

Dark Patterns and the Emerging Threats of Deceptive Design Practices

Colin M. Gray
gray42@purdue.edu
Purdue University
West Lafayette, Indiana, USA

Cristiana Santos
c.teixeirasantos@uu.nl
Utrecht University
The Netherlands

Nicole Tong
nwtong@stanford.edu
Stanford University
USA

Thomas Mildner
mildner@uni-bremen.de
University of Bremen
Germany

Arianna Rossi
arianna.rossi@uni.lu
SnT, University of Luxembourg
Luxembourg

Johanna Gunawan
gunawan.jo@northeastern.edu
Northeastern University
Boston, Massachusetts, USA

Caroline Sindere
Caroline.Sindere@ico.org.uk
Information Commissioner's Office
United Kingdom

ABSTRACT

Growth hacking, particularly within the spectre of surveillance capitalism, has led to the widespread use of deceptive, manipulative, and coercive design techniques in the last decade. These challenges exist at the intersection of many different technology professions that are rapidly evolving and “shapeshifting” their design practices to confront emerging regulation. A wide range of scholars have increasingly addressed these challenges through the label “dark patterns,” describing the content of deceptive and coercive design practices, the ubiquity of these patterns in contemporary digital systems, and the impact of emerging regulatory and legislative action on the presence of dark patterns. Building on this convergent and trans-disciplinary research area, the aims of this SIG are to: 1) Provide an opportunity for researchers and practitioners to address methodologies for detecting, characterizing, and regulating dark patterns; 2) Identify opportunities for additional empirical work to characterize and demonstrate harms related to dark patterns; and 3) Aid in convergence among HCI, design, computational, regulatory, and legal perspectives on dark patterns. These goals will enable an internationally-diverse, engaged, and impactful research community to address the threats of dark patterns on digital systems.

CCS CONCEPTS

• **Social and professional topics** → **Computing education; Codes of ethics**; • **Human-centered computing** → **Human computer interaction (HCI); Empirical studies in HCI**.

KEYWORDS

dark patterns, deceptive design, privacy, ethics, technology practice, regulation

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1 INTRODUCTION

Within and outside of the HCI community, interest in ethical and legal implications of technology has steadily grown in the past decade. Increasingly, capitalistic incentives to maximize growth have encouraged the creation and deployment of unethical (and often illegal) design techniques that steer users decision-making with the risks of harmful outcomes—which as a set of concerns that relate to deceptive, manipulative, or coercive design practices have become known collectively as “dark patterns.”

In a well-attended CHI 2021 workshop co-led by one of this SIG’s organizers [13], dozens of scholars engaged together for the first time on the topic of “dark patterns”—with many of the position papers shared by attendees now having entered the research literature in this emerging area of scholarship. Over the past decade, this framing of “dark patterns” has come into common use among technology practitioners, scholars, and policy-makers alike. The term was originally coined by Harry Brignull [8] to describe instances where online interfaces trick users into unwanted actions, but has since embraced a wider comprehensive definition, codified into law or otherwise impacting regulatory sanctions, describing instances where a system “substantially subvert[s] or impair[s] user autonomy, decisionmaking, or choice, regardless of a business’s intent” [3]. The term dark patterns, along with related terms such as “deceptive design”, has gained purchase in the practitioner community and beyond [18], allowing a discourse to emerge that connects

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technology practitioners (who are creating and shaping the next generation of technologies), scholars (who are seeking to identify what kinds of design decisions impact the autonomy and agency of users), legal practitioners (who are seeking to classify illegal design and nudging practices under law or statute), and regulators (who are seeking to identify which practices should be sanctioned).

Through this SIG, we seek to extend the impact that this growing community of scholars has already had on forging trans-disciplinary connections across HCI, computer science, design, law, and regulation. We will seek to introduce interested community members at CHI to this rapidly growing research area while strengthening existing community partnerships, build knowledge of state of the art across many different domains and disciplinary perspectives, and identify shared research goals to pursue as a community in the coming years.

