

EIC'S MESSAGE

Monetizing You

Jeffrey Voas, IEEE Fellow Nir Kshetri, University of North Carolina at Greensboro

In most cases, consumers are unable to control their personal data, and they unknowingly create various forms of value. Should they be compensated?

Fat Tuesday is the last day in this multiweek celebration.

Although Mardi Gras and Carnival celebrations occur annually and for limited time periods, we believe there is a simple analogy between Mardi Gras, social media, and personal private information. Think of social media as Mardi Gras floats (as the platforms) offering billions

hile this title is absurd at first read, you already know that you have a digital profile and that your digital profile has a valuation. We are not talking about the money in your bank account or other physical assets. We are talking about you.

Have you ever attended the annual Fat Tuesday celebration in the southern United States in early spring, maybe in New Orleans, Biloxi, or Mobile? Fat Tuesday is not only a U.S. tradition, but it is aligned with Carnival—a worldwide celebration.¹ In the United States, Mardi Gras is a series of parades occurring over many weeks, where the attendees throw their cares to the wind, just as the floats pass by, and revelers (attendees) beg krewe members for "throws," including plastic beads, cups, and doubloons.

Digital Object Identifier 10.1109/MC.2020.3038509 Date of current version: 11 February 2021 of krewe members (citizens) the opportunity to toss their personal information away freely and continuously. There will be attendees in the street crowds that are very happy to collect that bounty.

Supposedly, there were 3.80 billion social media users worldwide in early 2020.² These users generate data that, we argue, has some monetary value.

In 2016, Facebook supposedly generated US\$62.23 per user in the United States and Canada from advertising.³ Is it reasonable to argue that users' time for viewing advertisements should be compensated and, therefore, that part of Facebook's profits should be redistributed to consumers? In contrast, in advertising models based on blockchain, advertisers pay users for viewing advertisements.⁴ We are not writing this message to argue for or against these approaches—we simply expose them.

Privacy concerns obviously affect personal, private information. If consumers share too little personal

IN THIS ISSUE

n this issue, we return to a topic that was central to several *Computer* issues in 2020: distributed ledger technology and blockchain.

In the article "A Taxonomy for Distributed Ledger Analytics," the authors argue that, with increasing transaction volumes and the proliferation of decentralized applications based on smart contracts, the need for a deeper understanding of distributed ledger technology arises. They offer the idea of distributed ledger analytics (DLA). The authors also outline a taxonomy for DLA and propose that most analyses currently rely on transaction data but that the extended focus areas on governance, smart contracts, and value analytics each offer their own opportunities for future research.

In "A Novel Reputation System for Mobile App Stores Using Blockchain," the authors suggest that thousands of mobile applications may be accompanied by an increase in malware that is detected only after infecting users or when this problem is reported back to the store. They offer

Digital Object Identifier 10.1109/MC.2021.3052614 Date of current version: 11 February 2021 a potential solution that would be to leverage such reports across all mobile ecosystems, creating a reputation system for both consumers and app developers. This article presents a scalable blockchain-based solution for reputation management to provide the necessary requirements while still being cost-effective.

In the last article, "A Secure and Flexible FPGA-Based Blockchain System for the IIoT," the authors assert that blockchain is a promising solution for Industry 4.0 because of its security and scalability. However, they contend that it is not straightforward to apply blockchain to the Industrial Internet of Things (IIoT) because of endpoint security. They also propose a secure and flexible field-programmable gate array (FPGA)-based blockchain system for IIoTs. In their proposed architecture, the secret key generation, sensor data monitoring, and transaction generation are conducted inside the FPGA in an isolated manner. Because only restricted access to the FPGA is allowed, adversaries who have the root privilege still cannot trick the system with illegal or fake transaction generation.

-Jeffrey Voas, Editor in Chief

information, they may lose. How? For example, consumers may lose out on the benefits when a company delivers advertisements that provide discounts. If they share too much, problems such as identity theft can easily occur.

Whether user data are protected depends greatly on the stakeholders' (for example, consumers,

DISCLAIMER

The authors are completely responsible for the content in this article. The opinions expressed here are their own. advertisers, and social media platforms) valuation of such data. Data privacy regulations generally consider two types of consequences: 1) allocative (the total amount advertisers are willing to pay for consumers' data) and 2) distributional (how the amount spent on data is distributed across social media platforms and to consumers).

When personal data privacy is weak, allocative and distributional effects more likely benefit social media providers. The real issue that underlies the privacy debate concerns consumers' lack of ability to control their personal information. The distributional effects of data privacy laws favor social media platforms if they can share user data with advertisers deceptively or without permission and face no penalty.

