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ACM SIGCAS Computers and Society

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Association for Computing Machinery

Advancing Computing as a Science & Profession

Who Are We?

SIGCAS Computers and Society is the ACM Special Interest Group that addresses the social aspects and ethical consequences of widespread computer usage.

SIGCAS' main goals are to raise awareness about the impact that technology has on society, and to support and advance the efforts of those who are involved in this important work.

Our members are computer professionals from both industry and academia, as well as ethicists, psychologists, sociologists and others. We welcome students from a variety of disciplines. Our areas of involvement include computer ethics, universal access to computer technology, security, privacy, and reliability. We collaborate with other ACM bodies that are engaged in related work, such as ACM Committee on Professional Ethics (COPE), ACM US Technology Policy Committee (USTPC), ACM Special Interest Group on Technology Education (SIGITE), and ACM Special Interest Group on Computer Science Education (SIGCSE).

The ACM Computers & Society is an online publication accessible via the ACM Digital Library. The newsletter aims to be an effective communication vehicle between the members of the group.

SIGCAS Computers and Society Readers and writers are invited to join and participate actively in this Special Interest Group.

Membership is open to all, for US$25 per year, and to students for US$10 per year. The link to join up can be found on our web site, at

https://rebrand.ly/JoinSIGCAS

Contribute. The editor invites is contributions of all types of written material (such as articles, working papers, news, interviews, reports, book reviews, bibliographies of relevant literature and letters) on all aspects of computing that have a bearing on society and culture.

Please note that it is NOT a peer-reviewed publication. Submissions are checked for relevance, accessibility and basic suitability by the editors but not fully peer reviewed.

For the latest Call(s) for Papers, or instructions regarding formatting guidelines and copyright policy please see the website: http://www.sigcas.org/. Submissions may be sent to editors_sigcas@acm.org.

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Like to be a regular columnist for *Computers and Society*?
Send us your column suggestion: editors_sigcas@acm.org.

Introducing The SIGCAS Executive Committee

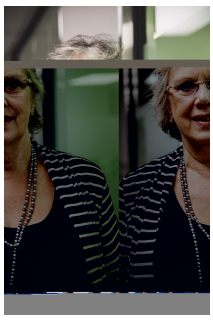
Doug Schuler - SIGCAS Chair.

I have been working in the field of computers and society for over 35 years, as an educator, researcher, developer, author, speaker, and organizer. I have written numerous articles, books, and chapters on this topic, which I won't list here. I worked with the practical side with others to establish the Seattle Community Network in the late 80's and I've had the good fortune to discuss these topics with colleagues from around the world. I'm now retired from teaching at the Evergreen State College, developing CSCW software at Boeing, and campaigning with Computer Professionals for Social Responsibility.

My plan now is to keep active for the foreseeable future to help keep the opportunities and challenges presented by computing visible and to help focus our energy appropriately. In my exploration of civic intelligence, the collective capacity to address significant issues effectively and equitably, I continually asked the question, "Will we be smart enough, soon enough?" which should resonate with this community.

Lisa Kaczmarczyk - Vice Chair.

As Computing for Social Good has been a personal and professional passion my entire career I am very pleased to be the incoming SIGCAS Vice-Chair. I am a strong proponent of collaborative and transparent process and decision making, and as such am looking forward to working with my Board Colleagues as well as with the greater SIGCAS community to prioritize our goals and then act upon them. It isn't about me, it is about us. What can we do to increase the relevance and usefulness of SIGCAS to the membership and society as a whole? I look forward to learning more from the SIGCAS community about how they would answer that question and working with my Board colleagues to respond.



Allison Clear - Member-at-larger.

I am very pleased to introduce myself. I am an Associate Professor, at the Auckland campus of the Eastern Institute of Technology. I have an extensive academic and professional career that has involved academic leadership in research, scholarship, teaching and curriculum development and publications nationally and internationally. Many years ago I developed a new course "The Impact of Computing on Society" and it has been offered every year for the past 20 years and is still prov ing to be one of the most popular courses on our campus. My research interests include Computing Curriculum development, Gender equity in Computing, ICT in developing countries, and the development of computing education. I look forward to working with the SIGCAS community to further the increasingly important work as computing becomes more pervasive and significant in society.

Mikey Goldweber - Past Chair.

Hello again to the SIGCAS community. As past SIGCAS Chair, I hope many of you are aware of my passion and commitment to Computing for the Social Good. I left a high paying industry job in the mid-1980's (with the Porsche 911 to prove it) to seek a more personally rewarding career path. I landed in education after earning my PhD. However, I felt that being an educator was not quite enough; I needed to help my students see how computing can and should be used to improve society. Working in this area has taken me many places and afforded me the privilege of meeting many amazing colleagues doing amazing things. It also led me to SIGCAS, and after years of being a member, I stepped up into a leadership position. As the Past-Chair member of the Board I hope to continue offering my insights and time as our SIG moves forward to the challenges of the day.

Richard Blumenthal - Editor-in-Chief

Greetings to the SIGCAS Community. Like Mikey, I also left a lucrative job in industry two decades ago to focus on using my computing knowledge to more directly benefit society. Just the same, I am a relative new comer to SIGCAS. My responsibilities include overseeing the production of SIGCAS Computers and Society. I am a Professor and Chair of the Computer and Cyber Sciences Department at Regis University, in Denver Colorado. At Regis, I also contribute to our "Center for Common Good Computing". Recently, I've taken an active role in "Computing for the Social Good in Education". I have a B.S., M.S., and Ph.D. in Computer Science from Lock Haven State, Rutgers University, and the University of Colorado, Boulder, respectively. I am very excited to be working with the Board and look forward to helping make this the best ACM SIG.

SIGCAS

Membership Benefits

Subscription to the online publication ACM SIGCAS Computers and Society, which is published three to four times a year.

Members have access to the full archive of the online publication and its printed predecessor in the ACM DL. Please see www.sigcas.org.

