidance for Industry</i> (2024).....	23
Nat'l. Acads. Scis., Eng'g, & Med., <i>Social Media and Adolescent Health</i> (2024) 19, 20	
Natasha Dow Schüll, <i>Addiction by Design: Machine Gambling in Las Vegas</i> (2012) .....	10
Nicole Westman, <i>Facebook Isn't Telling the Whole Story About Its Mental Health Research</i> , Verge (Oct. 28, 2021).....	18
Rea Alonzo et al., <i>Interplay Between Social Media Use, Sleep Quality, and Mental Health in Youth: A Systematic Review</i> , 56 Sleep Med. Revs. (2021).....	22

René Schäfer et al., <i>Growing Up with Dark Patterns: How Children Perceive Malicious User Interface Design</i> , 25 NordiCHI '24: Procs. 13th Nordic Conf. Hum.-Comput. Interaction 1 (2024) .....	13
Richard A. Miech et al., <i>Monitoring the Future: A Continuing Study of American Youth (8th- and 10th-Grade Surveys), 2021 (ICPSR 38502)</i> (2022).....	21
U.S. Pub. Health Serv., <i>Social Media and Youth Mental Health: The Surgeon General's Advisory</i> (2023) .....	21, 22
Victoria Rideout & Michael B. Robb, <i>Social Media, Social Life: Teens Reveal Their Experiences</i> (2018).....	22
<i>Written Testimony of Arturo Bejar Before the Subcommittee on Privacy, Technology, and the Law</i> (Nov. 7, 2023).....	17

## INTEREST OF *AMICI CURIAE*<sup>1</sup>

The Tech Justice Law Project (“TJLP”) is a legal initiative of Campaign for Accountability, a 501(c)(3) nonpartisan, nonprofit organization. TJLP works with a collective of legal experts, academics, policy advocates, digital rights organizations, and technologists to ensure that legal and policy frameworks are responsive to emergent technologies and their societal effects. TJLP advocates for better, safer, and more accountable digital spaces by convening a broad range of legal and technical expertise in numerous areas, including platform design, the First Amendment, and data-based consumer harms.

The Tech Policy Clinic is part of Princeton University’s Center for Information Technology Policy (“CITP”), which works to understand and improve the relationship between technology and society. The CITP Clinic provides nonpartisan research, analysis, and commentary in the public interest. This brief is the product of a CITP Clinic project and reflects the views of academics, researchers, and practitioners who

---

<sup>1</sup> All parties consent to the filing of this brief. In accordance with Rule 29, *Amici* certify that no person or entity, other than *Amici*’s own staff or counsel, made a monetary contribution to the preparation or submission of this brief or authored this brief, in whole or in part.

study the behavior of online platforms and the effects they have on society at large.<sup>2</sup>

The below *amici* are represented in their individual capacities; the brief does not reflect the views of their affiliated institutions:

Susan Benesch  
Faculty Associate and Founder, Dangerous Speech Project  
Berkman Klein Center for Internet & Society  
Harvard University

Gaia Bernstein  
Technology, Privacy, and Policy Professor of Law  
Co-Director, Institute for Privacy Protection  
Co-Director, Gibbons Institute for Law, Science, and Technology  
Seton Hall Law School

Glenn Chappel  
Counsel and Appellate Chair  
Tycko & Zavareei LLP

Brett Frischmann  
The Charles Widger Endowed University Professor in Law,  
Business, and Economics  
Villanova University Charles Widger School of Law

Ravi Iyer  
Managing Director  
University of Southern California Neely Center  
Former Meta Product Manager

John Kindt  
Professor Emeritus of Business Administration

---

<sup>2</sup> Sophie Luskin, Emerging Scholar with CITP, contributed substantial drafting assistance.

University of Illinois Urbana-Champaign Gies College of Business

Kyle Langvardt  
Assistant Professor of Law  
University of Nebraska College of Law

Matthew Lawrence  
Associate Professor of Law  
Emory University School of Law

Greta McAnany  
CEO, Blue Fever  
Technologist and Youth Mental Health Advocate

Olivier Sylvain  
Professor of Law  
Fordham School of Law  
Senior Policy Research Fellow  
Knight First Amendment Institute at Columbia University

Zephyr Teachout  
Professor of Law  
Fordham School of Law

## SUMMARY OF THE ARGUMENT

This brief addresses how—if at all—the First Amendment applies to the dark patterns provision of California’s Age-Appropriate Design Code (“AADC”), Cal. Civ. Code § 1798.9931(b)(7). Dark patterns are specific design choices that tech designers make to influence individuals to act in a particular way, often to increase their use of a particular product or platform, especially when they would not have done so without that design in place. The dark patterns provision should thus be evaluated as a content-neutral regulation that preserves user autonomy, prevents user manipulation, and promotes free expression values of California residents. Consequently, NetChoice’s argument that the dark patterns provision violates the First Amendment for vagueness should be rejected.