In 2022 alone, numerous high-profile regulatory and policy reports were released in the European Union [1, 9, 11, 17, 19], United States [2], United Kingdom [5], and beyond that describe both the threats of dark patterns and related deceptive design practices and provide an initial framing for regulatory action. However, regulators continue to seek evidence and probatory value of the impact of dark patterns—an area where HCI scholars are well positioned to become international leaders in translational scholarship on this important topic.

In the past five years, HCI scholars have led the research conversation regarding dark patterns in a range of use contexts. Whether on social media platforms [12, 16], e-commerce websites [14], games [20], or mobile applications [10], dark patterns have been identified and characterized in a variety of domains. Such knowledge has influenced policy making and regulatory sanctions, and is now being reflected in legal definitions (e.g., EU Digital Services Act [7], Digital Markets Act [4], and the Data Act proposal [6], California CPRA [3]). Foundational typologies of dark patterns from Gray [12], Mathur [14, 15], and other HCI scholars have directly impacted the vocabulary used by regulators, including those in numerous recent regulatory reports. While the body of knowledge built by HCI scholars has already enabled the development of important insights for understanding unethical or illegal design practices, further actions of this emerging research community could benefit from alignment on the state of the art of dark patterns scholarship which will nurture areas of future research, including shared definitions, research methodologies, and translational pathways for engaged research.

2 SIG GOALS

The aim of this SIG is to address untapped potential of this trans-disciplinary endeavor across three main areas of focus: 1) Providing opportunities for researchers and practitioners to outline methods for detecting, characterizing, and regulating dark patterns; 2) Identifying opportunities for additional empirical work to characterize and demonstrate harms and inherent risks related to dark patterns; and 3) Aiding convergence among HCI, design, computer science, regulatory, and legal perspectives on dark patterns.

In doing so, we will reflect as a group on foundational constitutive elements for a universally accepted definition that could be used to guide scholarship on dark patterns and the empirical

work this research community should prioritize, while reviewing our methods before widening our scope to evaluate currently not considered use cases. We will further discuss how we can catalyze connections across disciplinary boundaries and, looking forward, assess necessary mechanisms to build strong ties with the legal and regulatory communities in order to trigger both proactive and responsive agendas. Lastly, we will turn toward the effectiveness of available remedies against dark patterns, opportunities to guide designer activities, and discuss potential alternative measures to assist users to make decisions in their best interest. We will structure these conversations around five core themes that have emerged from other symposia and community engagements related to dark patterns in the past year. Each theme will be introduced by a provocateur in short lightning talks. SIG attendees will then have the opportunity to engage in structured conversations on two of the themes.

- *Building blocks.* What foundational definitions should be used to guide scholarship on dark patterns, and which components (e.g., harms, intention, manipulation) should be included and/or prioritized? How should different forms of pattern knowledge be separated, investigated, and codified? What is gained or lost if we use a term other than the known term of “dark patterns” to describe this research area and phenomenon? Are dark patterns similar or different than other kinds of online manipulation (e.g., social engineering, misinformation)?
- *Methodologies.* What kinds of empirical work should we, as a research community, address next? Do we need new methods or methodologies to address dark patterns? How can we assess the evidentiary value from empirical findings of DPs studies to be used in policy and legal proceedings? Which metrics could be used to inspect and classify dark patterns at UI, UX, text, and code levels? How can we reliably understand the magnitude of harms and measure them, particularly when vulnerable users are at stake?
- *Transdisciplinarity and translation.* How do we catalyze connections across disciplinary and national boundaries to encourage engaged scholarship on dark patterns? How can results from web measurement, user studies, and legal assessments intersect and enrich each other? What language can we leverage to translate concerns and evidence across disciplinary boundaries and what new transdisciplinary concepts do we need to form and socialize in order to amplify existing research and engagement collaborations?
- *Communicating with legal scholars, practitioners, and regulators.* What mechanisms do we need to develop (and how) to build robust lines of communication between HCI and computer science scholars and members of the legal and regulatory community? How can scholarship aid in supporting responsive and reactive agendas, but also in proactively identifying areas of tension across disciplinary boundaries that may impact the uptake of scholarship in law and regulatory action?
- *New horizons for dark patterns harms.* What types of dark patterns need still to be analyzed and exposed in other markets/sectors? Which harms caused by dark patterns need