Discounted registration fee for SIGCAS sponsored conferences and workshops. "In cooperation" sponsor of several ACM and non-ACM conferences related to SIGCAS' interests, including LIMITS.

SIGCAS presents two awards each year: The Making a Difference Award and the SIGCAS Outstanding Service award.

SIGCAS-ANNOUNCE mailing list: includes regular announcements of upcoming conferences and calls for participation. SIGCAS-Talk mailing list to enable member-member interactions and the committee will seek to stimulate discussion on this list amongst members. Subscription to the list is restricted to SIGCAS members and is optional for them.

NEWS

Upcoming Conferences

2021

Computer Supported Cooperative Work and Social Computing (CSCW'21)

October 23-27, 2021 — Virtual Event, Canada — https://cscw.acm.org/2021/
CSCW is the premier venue for research in the design and use of technologies that affect groups, organizations, communities, and networks. CSCW explores the technical, social, material, and theoretical challenges of designing technology to support collaborative work and life activities.

International Conference on Advances in Social Networks Analysis and Mining (ASONAM'21)

November 9-11, 2021 — Virtual Event — http://asonam.cpsc.ucalgary.ca/2021/
The international conference series on Advances in Social Network Analysis and Mining (ASONAM 2021) provides an interdisciplinary venue that brings together researchers and practitioners from a broad variety of fields to promote collaborations and exchange of ideas and practices. ASONAM 2021 is intended to address important aspects with a specific focus on emerging trends and industry needs with respect to the Internet, the social Web, and other large-scale, socio-technological infrastructures including a focus on the rising prominence of social network analysis and mining methods and tools in academia, politics, security, and business.

ACM Conference on Fairness, Accountability, and Transparency (FAT* 2022)

June 21-24, 2022 — Seoul, South Korea — https://facctconference.org/2022/index.html
FAT* is an international and interdisciplinary peer-reviewed conference that seeks to publish and present work examining the fairness, accountability, and transparency of algorithmic systems.

The 23rd International ACM SIGACCESS COnference on Computers and Accessibility (SIGCSE '22)

March 3-5, 2022 — Providence, Rhode Island, USA — https://sigcse2022.sigcse.org/info/https://dl.acm.org/conferences/upcoming
The Technical Symposium on Computer Science Education is organized by the ACM Special Interest Group on Computer Science Education (SIGCSE) and is the organization's flagship conference. It has been held annually in February or March in North America since 1970. The SIGCSE organization provides a forum for educators to discuss issues related to the development, implementation, and/or evaluation of computing programs, curricula, and courses, as well as syllabi, laboratories, and other elements of teaching and pedagogy. There are several SIGCAS focused events held at SIGCSE.

The 11th International Conference on Smart Cities and Green ICT Systems (SMARTGREENS 2022)

April 27-29, 2022 — Online Streaming — https://smartgreens.scitevents.org/
The purpose of the 11th International Conference on Smart Cities and Green ICT Systems (SMARTGREENS) is to bring together researchers, designers, developers and practitioners interested in the advances and applications in the field of Smart Cities, Green Information and Communication Technologies, Sustainability, Energy Aware Systems and Technologies.

ACM SIGCAS Computing and Sustainable Societies (COMPASS 2022)

June 27 to July 1 2022 — Seattle, WA, USA
Inspired by the broad agenda of the United Nations Sustainable Development Goals (SDGs), ACM COMPASS is an international forum for the presentation and publication of original research that supports the growth of sustainable societies worldwide, from a broad array of disciplines including computer and information sciences, social sciences, environmental sciences, and engineering.

Note: The ACM Digital Library (https://dl.acm.org/conferences/upcoming) keeps a list of upcming conferences. SIGCAS is keeping an eye out for the 2022 announcement of annual conferences directly focused on issues related to Computers and Society. We'll update the list in the December, 2021 issue of *Computers and Society*.

From The Editor

By RICHARD BLUMENTHAL

Photo: © Richard Blumenthal

Welcome to the second issue of ACM SIGCAS Computers and Society in 2021. We have one more issue planned for this year, in December, 2021. We are currently accepting submissions for this issue; please consider contributing.

Pardon Our Dust

Our astute readers may have noticed a few minor look-and-feel changes with this issue, but hopefully not too many. With this issue, and an attempt to save the SIG some money, I have switched from using a commercial publishing tool to lay out *Computers and Society* to a shareware product. Bear with me as I still figure out how to use the new tool. From a computers and society perspective, I have to admit that I now use at least three large shareware tools in place of previous commercial products. I leave it to the readers to submit future articles debating whether, and if so, when this is a benefit to society. From my perspective, I am impressed with the contributions that computing practitioners make in creating these freely available applications. As a non-profit, it really helps, thanks!

Puzzled

I am puzzled. This is a term that many computing faculty within my university use to describe our understanding of our people's behaviors, who we wish to treat with respect, but also when we do not understand these behaviors. I'm puzzled that there are not more submissions to *Computers and Society*. I'm especially puzzled that more members in our computing community haven't responded to the thought-provoking articles appearing in the previous issues. *Computers and Society* provides an opportunity to explore issues related to computing and society, while furthering the debate and our understanding of such issues. As always, these pieces are captured for the historical record in the ACM Digital Library.

In This Issue

As always, this issue contains several news related pieces including reports on the recently held SIGCAS Showcase event and the GoodIT conference. Next month marks the 50th anniversary of the Intel® 4004, which was the first commercially available general purpose microprocessor. Who can doubt this event changed the relation of computers and society forever.

The issue begins in earnest with a piece from our SIG Chair, Douglas Schuler. Doug's contribution stems the gambit from "bombshells" concerning computing in the international news to recent events associated with our SIG and upcoming events. During my time on the Executive Board with Doug, I've come to appreciate his passion for issues related to computers and society and his efforts to improve our SIG.

This issue also contains Saud Almualla's second Short Piece contribution to Computers and Society. One again, her piece addresses an issue that she discusses with her students, namely "Why Be Ethical"? In a world where unethical computing "bombshells" are in the news virtually every day, such questions are worth considering every day.