The Supreme Court recently explained in *Moody v. NetChoice LLC* that laws affecting our “variegated and complex” online environment will have different impacts on different modes of connection. 144 S. Ct. 2383, 2398 (2024). Because there are “different levels of editorial choice” for each type of connection, a court evaluating a facial challenge “must determine a law’s full set of applications” before assessing whether the

law runs afoul of the First Amendment. *Id.* The district court rightly rejected NetChoice’s facial challenge to the dark patterns provision due to its failure to provide this full set of applications with the required particularity. Dist. Ct. ECF No. 143 at 35. The district court went on, however, to find that the dark patterns provision was nevertheless constitutionally vague. The court focused on a hypothetical regulated entity that could be confused about whether a dark pattern design choice will be “materially detrimental” to a child’s wellbeing under the AADC. Dist. Ct. ECF No. 143 at 42–44.

This interpretation does not reflect the reality of user interface design (UX) as a practice. UX is a well-researched and understood aspect of tech product development where designers rely on extensive user research, behavioral and social psychology insights, and many other forms of internal design iterations and risk assessment processes to gauge how a particular interface choice affects users—both before, during, and post-deployment. This is an intentional process in which companies understand how adopting upstream design choices will affect downstream user experiences. To help bridge the distance between technical expertise and judicial review, this brief focuses on specific

design choices that constitute dark patterns and gathers several examples of how these particular “regulated activities *actually function.*” *Moody*, 144 S. Ct. at 2411 (Jackson, J. concurring) (emphasis in original).

“Dark patterns” are user interface features that benefit an online service by leading users to make decisions they might not otherwise make. *See* Cal. Civ. Code § 1798.140 (defining a dark pattern under the California Consumer Privacy Rights Act as “a user interface designed or manipulated with the substantial effect of subverting or impairing user autonomy, decision making, or choice”). We first explain what dark patterns are and how they manipulate vulnerable users, providing specific examples of dark patterns that commonly affect children’s wellbeing and do not implicate expressive conduct. Next, we explain why the dark patterns provision is a reasonable, content-neutral regulation aimed at preventing unfair or deceptive practices from harming vulnerable users and does not burden more speech than necessary to further that interest.

The Ninth Circuit previously indicated that “it is far from certain that a ban [on dark patterns] should be scrutinized as a content-based

restriction, as opposed to a content-neutral regulation of expression.”  
*NetChoice, LLC v. Bonta*, 113 F.4th 1101, 1123 (9th Cir. 2024) (citing  
*U.S. v. O’Brien*, 391 U.S. 367, 376–77 (1968)). The Ninth Circuit is  
correct: NetChoice’s position misconstrues the nature of California’s  
design-based prohibition against dark patterns, its purpose, and the  
applicable constitutional framework.

## ARGUMENT

### I. PROHIBITING DARK PATTERNS PRESERVES PEOPLES' ABILITY TO MAKE FREE AND INFORMED CHOICES.

#### A. What Makes Dark Patterns “Dark”?

The AADC’s dark pattern provision prohibits online services from using manipulative interfaces that “lead or encourage children” to (a) “provide personal information beyond what is reasonably expected[, or] forego privacy protections”; or (b) “take any action that the business knows, or has reason to know, is materially detrimental to the child’s physical health, mental health, or well-being.” Cal. Civ. Code § 1798.99.31(7).

In the context of online interfaces, the term “dark patterns” was coined over a decade ago to spotlight designs that are “carefully crafted to trick users into doing things they may not otherwise do.” Harry Brignull, *Dark Patterns: Inside the Interfaces Designed to Trick You*, Verge (Aug. 29, 2013).<sup>3</sup> Subsequent academic work in the field of human-computer interaction has developed extensive taxonomies that document how different services take advantage of their visitors

---

<sup>3</sup> <https://www.theverge.com/2013/8/29/4640308/dark-patterns-inside-the-interfaces-designed-to-trick-you>.

through these intentional design choices. *See, e.g.,* Johanna Gunawan, et al. *A Comparative Study of Dark Patterns Across Web and Mobile Modalities*. 5 Proc. ACM Hum.-Comput. Interact. 377 (2021); Colin M. Gray et al. *The Dark (Patterns) Side of UX Design 1*, Proc. 2018 CHI Conf. Hum. Factors Comput. Sys. (2018).