still to be studied, in which contexts, and how might they be exacerbated by intersectional characteristics? How effective are specific remedies against dark patterns, and what can different types of stakeholders do to reduce the harms of dark patterns, to introduce “bright” or transparent patterns, or to engage in advocacy?

3 SIG STRUCTURE

After an initial welcome and brief alignment with the state of the art of dark patterns scholarship, the core of this SIG will consist of a series of structured discussions that will allow participants to consider the current conceptualisation of dark patterns, reflect on past work and open avenues for further investigation, and collaboratively identify future directions for dark patterns, including important collaborations with legal and regulatory institutions and scholars from other disciplines. Table 1 describes these key activities along with proposed timings.

Each SIG organizer will serve as a provocateur for one of the themes that is best aligned with their research area (e.g., design, privacy, law, regulation), building cohesion with established dark patterns scholars and new entrants to the community alike. Each of these themes will be shared in advance in an existing Slack workspace called *Dark Patterns Research and Impact* as individual channels to promote additional engagement in the weeks *before* the CHI conference (e.g., sharing initial thoughts, providing resources, identifying points of interest), *during* the SIG session (e.g., distilling insights from the discussion, offering new points of view, allowing for synchronous participation between remote and in-person attendees), and *after* the SIG event (e.g., distilling insights into opportunities for community action, identifying potential research partners, supporting write-up of key learnings for publication).

We plan to engage participants both in-person and online through a hybrid format. Depending on the technical capabilities of the conference platform (or utilization of a platform such as Zoom), we will either use virtual breakout rooms to mirror the physical breakout conversations for each theme (with each provocateur seeking to engage participants online and in-person) or—if there is a critical mass of online participants—we will run multiple breakouts in online and in-person formats. To consolidate communication across these formats, we will leverage the Slack channels created prior to the event to contain conversation from all participants regardless of how they are joining the session.

Duration	Activity
10 minutes	Welcome and an overview of the state of the art of dark patterns scholarship
10 minutes	Provocateur lightning talks that introduce each organizer and theme of discussion
15 minutes	Theme discussion breakouts, round one
15 minutes	Theme discussion breakouts, round two
15 minutes	Brief summaries from each theme provocateur
10 minutes	Closing and next steps

Table 1: The SIG schedule.

4 CATALYZING FUTURE DARK PATTERNS COMMUNITY ENGAGEMENT

We plan to use this SIG to gather current dark patterns scholars together and also provide multiple points of entry for others interested in engaging with issues relating to dark patterns or deceptive design, legal and policy implications of this work, and addressing issues of the social impact of technologies. Before, during, and after the event, we will invite SIG attendees and members of their research networks to join our Slack instance as an entry point to sharing resources, collaborating on emergent questions in dark patterns scholarship, and identifying partners for work in progress.

After the SIG session is concluded, we will continue the conversation through our Slack workspace, social media posts, and a blog post. We will distill key insights from the SIG discussions into a summary, which may be submitted to Interactions magazine or posted to a community blog. We will also identify pathways to participation in the community by scholars at several different career levels, enabled by the diversity of our SIG organizing group—seeking to support doctoral students wishing to focus on dark patterns as one element of their scholarship, early-career researchers that are beginning to forge research collaborations that address dark patterns in transdisciplinary ways, and established researchers that can aid in orchestrating larger trans-national and multi-institution collaborations on dark patterns scholarship.

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