As usual, Johanna Blumenthal's next submission in her "Thinking Like a Lawyer" column begins with an everyday situation, which led her to thinking like a lawyer by diving (actually reading) into the terms of service agreements that all of us implicitly agree to. She addresses the terms of service related to storing your own, potentially copyrighted word, in the cloud services provided by commercial companies.

Michelle Trim's provides another, in an ever-growing list of, thought-provoking articles. She focuses on red-flags (my term) that the computing community is missing based on our current attitude towards accepting the business model of social-media-based companies. She's asking us to wake up before the public forces us to. Please read her article since I cannot do it justice here.

This issue includes a first-time submission from Jillian Christine Johnson, a Ph.D. student in Computer Science at the University of Memphis. Her article examines how online social media controls users by providing them with the illusion of freedom, which leads to real concerns being replaced by paranoia. Though, my summary is too simplistic and I encourage a careful read of her article.

I conclude with a short parting opinion[1], which argues that computing curricular reports cannot, and should not, be value-neutral. Furthermore, SIGCAS members should advocate for infusing social issues important to them into the computing curricular guidelines, such as the upcoming CS202X.

[1]My parting opinions are personal and do not reflect those of any organization to which I belong.

We Need Your Short Pieces

Association for Computing Machinery

Advancing Computing as a Science & Profession

acm In-Cooperation

COMPUTERS & SOCIETY

Part of the Executive team's responsibility is to encourage more voices and varied perspectives on topics relevant to computers and society. Consequently, we at the "SIGCAS Publications Group" are seeking short pieces that are relevant, provocative, diverse, and unexpected for our issues of *Computers and Society*. We also hope they will be fun to write.

The possibilities, effects, implications, opportunities, challenges, myths, realities, and struggles related to computers and society that are being played out every day in millions of different ways are helping to determine who we are and where we are going. We want to capture at least some of that.

Your short piece could raise arguments, issues, critical questions, resource needs, current work, research, reviews, discussions, etc. etc. To that end we have developed a robust infrastructure of departments, divisions, bureaus, and other descriptive categories to help convey to you all that this is a vast, very formal and bureaucratized enterprise.

While some of the names may be fanciful we are optimistic that the articles they help characterize will be compelling, relevant, and influential.

We plan to experiment with this approach. We are currently planning to run several short pieces per issue. And we will probably add new departments at will. We also plan to be flexible but we do insist that these articles be short. (After all the SIGCAS Newsletter will still run longer pieces!) Shall we say 1,200 words max?

To be considered for the next newsletter please submit your short piece to the SIGCAS Newsletter Editor, Rick Blumenthal, editors_sigcas@acm.org, by March 1, 2021 (the subsequent issue deadline will be in May, 2021). Please include "Short Piece" in the subject line.

COMPUTERS AND SOCIETY AREAS OF INTEREST

- News From _____ (community, company, department, movement, country, sector, dimension, rain forest, or what-have-you)
- Your Resolution or Manifesto Goes Here Desk
- Not All is Wrong Department
- Systemic Racism & Black Lives Matter Studies and Reports
- Teaching about Computers and Society
- Social Responsibility in Computing Department
- Department of Development Studies
- Ominous Development Department
- What Could Possibly Go Worng? Department
- Office of Emerging Technological Directions
- Voices of Practitioners and Younger Professionals
- Department of Diversity and Inclusion
- Climate, Biodiversity, and the Environment Department
- History Department (of SIGCAS and Computers and Society)
- Thrilling Adventures in Computing
- Looking at SIGCAS: Useful, Enlightening, Maddening or Other Influential Fiction, Poetry, Art, and Movies Related to Computing and Society Division
- Department of Technology Assessment
- War and Peace Studies Hall
- Help me work on myProject.dept
- Science Lab
- Religion and Spirtuality Division
- Gender Notes
- Underscrutinzed Implications Bureau
- Office of Expected and Unexpected Consequences
- What Should We Do Room
- Methods: How to do Computers and Society Group
- Annals of Agnotology
- Algorithms: Good, Bad, and Ugly
- What's a Professional Organization To Do Department
- Automating Evil: Office of Worst Practices
- Chronicles of Civic & Community Tech
- Department of Civic and Collective Intelligence
- Office of Technology Assessment
- Critics Corner (interviews, etc.)
- City Desk / Urban Studies
- Town and Country Consulate
- Point / Counterpoint Forum
- SIGCAS Agenda Development Department
- SIGCAS and Wicked Problems
- On the Job Department: SIGCAS and Employment
- SIGCAS and the Green New Deal
- Personal Perspective Department.
- You Can't Make This Up Department
- Design Perspectives and Perspectives on Design
- Student Voices Division
- Activism Sector
- Patterns of Computing Department
- Limits and Collapse Ministry
- Recent Reviews (books, articles, etc.)
- Steering Tech Department (policy and all the rest)
- Directions and Implications of Advanced Computing
- No Comment Department
- For or From The Archives
- Data and Datafication Office

From the Chair: Outside and Inside News

By DOUGLAS SCHULER

Keywords: SIGCAS News, Works in Progress
Categories: **Social and professional topics** → Professional topics

Here we are. Nearly November. What better time to talk about computers and society and SIGCAS?! This column will be mostly related to thoughts on how we might go further on making our SIG more effective and influential but first…

CAS in the News

Computer systems, of course, are in the news every day, often for very serious infractions. I don't like to harp on these things, but I'm one of those people who thinks that we need to know the reality of the situation. Of course, I'm probably fooling myself. I may just want to know the reality to the extent that I can be disturbed enough to get motivated by it but stopping short of total demoralization. In other words, none of this should be taken as a reason to give up: It's supposed to be a general wake up call! And of course it only reinforces the idea that our SIG may have the toughest and most important job of all — if we take up the gauntlet. SIGCAS members — and those who ought to be SIGCAS members — know that computing is creating new opportunities for doing good as well as for doing evil and helping society to act wisely on these is both a necessary and absolutely daunting enterprise.