Manipulative design interfaces maximize visitors' engagement within an app or service to maximize revenue. Companies deploy such designs to increase visitors' likelihood of paying for certain features or products, to serve advertisements, and to augment their ability to collect, process, and monetize data concerning who uses their products and how. Engagement-maximizing designs function to keep visitors in or bring them back to the service. Such features, including banners, push notifications, nudge techniques, bait-and-switch ads, anthropomorphized game or chatterbot characters, autoplay, and continuous scroll are part of persuasive design: tools to capture peoples' attention and time to the financial benefit of the companies. *See* Gaia Bernstein, *Unwired: Gaining Control over Addictive Technologies* 35–38 (2023) (canvassing addictive design features).

Several manipulative design features exploit the release of dopamine, the pleasure-enhancing neurotransmitter. Our brains release more dopamine when we receive an unexpected reward; along with other design features, this anticipated release of more dopamine is part of what makes pulling the lever on a slot machine so addictive. *See generally* Natasha Dow Schüll, *Addiction by Design: Machine Gambling in Las Vegas* (2012). Online businesses exploit this human reaction with a variety of design features like push notifications and rewarding streaks that train the brain to repeatedly pick up the phone and return to (and spend more time on) the platform. They do this often with full awareness of the potential detrimental effects that adopting such design choices will lead to for users at scale—those effects are by design. *See Facebook’s Documents About Instagram and Teens, Published*, Wall St. J. (Sept. 29, 2021).<sup>4</sup> More time in an app or service translates to more opportunities to serve visitors ads, convince them to pay for features, and monetize their data.

---

<sup>4</sup> <https://www.wsj.com/tech/facebook-documents-instagram-teens-11632953840>.

Determining whether any of these design features are dark patterns is a fact-driven inquiry that evaluates when and how the persuasive design elements interfere with peoples' ability to make free and informed choices. See Jamie Luguri & Lior Strahilevitz, *Shining a Light on Dark Patterns*, 13 J. Legal Analysis 43 (2021); Agnieszka Kitkowska, *The Hows and Whys of Dark Patterns: Categorizations and Privacy*, in Hum. Factors Priv. Rsch. 173 (2023). Some dark patterns deceive users, while others exploit cognitive biases or shortcuts to manipulate, coerce, or force them into choices that they would not have freely selected. Research clearly shows how online services use UX design to manipulate visitors in different settings. See Arunesh Mathur, et al., *What Makes a Dark Pattern...Dark?*, Proc. 2021 CHI Conf. Hum. Factors Comput. Sys. (2021).

The common thread running through the different techniques described as dark patterns, however, is that they all affect users by taking advantage of cognitive shortcuts (heuristics and biases) in their decision-making processes. By doing so, dark patterns unfairly influence people's choices—the core concern of consumer protection

laws. *See generally* Brett Frischmann & Evan Selinger, *Re-Engineering Humanity* (2018).

When confronted with dark patterns, visitors are manipulated, deceived, obstructed, or coerced into accepting a decision or feature that they would not have chosen if they were instead given a free and informed choice. Over time, consistent exposure to a variety of dark patterns that manipulate online behavior further degrades peoples' autonomy. These tactics are especially harmful in the case of children, as they may be unaware of the risks resulting from an action taken online and are more susceptible to manipulative designs.

**B. Companies Are Well-Aware that Dark Patterns That Undermine User Choice Can Be Detrimental to Children's Wellbeing**

The AADC's dark patterns provision encompasses a wide spectrum of manipulative design practices which are clearly understood by companies as detrimental. The specific examples that follow can thus help resolve the district court's concern over the provision's vagueness.

It is essential to note that each of these design choices are taken intentionally by tech product and platform developers and must go through internal review processes before users are exposed to them.