While little regulatory attention has been paid to this issue in terms of the monetary value of personal data, governments are beginning to take personal data privacy a bit more seriously. Why? Some nations now perceive new national security threats when their citizens are being improperly monitored by foreign governments.

inally, you, as a generator of
data, may unknowingly create
various forms of value, including

monetary, that can be attributed back to you. Will you receive anything back? Don't overlook or forget the value of the data you generate. The "system" is always watching and collecting.

REFERENCES

YEARS

- "Brazilian Carnival," Wikipedia. Accessed: Dec. 17, 2020. [Online]. Available: https://tinyurl .com/on9h29l
- 2. S. Kemp, "Digital 2020: 3.8 billion people use social media," We are

Social, London, Jan. 30, 2020. [Online]. Available: https://tinyurl.com/ u5jva4r

- A. Oreskovic, "Facebook generated almost \$20 from each of its US and Canadian users last quarter," Business Insider, Feb, 2, 2017. [Online]. Available: https://tinyurl.com/ y2mhqsnz
- N. Kshetri and J. Voas, "Online advertising fraud," Computer, vol. 52, no.
 1, pp. 58–61, Jan. 2019. doi: 10.1109/ MC.2018.2887322.[Online]. Available: https://tinyurl.com/y28z8sgo

JEFFREY VOAS, Gaithersburg, Maryland, USA, is the editor in chief of *Computer*. He is a Fellow of IEEE. Contact him at j.voas@ ieee.org.

NIR KSHETRI is the "Computing's Economics" column editor of *Computer* and a professor at the Bryan School of Business and Economics, University of North Carolina at Greensboro, Greensboro, NC, 27413, USA. Contact him at nbkshetr@uncg.edu.

IEEE 22nd International Conference on Information Reuse and Integration for Data Science (IEEE IRI 2021)

Held Virtually | August 10 – August 12, 2021 | http://homepages.uc.edu/~niunn/IRI21

CALL FOR PAPERS. Intelligent Intelligent applications derive from *Information Reuse and Integration* (IRI) and data science. IRI seeks to maximize the utility of information by creating simple cost-effective representations of knowledge. IRI consequently explores strategies for integrating this knowledge into systems and applications. This conference and its constituents support the development of science and technology to improve the human condition. The conference includes, **but is certainly not limited to**, the areas listed below:

- Application—Autonomous Vehicles, Business, Education, Engineering, Healthcare and Medical Informatics, the Internet of Things, Math, Military, Multimedia, NLP, Robotics, Science, Security, Social Networking, Space, Vision, et al.
- Data & Knowledge Representation and Management
- Data Science & Technologies—
- Heuristic Acquisition
- Data Visualization
- Machine Learning & Al
- Al and Security
- Evolutionary Techniques
- Statistical Analysis
- Information Science Theory

Best Paper Award. The best papers will be selected by distinct (cleared) committees and will be the ones, which report novel and promising research work, which have a high potential for world impact. Additional select awards will also be made.

Journal Special Issues will be organized to include the top papers accepted into IRI'21. Call for Workshop Proposals: https://homepages.uc.edu/~niunn/IRI20/call_workshop.html

Instructions. Papers reporting original and unpublished research results pertaining to the above and related topics are solicited. Full/ regular papers must be in English of up to 8 pages (using the IEEE two-column template instructions). Six pages is typical and allows for extension of invited papers being extended for journal publication. Poster and short papers are up to 4 pages long. Full paper submissions can be made to the regular research track or to the industry/application track. Submissions should be double blind and should include only the title and should not include the author(s), affiliation(s), e-mail address(es), tel/fax numbers, and postal address(es) in the paper. The online submission site is: https://easychair.org/conferences/?conf=iri2l><https://easychair.org/conferences/?conf=iri2l><https://easychair.org/conferences/?conf=iri2l><https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclick.mil/?https://easychair.org/conferences/?conf=iri2l><https://noclic

-	
Call for Workshop Proposals: March 12, 2021	Full paper acceptance notification: May 31, 2021
Notification of Workshop Proposals: March 19, 2021	Short paper, poster, and demo paper acceptance notification:
Deadline (full paper research/industry/application/government	June 11, 2021
track): April 30, 2021	Camera ready submission deadline: June 18, 2021
Deadline (short paper, poster, and demo paper): May 17, 2021	Author registration due: July 2, 2021

Digital Object Identifier 10.1109/MC.2021.3051511