Just trying to condense a few of the bombshells of the last month or two is challenging. From the world of social media there were many broad allegations about what was known to the corporations and when it was known. They include connections to far-right theories and claims and to the merchandise (sales!) that promotes them. The rise of these groups and the dangers to democracy are fairly well known. It might not be so easy to find the truth: One prominent social media site closed the accounts of researchers at NYU who were looking into this.

Another allegation was in relation to the use of social media by youth and the dangers to self-esteem and hence to self-harm and even suicide. Clearly the size and power of social media is clearly without historical precedence and makes our probing of it all the more critical. We and others—particularly elected officials and agencies—need to understand this and take action even as we seem to be in uncharted territory.

In other news, criminal hackers have figured out how to remotely shut down hospital facilities and are now demanding ransom payments that must be paid if vital services are to be maintained. Regulators are sending drones out to sea to monitor exhaust from ships. And deep fakes are increasingly better (at tricking people) and easier to develop.

SIGCAS Showcase

Although this edition contains a report on our recent SIGCAS Showcase meeting, I can't resist throwing in a few words. Apparently this was our first standalone meeting in a long time— or at least in the active memory of everybody we asked. I wanted to thank especially Alison Clear for putting out the vision and keeping us focused throughout the process. Thanks to the rest of the volunteers, the board members and Bob Beck and Johanna Blumenthal for support and to Vicki Hanson, ACM's CEO, for her welcome message, our award winners, Barbara Boucher Owens (for Outstanding Service) and Deanna Kosaraju (for Making a Difference) and to all the panelists and participants. We're quite happy with how it all came out and we've started thinking about what we could or should be doing next. One project that we've decided to organize is our upcoming Works in Progress member discussions series (more info below) that will start in early November. We've also begun looking at the other suggestions made during the Town Hall session of the Showcase including developing online resources, helping people in school and those seeking employment find work that is meaningful to them, and helping to broker new alliances and projects within ACM and beyond.

E-Mail Talk

As many of you know there was a flurry of activity on our SIGCAS-talk list several weeks ago. We caught some rare glimpses of the richness of our members' involvement in those messages. Many of our colleagues are working in CAS-related venues as part of their job (e.g. at Microsoft's AI for Good Research Lab, developing public health countermeasures or helping to make legal services more affordable and accessible) and others as volunteers (e.g. with the IEEE Society on Social Implications of Technology (SSIT) or the Australasian Cyber Law Institute).

Although our sample (thus far) is not large enough to draw any broad conclusions there seems to be a healthy participation in systems related to health (e.g. community medical counter-measures and helping to make legal services more affordable and accessible). Work and interest around computing and ethics was also prominent, particularly in relation to education. And interdisciplinary combinations (as might be expected) such as working on "algorithmic fairness and health inequities" or programs to help "design and teach ethics lessons that are integrated into computer science courses," were also notable. Other ideas came up including exploring computing as a profession in order "to take responsibility for the consequences of our work," which to my mind is critical if we're going to become more effective in addressing issues related to computers and society. And to wrap up this discussion, another excellent idea was to create an outreach group that would help bridge the gap between older members and younger ones who are likely to have different perspectives including what issues deserve attention and what futures they envision and are willing to work towards.

On the other hand, as many of you know, there was some (over?) heated discussion / disagreement almost from the very start. I hadn't even known that the list wasn't moderated. The list hadn't been used in quite awhile: a resource that I had always believed (still do) needs to be (and can be) used effectively to further our mission. On the one hand I was very enthusiastic, on the other, not so much. The upshot was that 20 or 25 subscribers left the list that first week. Some just left but many told me why: Some didn't want — or didn't have time for —a new torrent of messages in their mailbox while others didn't like the discord and perceived aggressiveness of some of the messages. (And, speaking of discord, many former subscribers said they would be interested in using a Discord channel if we set one up. And an enterprising member actually set up an online poll which did seem to show substantial interest.)

Although the board is currently wrestling with the pros and cons (as well as the whens, hows, and whys) of moderation, I'm hoping to get the Talk list rolling again in some fashion as one more way in which we can learn about what others in SIGCAS are doing. In my view, thinking about our list as a commons seems like a reasonable perspective. This doesn't mean that anything goes. On the contrary it seems that this perspective necessarily implies fiddling with the rules from time to time to make sure that things are working well for the common good. (It's another story but the idea of the "tragic" commons was brought into our collective consciousness as part of a fairly nefarious agenda. See the Commons pattern in readings below.) We are all members of a professional organization and I don't think it's a bad idea to remember this. We can still disagree but this can be done professionally. And since it's a shared resource we need to remember that this has practical implications: if, for example, a discussion / disagreement is taking up a lot of the time and space, the participants who want to continue, may need to continue it elsewhere. This has parallels in the "real world" of course. It could vary from "take it outside" to "refer it to a committee" (which could, in fact, mean a working group).

Works in Progress SIGCAS Member Discussions Series

Starting in early November 2021 (specifically November 10 at 10:00 am PST) we will be launching our Works in Progress Discussions. Although subject to change our plans are to host regular one-hour sessions on Zoom that are primarily to highlight projects and concerns of SIGCAS members and to engage with (primarily) SIGCAS members. We are thinking of it as a way to help us all get a better understanding of who's in our group and what their interests are as well as to get ideas as to what we'd like to do. The idea is to give our members a chance to present their work or ideas and get feedback from other SIGCAS members. It would be pretty informal and be fairly small. We're imagining it (at least for now) as being limited to SIGCAS members and invited guests or people who are thinking of joining SIGCAS. (Practically, I think this basically means that we won't be broadcasting these events hoping for large

numbers.) The plan is begin the one hour sessions with 20 minutes of presentation and leave the remaining 40 minutes for discussion. Some of the things we'd like to focus on include hearing about the cool things that our members are doing. We will also hear about the work that Richard Blumenthal (yes, our newsletter editor) and Michael Goldweber (past SIGCAS chair) are doing in relation to the ACM/IEEE Curricula 202X Task Force on computer science education. We could also have workshops, panel discussions, debates, participatory design of resources or software systems, policy reports, histories, pitches for working groups or projects, on any relevant topic.