Part of this process involves assessing risk, including trust and safety concerns that a particular design choice will likely lead to user harm. Companies implementing these design choices cannot feign ignorance of the numerous studies and enforcement actions that establish how detrimental dark patterns are to users, especially children and teens whose cognitive development puts them at a particular disadvantage. *See, e.g.,* Fed. Trade Comm’n, *Bringing Dark Patterns to Light* (Sept. 2022); René Schäfer et al., *Growing Up with Dark Patterns: How Children Perceive Malicious User Interface Design*, 25 NordiCHI ’24: Procs. 13th Nordic Conf. Hum.-Comput. Interaction 1 (2024).<sup>5</sup>

In each of the examples that follow, the companies at issue chose to implement dark pattern designs despite the detrimental effects they predictably had—and did in fact have—on children.

In a recent enforcement action, the FTC charged Epic Games, the makers of the popular videogame, Fortnite, with using counterintuitive, inconsistent, and confusing button configurations to lead players to

---

5

[https://www.ftc.gov/system/files/ftc\\_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf);  
<https://dl.acm.org/doi/10.1145/3679318.3685358>.

incur unwanted charges based on the press of a single button. Compl., *In the Matter of Epic Games Inc.*, File No. 192-3203.<sup>6</sup> Epic Games also made it easy for children to make purchases while playing the game without requiring any parental consent. It settled those allegations for \$245 million.

Earlier, the FTC alleged Amazon's system was designed to allow children to spend unlimited amounts of real money to pay for virtual items while playing games. *Fed. Trade Comm'n v. Amazon.Com, Inc.*, 71 F. Supp. 3d 1158, 1166 (W.D. Wash. 2014) (denying motion to dismiss and noting that Amazon did not give customers the "free and informed choice to submit themselves to the risk of in-app purchases"). Internal communications demonstrated Amazon's awareness that this design choice was "clearly causing problems for a large percentage of our customers," and that the situation was a "near house on fire." Compl. at 3, *Fed. Trade Comm'n v. Amazon.Com, Inc.*, No. 2:14-cv-

---

6

[https://www.ftc.gov/system/files/ftc\\_gov/pdf/1923203EpicGamesComplaint.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/1923203EpicGamesComplaint.pdf).

01038 (W.D. Wash. July 10, 2014).<sup>7</sup> Amazon settled those allegations for \$70 million.

A final example of an expression-agnostic design feature is discussed in *Lemmon v. Snap, Inc.*, 995 F.3d 1085 (9th Cir. 2021). At issue in that case was the interaction between Snapchat’s reward system and its Speed Filter that led to allegations of bodily harm. The allegation was that Snapchat’s filter, which allowed users to capture how fast they are going and share it with friends, encouraged reckless driving. *Lemmon* explains that, because such designs did not involve “editing, monitoring, or removing of the content that its users generate through Snapchat,” they did not raise speech-related concerns. *Id.* at 1092.

These specific enforcement actions put companies on notice of dark patterns’ detrimental effects. The dark patterns provision may cover several more specific examples, as discussed below, and mitigate their detrimental effects across digital platforms and services.

---

7

<https://www.ftc.gov/system/files/documents/cases/140710amazoncmpt1.pdf>.

These practices include manipulation using advertisements, such as design elements that make pop-up advertisement closure deliberately difficult, deceptive integration of advertisements that mimics authentic in-app content, and implementation of advertisements disguised as legitimate game progression elements. Additionally, the provision addresses data collection practices using social engineering practices, including unnecessary prompts for additional (and unnecessary) personal information, coercive tactics that encourage children to link their external social media accounts in order to provide the game designer with additional personal information, mandatory registration requirements before accessing a product or app's core services, and strategic conversion pressure from free to premium accounts after installing an app on a device.

The provision further contemplates examining practices known to be manipulative, such as extended, non-skippable promotional content targeting minors, "bait-and-switch" techniques advertising services that materially differ from their actual functionality, and emotionally manipulative messaging, including "confirmshaming," designed to encourage specific actions and facilitate increased data collection

through personalization features. Moreover, the provision could apply to psychological manipulation tactics, including the anthropomorphizing of non-human elements (such as AI chatterbots and game characters) used to establish parasocial relationships that particularly exploit children’s susceptibility, or the implementation of “grinding” mechanics within games requiring repetitive task completion to prolong usage. Finally, the provision addresses user safety concerns, encompassing intentional platform design choices that impede peoples’ ability to protect themselves from harmful interactions and insufficient safeguards against unwanted sexual contact within apps and services, particularly concerning minors. *See Written Testimony of Arturo Bejar Before the Subcommittee on Privacy, Technology, and the Law* (Nov. 7, 2023) (providing specific examples of intentional design choices undertaken by then-Facebook to impede teens’ ability to report unwanted sexual contact, among other materially detrimental features).<sup>8</sup>