I'm volunteering to present my work on Patterns, Pattern Languages and Wicked Problems and some future plans at the first (guinea pig) session. I hope to see some of you there. I'd love to get your feedback and suggestions for future work. There will be more information on this as time goes on but if you're interested you can take a look at https://www.publicsphereproject.org/ to see some of the "patterns" that myself — and 75 other co-authors — developed for our Liberating Voices project.

COMPASS / ICTD

SIGCAS is a proud sponsor of the Conference on Computing and Sustainable Societies (COMPASS), https://compass.acm.org, which subject to the degree of COVID-19 public health concerns, will be held June 29-July 1, 2022 in-person at the University of Washington in Seattle (USA) with live-streaming of plenary research talks. COMPASS will be co-located with ICTD, International Conference on Information & Communication Technologies and Development https://ictd.org/ which will be held June 27-29, 2022.

Part of our role is helping to get the word out on the conferences we sponsor. It also seems like an ideal time to launch a Sustainable Computing working group in this area. One participant in our recent Showcase suggested something along these lines that could build on the "increasing interest in sustainability across areas of computing." They also suggested that "it would be nice if SIGCAS brought together representatives from the various SIGs." This also, of course would make a fantastic Works in Progress session.

Speaking of Social Media

And speaking of social media, follow us on Twitter and Linked In. Tweet to us with @acmsigcas. And here's the link you can send to your friends and colleagues when they ask you how they too can join SIGCAS: https://rebrand.ly/JoinSIGCAS.

Douglas Schuler
SIGCAS, Historian
Public Sphere Project
Seattle, Washington, USA
chair_sigcas@acm.org

Short Piece

Why Be Ethical

By SUAD ALMUALLA

Some might ask: why should I be ethical? Life would be much easier if I cheated my way out in life! There are a number of reasons for why people want to be ethical. For one, being ethical is in our self-interest. We can protect our community and eventually ourselves if we act responsibly at work preventing unethical practices and fraud and being the best at what we are doing. Life will not look so rosy if we cheated, embezzled, or murdered people. People could hate us, boycott us, call the cops, or attempt to murder us. We could lose reputation or go bankrupt.

The British philosopher Thomas Hobbs thought that an unethical life is 'solitary, poor, nasty, brutish, and short'. In a society where everyone lies, everyone cheats trust will vanish and there will be no respect for property or privacy, Hobbs thought that such a state 'state of nature' where big fish eats the small and where people would be busy keeping what they have while trying to steal more is unproductive. People in such a society will stop contributing and will stop being creative. Only a proper society that guarantees people's rights, property rights, privacy rights and dignity of individuals is a society that is capable of advancing and flourishing. Without the ethical values of (justice, equality, etc.) embedded in laws and administered by society's powers such as the legal system and those systems that hold people accountable for their crimes, society will vanish [2]. Another reason for why people want to be ethical is to protect the cohesiveness in their society and to allow their society to prosper and give back to them and their children. Living in a community make life easier, people cooperate in their communities. One person will take the role of a schoolteacher, another will take responsibility of patients and become a doctor, another will be serving as an administrative in one of the community's public services. It is much easier to live with a group of people than live in a deserted island having to take all roles by yourself; the teacher, the doctor, the person who fitch water, the person who deals with house maintenance. It is also more secure to live with a group of people than to live alone. Even the Bedouins who live in the desert live in communities. But living in a community requires abiding by the community's rules, the dos, and don'ts. The larger the community the more complicated the rules; moral values, national and international laws, corporate culture, religious values are all restricting societal standards of rights and wrongs. Living in a society requires co-existence moving from the selfish state to the law-abiding and moral values-abiding state. Disagreement on moral issues could spur between members of society because people eventually come from different backgrounds; religious, cultural, educational to name a few. Disagreements should encourage civil discourses; they are healthy because they allow members of the community to understand each other's opinions and eventually develop ways to co-exist.

Some people choose to be ethical because their religion or philosophy in life encourage them to become virtuous being just, fair, responsible, and adopting generosity, tolerance, and compassion, avoiding greed, fraud, and spaying. Religions in general encourage living a virtuous life. In some religions there is the benefit of reward after death for virtuous deeds and the promise of punishment for committing vices.

Disagreements should encourage civil discourses; they are healthy because they allow members of the community to understand each other's opinions and eventually develop ways to co-exist.

Wanting to be ethical because it pays off is one thing but wanting to be ethical because you want to live a life of integrity is another thing. Some people choose to be ethical because they want to do the right thing even if it is difficult. This state of ethical sensitivity requires that you continuously ask yourself what I 'ought to do' rather than thinking about interests, rewards, and punishments. Following our conscience and choosing to be ethical even if all the odds in a given situation say that doing the unethical is the best option is what distinguishes us, humans from other creatures. Animals, cats, dogs, and artificially intelligent machines that calculate decisions don't sit down asking themselves 'what we ought to do?' or 'how we should live this life?' [1]. Only humans ask such questions, and this is what separate us, humans, from other creatures; it is the ability to choose to be ethical.

References

[1] Panza, C. and Potthast, A. 2010. Ethics for Dummies, Indianapolis, Indiana, Wiley Publishing.
[2] WARBURTON, N. 2011. A Little History of Philosophy, Yale University Press.

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SIGCAS Showcase

By MIKEY GOLDWEBER, LISA KACZMARCZYK, and ALISON CLEAR

Over the years, SIGCAS has been involved in a number of conference activities. These include

- Workshops co-located with the SIGCSE Technical Symposium,
- In-Cooperation conferences; conferences organized by other organizations whose purpose/mission align with SIGCAS's mission, and
- Sponsored conferences; conferences put on by SIGCAS members and organized as official ACM/SIGCAS conferences: COMPASS, GoodIT, and previously, LIMITS.

However, SIGCAS has never put on a conference style event of its own. That is until this past September.

On Sept 9 & 10, SIGCAS put on the SIGCAS Awards and Showcase event. This virtual event highlighted what SIGCAS is doing as a whole in addition to the activities of its members.

Organized as two half-day virtual sessions featured:

- A keynote address from the 2021 SIGCAS "Making a Difference" award recipient; Deanna Kosaraju of Global Tech Women
- The presentation of the 2021 SIGCAS "Outstanding Service" award to Barbara Boucher Owens.
- A panel presentation on "Computing Industry Issues in a Post COVID world."
- A panel presentation on "Integrating Social Issues in Computer Science Education."
- A panel presentation on "Integrating Social Issues in the Computing Industry."
- A panel presentation on "Climate Change, Sustainability and Computing."
- A Town-hall meeting.

Ninety eight people registered for this free event; hopefully all of whom are current SIGCAS members. As a percentage of the SIGCAS total membership this is indeed a large number. Another perspective regarding this level of participation is to compare this value to the number of required participants. (e.g. Panelists, panel moderators, award recipients, keynoters.) All in all, many (SIGCAS) folks attended just to be part of the conversation.

Conversations is the best way to describe the event. Every panel presentation, the keynote talk, and the town-hall meeting engendered vibrant, vigorous, and lengthy discussions. Most of these had to be cut off so the program could stay on schedule. We have taken note of this fact for future events!

The keynote address, delivered by the 2021 SIGCAS "Making a Difference" award recipient, Deanna Kosaraju, Founder and CEO of Global Tech Women, was less a formal talk then a preamble for a community-wide conversation about broadening participation and community/movement building. It was inspiring to hear about the many ways in which persistence and determination paid off in building a global movement in support of women in technology.

The first panel, designed to speak to the many industry professionals in SIGCAS, presented three different perspectives on how industry is, and can be, a part of addressing societal issues. Alison Derbenwick Miller, Vice President at Oracle, Paul Matthews, Chief Executive of IT Professionals New Zealand and Shereen Shermak, CEO of Nth Party each talked about the interconnected issues of broadening participation and the requirement for workplace flexibility forced by the Covid pandemic. There was cautious optimism that by not returning to the status quo, post-Covid, there are opportunities with regard to broadening participation for underrepresented minorities in the computing fields.

The second panel allowed the Computing for Social Good in Education (CSG-Ed), and Humanitarian Free and Open Source Software (HFOSS) communities (both supported SIGCAS) to showcase their education-focused activities. The ensuing discussions, while touching on a many topics, centered on ideas for sharing resources and scaling up current best practices.

The second day began with a heartwarming tribute to Barbara Boucher Owens, the 2021 SIGCAS "Outstanding Service" award recipient. Barbara oversaw the transition of SIGCAS from its tenuous days nearly being disbanded to its current state. Oddly enough, Barbara, a SIGCAS friend not known for being a person of few words, humbly accepted her award with a grateful thank you and a wish for SIGCAS's continued success.

The second day's first panel returned the focus to industry. We learned that in spite of all the current negative press about the tech industry, it is not all about unrestrained capitalism. One highlight was Google's uber-serious approach to personal privacy baked into its COVID contract-tracing app. The post-panel discussion, while heated at times, kept returning to the hopeful theme that the industry's long-term trends are improving; we just need patience.

The final panel focused on climate change, sustainability and the activities of the Sustainable Computing community. Intellectually, it was probably the most challenging; we enjoy the miracles of our digital age at a seemingly invisible environmental price, one whose payment is starting to come due. The panelists believed that while technology's role has often been negative, technology in conjunction with other broad political, economic, and social approaches, is likely to play useful roles in helping to address the earth's pressing issues.

Finally, the two-day event was capped off with a town hall discussion regarding future desired directions for SIGCAS. An enthusiastic group of people shared and brainstormed ideas such sharing more resources on computers and society for use in education such as a creative commons and a possible folder of short videos from experts in certain fields.

For a 50+ year old Special Interest Group putting on its first proto-conference, the Showcase event was a great success. Awards were bestowed on well deserving individuals. Most important the event facilitated amazing conversations between members. The SIGCAS leadership is already looking for ways to further and broaden these important gatherings. Meanwhile, we want to hear from you about what stood out at the Showcase. You can write us, post on the listserv SIGCAS-TALK, or submit a piece to this Newsletter. We can't wait to continue the conversation.

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Congratulations To

Deanna Kosaraju
Recipient

2021 SIGCAS Making a Difference Award

Barbara Boucher
Recipient

2021 SIGCAS Outstanding Service Award

COLUMN

THINKING LIKE A LAWYER

WAIT, I NEVER AGREED TO THAT: CLOUD STORAGE AND TERMS OF SERVICE

By JOHANNA BLUMENTHAL

Keywords: Copyright, Terms of Service, Computing Law
Categories:
• Social and professional topics~Computing / technology policy~Intellectual property
• Social and professional topics~Computing / technology policy~Government technology policy

COMPUTERS

SOCIETY

Photo: © Getty Images

In April, I decided that I wanted to give my writing more attention by committing to a daily writing practice. Although I really like to express myself using pen and paper, I find that it is much easier if I just digitize my writings from the beginning. I decided that the new version of Microsoft OneNote might be a good way to keep these daily scraps in an organized way. I am a mac user so I haven't used this software much. I opened my version of OneNote, which came with my office 365 subscription for mac. Note: this subscription must be renewed each year in order to keep using the service and to have access to OneNote.

As I went to create the new notebook, there was no option to save the notebook without logging into OneDrive. I did some light research to figure out how to simply save this notebook locally on my file system. According to my research, there were several hacks to get this to work, but none of them seemed to be the straightforward answer I was looking for. I wondered why Microsoft was pushing saving on OneDrive so hard. I was incensed that I was already paying Microsoft an annual subscription, yet I did not have control over where I wanted to save my work. It seemed I was being forced to either 1) not use their nice software or 2) save all of my original works on their server. This made me uncomfortable and got me thinking… like a lawyer.