These practices all undermine user autonomy and choice, and they often further harm children and teens by encouraging them to keep

---

8

<https://www.blumenthal.senate.gov/imo/media/doc/1172023testimonyandbiobejar.pdf>.

scrolling and posting at the cost of their health. *See* Am. Acad. Sleep Medicine, *Sleep Prioritization Survey: Social Media Impact on Sleep* (2022).<sup>9</sup> Numerous whistleblowers have further shown that companies are often aware of these potentially harmful effects before implementing certain design choices, even if they feign confusion while under government and public scrutiny after-the-fact. *See, e.g.*, Jeff Horwitz, *His Job Was to Make Instagram Safe for Teens. His 14-Year-Old Showed Him What the App Was Really Like*, Wall St. J. (Nov. 2, 2023);<sup>10</sup> Georgia Wells, Jeff Horwitz, and Deepa Seetharaman, *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show*, Wall St. J. (Sept. 14, 2021);<sup>11</sup> Nicole Westman, *Facebook Isn't Telling the Whole Story About Its Mental Health Research*, Verge (Oct. 28, 2021);<sup>12</sup> Emily Weinstein & Carrie James, *Behind Their Screens: What Teens Are Facing (And Adults Are Missing)* (2022).

---

<sup>9</sup> <https://aasm.org/wp-content/uploads/2022/09/sleep-prioritization-survey-social-media.pdf>.

<sup>10</sup> <https://www.wsj.com/tech/instagram-facebook-teens-harassment-safety-5d991be1>.

<sup>11</sup> <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739>.

<sup>12</sup> <https://www.theverge.com/2021/10/28/22749357/facebook-mental-health-research-tobacco>.

If their own whistleblowers are not sufficient to show how a dark pattern design choice leads to materially detrimental effects on children and teens, there are numerous examples of academic research establishing connections between the design choices the dark patterns provision cover and real-world harms.

Several studies indicate that the manipulative design features NetChoice focuses on can lead to anxiety, decreased attention spans, and disrupted sleep patterns among young users. The National Academies of Sciences, Engineering, and Medicine published a comprehensive report on how these design features are engineered to increase platform usage, negatively affecting adolescent mental health. Nat'l. Acads. Scis., Eng'g, & Med., *Social Media and Adolescent Health* (2024).<sup>13</sup> Continuous scrolling allows users to move through their feeds seamlessly, without needing to navigate to a “next page” button, leading to extended time on the platform. Infinite feeds can also result in feedback loops that reinforce existing beliefs and prioritize sensationalized content. All these features are “part of persuasive

---

<sup>13</sup> <https://www.ncbi.nlm.nih.gov/books/NBK603437/#>.

design, tools to capture users' attention and time to the financial benefit of the companies." *Id.* at 34.

The National Academies report also identifies how adolescents developing cognitive control experience a heightened sensitivity to rewards, making it difficult to disengage from social media despite intentions to do so and awareness of the harms. When pushed content is increasingly emotionally exciting, getting offline is more difficult; the adolescent brain is particularly susceptible to highly emotional or arousing contexts. Moreover, adolescents' drive for social connection can influence their online behavior by compelling them to frequently monitor their accounts for peer reactions such as likes and comments. This social feedback activates reward centers in the brain that release dopamine. This same reward-seeking mechanism makes it difficult for young people to resist checking notifications about new messages or comments constantly. *Id.* at 50. These design choices lead to compulsive, problematic use, which some researchers characterize as addictive behavior. *See* Anna Lembke, *Dopamine Nation: Finding Balance in the Age of Indulgence* (2021).