1. What are my rights to my own work? It seems that I would still own my own copyrights, but what If I couldn't access my work without Microsoft's consent? What happens to my files that are saved in OneDrive after my year's subscription is up if I choose not to renew it?
2. Had I really agreed to this? If I did somehow agree to this through a terms of service agreement, would it hold up in court?

Then I went to work to answer these questions.

Terms of Service

The first place I went to look was for Microsoft's Terms of Service Agreement. For many this can be hard to find, but after a few minutes (being a lawyer and knowing where they usually bury these things), I found it. In case you are looking for it, if you are logged in to your Microsoft account it is at the bottom in the footer there is a little link. Below are relevant parts of the Terms of Service.

At the very top of the screen:

> "You accept these Terms by creating a Microsoft account, through your use of the Services, or by continuing to use the Services after being notified of a change to these Terms" [4].

The rest is separated out into nice headers that are easy to navigate. The section headers are mentioned below with the relevant information pulled out. Some information is taken verbatim and is noted in quotes and others are summarized for the purposes of this article.

> Your Privacy: "The Privacy Statement also describes how Microsoft uses your content, which is your communications with others; postings submitted by you to Microsoft via the Services; and the files, photos, documents, audio, digital works, livestreams and videos that you upload, store, broadcast or share through the Services (**"Your Content"**)."

Note the privacy statement is linked elsewhere and not in the main document itself.

Your Content "We don't claim ownership of Your Content. Your Content remains Your Content and you are responsible for it."

> "To the extent necessary to provide the Services to you and others, to protect you and the Services, and to improve Microsoft products and services, you grant to Microsoft a worldwide and royalty-free intellectual property license to use Your Content . . ."

You must sign in to your Microsoft account at least once per each two-year period or the account will be closed. This is important because a lot of things

happen if your account is closed, namely:

> "If your Microsoft account is closed (whether by you or us), a few things happen. First, your right to use the Microsoft account to access the Services stops immediately. Second, we'll delete Data or Your Content associated with your Microsoft account or will otherwise disassociate it from you and your Microsoft account (unless we are required by law to keep it, return it, or transfer it to you or a third party identified by you). You should have a regular backup plan as Microsoft won't be able to retrieve Your Content or Data once your account is closed. Third, you may lose access to products you've acquired."
>
> Updates to Terms of Service: "We may change these Terms at any time, and we'll tell you when we do. Using the Services after the changes become effective means you agree to the new terms. If you don't agree to the new terms, you must stop using the Services, close your Microsoft account and, if you are a parent or guardian, help your minor child close his or her Microsoft account."

Note: I received an update to these terms of service in an email on May 3, 2020 after I began looking into this issue.

And, of course there is an arbitration clause that applies to anyone in the United Stated and covers all disputes except intellectual property. An arbitration clause limits one's right to have a court decide the outcome of legal disputes. Instead, such disputes are submitted to an arbiter, who basically acts like a private judge. Note, arbitrations can range in formality from being extremely informal and resembling a mediation process to being as formal as going to court. Many companies include known groups of arbiters in their arbitration agreement. Such groups operate according to rules of evidence and procedure that the group has adopted. Arbitration can be less costly than going to court, but isn't necessarily. Arbitration clauses often include cost shifting provisions that require the prevailing party to pay for the costs. Specifics of the arbitration clause in the Microsoft Terms of Service are delineated, but not copied here as this is a bit out of scope of this article.

After reading the Terms of Service, I have concluded that my copyright is mine, but, as with most companies, they are trying to waive liability if others use my content improperly and, it appears they are really putting the responsibility on me to back up my own data somewhere that I have access to it because they have the right to delete it. (since I am writing this first draft on OneNote…I am going to back it up now.). Apparently, if you are a mac user you need to back up using the web version of OneNote and export it. It exports as a zip fie. The sections are in files .one type? Apparently a Microsoft specific file type. Then from my desktop version I think I can print or create a pdf? Not an easy back up in my opinion. I opted to simply copy and paste what I was working on.

But is this enforceable?

Enforceability of Terms of Service Agreements

Terms of Service Agreements are considered contracts between the user of the service and the company providing the service. However much the internet might feel different than other contexts, the Courts have affirmed that a contract is still a contract and the basic rules of contracts apply. (AppleBaum v. Lyft, Inc. 2017). This means that the enforceability of the contract rests on whether there was a valid offer and acceptance1.

What constitutes consent in online or mobile contexts has been a matter of considerable litigation. Fortunately for the Applebaum court, cited above, and this author, J. Weinstein of the Eastern District of New York summarized these cases and categorized four types of online agreements.

> "Browsewrap exists where the online host dictates that assent is given merely by using the site. Clickwrap refers to the assent process by which a user must click "I agree," but not necessarily view the contract to which she is assenting. Scrollwrap requires users to physically scroll through an internet agreement and click on a separate " I agree" button in order to assent to the terms and conditions of the host website. Sign-in-wrap couples assent to the terms of a website with signing up for use of the site's services...." (Applebaum quoting from Berkson v. Gogo LLC, 2015 [3]).

The courts appear to have used these terms inconsistently, but the enforceability has hinged on whether the user had "reasonable notice" of all of the terms and some manifestation of consent, like clicking an "I agree" button. According to the Applebaum court, these cases should consider the totality of the circumstances based upon what a reasonably prudent user would do. That court put some weight behind the idea of a user being able to move forward without having been presented all of the terms of service2.

To be honest, I can't remember when I first created a Microsoft account or whether there were terms of service I had to agree to before I continued using the service. However, the Applebaum court also found it problematic that the updated terms of service were presented in a manner that "discouraged recognition of the existence of lengthier contractual terms that should be reviewed." I, therefore, might argue that the email updating terms of service leaves room for litigation.

Microsoft not the only One

Although it was Microsoft and their OneDrive policies that inspired this article, Microsoft is one of many software companies that offer users content storage in the cloud that are subject to the service provider's Terms of Service agreement.

Google Drive

One could argue that Google's Terms of Service are a bit easier to find than Microsoft's based on the fact that this can be found directly under the account button that one clicks to sign out or change accounts. However, the print for the link is still pretty small. When you click it, like Microsoft, there are some pretty nice headings to navigate.