In the aggregate and over time, these manipulative designs succeed in driving engagement, especially for young people who are at a cognitive disadvantage in resisting them. Common Sense Media found in a 2023 report on Teens and Mental Health that among girls aged 11 to 15, more than one-third report feeling “addicted” to social media platforms. Jacqueline Nesi et al., *Teens and Mental Health: How Girls Really Feel About Social Media* (2023).<sup>14</sup> Similarly, researchers from University of Michigan’s Institute for Social Research surveyed 8th and 10th graders and revealed that teens spend an average of 3.5 hours daily on social media, with one-quarter logging over 5 hours and one-seventh exceeding 7 hours per day. Richard A. Miech et al., *Monitoring the Future: A Continuing Study of American Youth (8th- and 10th-Grade Surveys), 2021 (ICPSR 38502)* (2022).<sup>15</sup>

These issues were also recognized in Surgeon General Vivek H. Murthy’s recent Advisory on Social Media and Youth Mental Health. U.S. Pub. Health Serv., *Social Media and Youth Mental Health: The*

---

<sup>14</sup>

[https://www.commonsensemedia.org/sites/default/files/research/report/how-girls-really-feel-about-social-media-researchreport\\_final\\_1.pdf](https://www.commonsensemedia.org/sites/default/files/research/report/how-girls-really-feel-about-social-media-researchreport_final_1.pdf)

<sup>15</sup>

<https://www.icpsr.umich.edu/web/NAHDAP/studies/38502/versions/V1>

*Surgeon General's Advisory* (2023).<sup>16</sup> The advisory cites recent research on youth social media usage and emphasizes how harmful social media behavior, characterized by compulsive and uncontrollable use, is linked to a myriad of health issues. *Id.* at 10. For example, nearly one-third of adolescents report using screen media until midnight or later on weekdays, with social media being their most-used applications. *Id.* A survey of 42 studies consistently found that excessive social media use correlates with poor sleep quality, reduced sleep duration, and increased depression among young people, with poor sleep further linked to altered neurological development, depressive symptoms, and suicidal ideation in adolescents. Rea Alonzo et al., *Interplay Between Social Media Use, Sleep Quality, and Mental Health in Youth: A Systematic Review*, 56 *Sleep Med. Revs.* (2021); see also Victoria Rideout & Michael B. Robb, *Social Media, Social Life: Teens Reveal Their Experiences* (2018). Following that advisory, an interagency report surveying the latest research in the field concluded that “platforms and other interactive digital service providers should be required to

---

<sup>16</sup> <https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf>.

prioritize the safety and well-being of young people above profit in their product design.” Nat’l Telecomms. & Info. Admin., *Online Health and Safety for Children and Youth: Best Practices for Families and Guidance for Industry 45* (2024).<sup>17</sup>

## II. CALIFORNIA HAS A LEGITIMATE AND SUBSTANTIAL INTEREST IN PROTECTING MINORS FROM MANIPULATIVE DESIGN PRACTICES.

There are several applications of dark pattern design features that are constitutional and have only an incidental effect on expressive conduct—if at all. *See NetChoice, LLC v. Bonta*, 113 F.4th at 1123 (questioning whether a dark pattern even “constitutes protected speech”). NetChoice should not be allowed to immunize the use of those designs on young audiences under the guise that they have a First Amendment right to manipulate those users.

Indeed, two courts recently affirmed the principle that design choices are distinct from expressive conduct. In *Suffolk v. Meta Platforms, Inc. et al.*, a Massachusetts court upheld the Massachusetts Attorney General’s claims against Meta for designing and using

---

<sup>17</sup> <https://www.ntia.gov/sites/default/files/reports/kids-online-health-safety/2024-kohs-report.pdf>.

addictive design features on Instagram, such as infinite scroll, autoplay, ephemeral features, and intermittent variable rewards, to exploit children’s psychological vulnerabilities. Mem. and Order on Mot. to Dismiss, 2024 WL 464835 (Mass. Super. Ct. Suffolk Cty. Oct. 17, 2024). The Court found that Meta was being sued in its “distinct capacity as a product designer,” not for expressive content it hosted. *Id.* at \*7 (quoting *Lemmon*, 995 F.3d at 1092). In *State of Vermont v. Meta Platforms, Inc. et al.*, a Vermont court similarly rejected Meta’s First Amendment challenge of claims brought by the Vermont Attorney General against Meta for intentionally designing the Instagram platform in a manner that is problematic for young people. Ruling on Mot. to Dismiss, 2024 WL 3741424 (Vt. Super. Ct. July 29, 2024). The Court found that Meta’s argument failed to distinguish between its “role as an editor of content and its alleged role as a manipulator of Young Users’ ability to stop using the product.” *Id.* at \*6.

As detailed below, California has a legitimate and significant interest in prohibiting these manipulative practices from affecting vulnerable residents. As discussed above, companies are aware of the growing evidence young users can be exploited through specific design

features that promote engagement at the expense of their mental health. While these mechanisms might drive engagement across all demographics, their impact is particularly concerning for adolescents and young children, whose developing minds are more susceptible to the dopamine-driven feedback loops these features create, resulting in physical and psychological harms.

**III. THE DARK PATTERNS PROVISION IS A REASONABLE MEANS TO PROTECT CHILDRENS' PRIVACY AND WELL-BEING EVEN IF IT MAY INCIDENTALLY AFFECT SOME EXPRESSIVE CONDUCT.**

As a starting point, digital product design provisions like those in the AADC target functional design features, not expressive conduct. They are safety regulations, just like the regulations of the quality of paint in children's toys. They place guardrails on design features that can be shown to stimulate or even actuate harmful conduct, such as addictive and compulsive behaviors, to which children are especially vulnerable. These provisions are concerned with how much a person uses an interface and the built-in features that help them find limits to their engagement.

The provision does not target, regulate, or discriminate between what is expressed or who expresses it, and the regulations do not

suppress or otherwise burden a specific message. Companies’ reliance on dark patterns as design features demonstrate their commitment to increasing engagement and profit—not to promoting certain ideas or viewpoints. Therefore, functional design regulations like the AADC do not categorically implicate the First Amendment. Indeed, when this case was on appeal, the Ninth Circuit expressed skepticism that dark patterns implicate the First Amendment at all. *See Bonta*, 113 F.4th at 1122 (noting “most of those provisions, by their plain language, do not necessarily impact protected speech in all or even most applications”). It was unclear, on the record before the Court, whether a “dark pattern” itself constitutes protected speech. *Id.* at 1123.

Cases involving First Amendment challenges to architectural-design regulations are instructive here, in that they attempt to distinguish functional considerations from expressive conduct. In *Burns v. Town of Palm Beach*, a homeowner sought approval from the Town of Palm Beach’s architectural review commission to tear down his beachfront mansion and build a new one “in the midcentury modern style.” 999 F.3d 1317, 1322 (11th Cir. 2021), *cert. denied*, 142 S. Ct. 1361 (2022). Although the Eleventh Circuit declined to decide whether

architecture can be First Amendment-protected expression, it rejected the homeowner’s claim that residential architecture is *always* expressive. *Id.* at 1335–36. In another case, a district court upheld aesthetic housing regulations against a facial First Amendment challenge, declining to adopt a categorical rule affording complete protection. *Comm. Reasonable Regul. Lake Tahoe v. Tahoe Reg’l Plan. Agency*, 311 F. Supp. 2d 972, 1005 (D. Nev. 2004) (“the great majority of remodeling or rebuilding projects involving residential housing are functional in nature and are not commonly associated with expression.”).

Even if some aspects of digital product design regulation cause an incidental impact on expressive conduct—which NetChoice has not demonstrated here—any regulatory burden would at most constitute a content-neutral limitation on when, where, or how expressive activity is conveyed when it “further[s] significant government interests.” *Berger v. City of Seattle*, 512 F.3d 582, 604 (9th Cir. 2008), *on reh’g en banc*, 569 F.3d 1029 (9th Cir. 2009). In other contexts, the state can regulate how content is displayed on account of public safety considerations without running afoul of the First Amendment. *See City of Austin v.*

*Reagan Nat'l Advert. of Austin, LLC*, 596 U.S. 61, 73 (2022) (explaining that only “regulations that discriminate based on ‘the topic discussed or the idea or message expressed’...are content based”) (internal citations omitted). The First Amendment also does not bar regulations requiring businesses to communicate honestly with their customers. *Nationwide Biweekly Admin., Inc. v. Owen*, 873 F.3d 716, 721 (9th Cir. 2017) (“The First Amendment does not generally protect corporations from being required to tell prospective customers the truth.”); *Va. State Bd. Pharmacy v. Va. Citizens Consumer Council, Inc.*, 425 U.S. 748, 771–72 (1976).

Under intermediate scrutiny, a law does not violate the First Amendment if it “further[s] an important or substantial governmental interest” and the incidental burden(s) it imposes are “no greater than is essential to the furtherance of that interest.” *Porter v. Martinez*, 68 F.4th 429, 443 (9th Cir. 2023) (internal quotation marks omitted). Here, California’s interest—protecting children from the serious health impacts of addictive and other harmful online products—is compelling. *See, e.g., New York v. Ferber*, 458 U.S. 747, 756–57 (1982) (“It is evident beyond the need for elaboration that a State’s interest in safeguarding

the physical and psychological well-being of a minor is compelling”) (internal quotation marks omitted); *see also U.S. v. Yazzie*, 743 F.3d 1278, 1288 (9th Cir. 2014) (acknowledging child well-being is a compelling interest).

Rather than restrict speech based on its content, the AADC regulates digital architecture to require transparent and honest interface designs that preserve peoples’ autonomy. The dark patterns provision does not limit what third-party content is available to minors. It merely places certain restrictions on when, where, and how they engage with digital products to minimize their chances of being manipulated. *Berger*, 512 F.3d at 604. The provision thus serves California’s substantial interest through narrowly tailored means that preserve ample alternatives for companies to design their services.

California retains a substantial interest in preventing the manipulation of children by online services. The AADC’s dark patterns provision, which can only be enforced by the Attorney General, gives online services an opportunity to get notice of a potential violation and the opportunity to cure before facing a potential penalty. This is a reasonable and tailored means to protect the governmental interest in

protecting children. Further, the dark patterns covered by the provision are clear, and the real harms they cause to minors are clear as well.

## CONCLUSION

For the foregoing reasons, *Amici* respectfully urges the Court to reverse the district court's order regarding the dark patterns provision.

**Date:** June 17, 2025

*/s/ Jason Harrow*

Jason Harrow  
GERSTEIN HARROW LLP  
12100 Wilshire Blvd. Ste. 800  
Los Angeles, CA 90025  
Telephone: 323-744-5293  
jason@gerstein-harrow.com

Meetal Jain (SBN 21437)  
Melodi Dinçer  
TECH JUSTICE LAW PROJECT  
660 Pennsylvania Ave. SE  
Suite 303  
Washington, DC 20003  
1519 New Hampshire Ave. NW

Mihir Kshirsagar  
CENTER FOR INFORMATION  
TECHNOLOGY POLICY  
305 Sherred Hall  
Princeton, NJ 08540

*Attorneys for Amici Curiae Design  
Researchers and Practitioners*

## CERTIFICATE OF COMPLIANCE

I am the attorney or self-represented party.

**This brief contains 4,392 words**, excluding the items exempted by Fed. R. App. P. 32(f). The brief's type size and typeface comply with Fed. R. App. P. 32(a)(5) and (6).

I certify that this brief (*select only one*):

complies with the word limit of Cir. R. 32-1.

is a **cross-appeal** brief and complies with the word limit of Cir. R. 28.1-1.

is an **amicus** brief and complies with the word limit of Fed. R. App. P. 29(a)(5), Cir. R. 29-2(c)(2), or Cir. R. 29-2(c)(3).

is for a **death penalty** case and complies with the word limit of Cir. R. 32-4.

complies with the longer length limit permitted by Cir. R. 32-2(b) because (*select only one*):

it is a joint brief submitted by separately represented parties;

a party or parties are filing a single brief in response to multiple briefs; or

a party or parties are filing a single brief in response to a longer joint brief.

complies with the length limit designated by court order dated \_\_\_\_\_.

is accompanied by a motion to file a longer brief pursuant to Cir. R. 32-2(a).

**Signature:** /s/ Jason Harrow

**Date:** June 17, 2025

## CERTIFICATE OF SERVICE

I certify that on June 17, 2025, this brief was e-filed through the CM/ECF System of the U.S. Court of Appeals for the Ninth Circuit. I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the CM/ECF system.

**Date:** June 17, 2025

*/s/ Jason Harrow*

---

Jason Harrow  
GERSTEIN HARROW LLP  
12100 Wilshire Blvd. Ste. 800  
Los Angeles, CA 90025  
Telephone: 323-744-5293  
jason@gerstein-harrow.com

Meetali Jain (SBN 21437)  
Melodi Dincer  
TECH JUSTICE LAW PROJECT  
660 Pennsylvania Ave. SE  
Suite 303  
Washington, DC 20003  
1519 New Hampshire Ave. NW

Mihir Kshirsagar  
CENTER FOR INFORMATION  
TECHNOLOGY POLICY  
305 Sherred Hall  
Princeton, NJ 08540

*Attorneys for Amici Curiae Design  
Researchers and Practitioners*