Google also assures a user that the user's content remains the user's and that the user retains intellectual property rights (Alphabet, Inc. 2020). However, the license you grant to Google to your content appears much broader than Microsoft's. You grant them the license to:

> "host, reproduce, distribute, communicate and use your content… publish it if you made it visible to others . . .modify and create derivative works based on your content and sublicense these rights" [1].

They give examples of how they might do each of these actions that seem to make these uses pretty narrow, but the way these examples are phrased, the language doesn't necessarily legally limit the license. The wording is different and more limited in Microsoft's terms of service. These slight variations of phrasing often have a larger impact on the legal meaning. It is possible that a court would use general contract provisions that favor the non-drafting party, but I wouldn't rely upon that.

There is a section in which you can report infringement of your intellectual property to Google and they will help you take some action against the infringer.

There is a Google drive specific terms of service in addition that states:

> "We will not use your content for marketing or promotional campaigns."

There are also ways to remove your content and your account.

Apple's iCloud

There are specific terms of service for iCloud (one of apple's services). These terms of service can be found in the footer of Apple.com website. Their terms of service are much more geared towards the user not uploading content that is illegal, would cause harm or is designed to disrupt apple's services. They certainly put the responsibility on the user to backup their content as well. They also assure your content remains yours, but there is an automatic license for content you make publicly available. Apple may delete backups for devices that have not been backed up in 6 months. Apple may terminate your account upon 30 days notice [2].

Conclusion

Whether or not internet and cloud storage companies' terms of services are enforceable turns on how it is presented and whether the court believes a reasonably prudent user would have had the opportunity to review the terms before being bound to them. As such, I might be tempted to encourage readers to always read the terms of service, but the reality is that most users are not going to read the terms of service and/or are going to use the service and bypass whatever they have to in order to use the service whether or not they really want to agree to the terms of service. After all, these technologies have become integrated into most people's lives in a manner that users feel they "need" to use them. Likewise, companies will continue to follow the latest law. This means that they will change their terms of service formatting and presentation to make sure users are bound to the terms of service and those terms will be written to protect the company to the greatest extent possible.

This leaves us with a few options. First, and most obviously we can be aware of these policies and act accordingly. We can be cautious about what content we store in the cloud using these services (storing only what we need to or only those things we would be OK being subject to these policies) and backup our content regularly in ways we control (either locally or on servers we control). Second, we can take advantage of the fact that these companies generally are law abiding. To the extent we don't like these terms, or find them unfair, we can lobby our lawmakers to change the laws with respect to these practices4. Finally, many of us are making the industry. If we don't like where it is heading or where it is now, we can make products and companies that operate differently. Furthermore, we can create industry standards that apply to all software companies and that protect individual's rights.

1. The basic principles of contract tend to operate similarly internationally; however court interpretations of what constitutes consent may

vary from country to country. If you need assistance regarding a contract matter, whether it involves terms of service or not, you should contact an attorney in your area.

2. Courts may differ in their analysis and how they weigh the facts.
3. In general legal arguments can always be made, but whether or not they are likely to be successful is highly dependent upon the specific facts, the law and precedent in the tribunal and is specific to the time. If you think you may have a claim, you should consult with a local attorney, who can weight the specifics of your case.
4. This may only be true in countries where the citizens have the ability to change laws, the author in no way is suggesting that any readers put themselves at risk lobbying for such changes.

References

[1] Alphabet, Inc. (March 31, 2020). Google Terms of Service. https://policies.google.com/terms?hl=en.

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PS From the Editor

Software Warranty

By RICHARD BLUMENTHAL

The previous *Thinking Like a Lawyer Column*, which I'm not, reminded me of an example I use when teaching dynamic semantics, as part of a Principles of Programming Languages course. Namely, I have purchased several guitars during my life and they all came with a warranty similar to the following,

> "Your new Gibson instrument is warranted to be free from defects in materials and workmanship for the life of the original retail purchaser...".

As you might expect, I have also purchased numerous software products and they all came with a warranty similar to the following,

> "To the extent allowed by local law, this software product is provided to you 'as is' without warranties or conditions of any kind, whether oral or written, expressed or implied".

Along with what appears to be another twenty-five pages of disclaimers, as to why the software product I bought won't work as advertised.

This software issue appears to be systemic,

> "Software companies lack the kind of meaningful warranty most other engineering organizations are expected to provide... For most of today's software ... nobody knows when, how, and why they actually work" [1].

The implications on society are mind boggling!

[1] Shao, Z. (2010). Certified Software. CACM 53 (12), 56-66.

News

GoodIT Summary

By MIKEY GOLDWEBER

In 2015, a trio of European academic computer scientists, Ombretta Gaggi, Pietro Manzoni, and Claudio Palazzi, launched a new conference: GoodTechs: The EAI International Conference on Smart Objects and Technologies for Social Good. GoodTechs grew over the next six years. For 2021 the original trio split with EAI and formed GoodIT as an ACM/SIGCAS sponsored conference; The ACM Conference on Information Technology for Social Good (GoodIT).

The goal of GoodIT is to provide a peer-reviewed venue for novel applications of IT technologies for social good. GoodIT is not about pushing the boundaries of computer science, but about pushing the boundaries of what computing can accomplish in the domain of social good domain. Quoting from the GoodIT call, "Social good is now about global citizens uniting to unlock the potential of individuals, technology, and collaboration to create positive societal impact."

The inaugural GoodIT conference was scheduled for September 9-11, 2021 in Rome, Italy as an in-person conference. One secondary goal of GoodIT '21 was to be the first in-person ACM conference since the start of the Covid pandemic. Though Italy is one of the countries leading the world in vaccination rates, the GoodIT leadership team opted to alter the conference to be hybrid: in-person for those who could travel to Rome, and on-line for everyone else.

The call for papers attracted 140 submissions: 119 full papers and 21 Work in progress papers. Out of these; 39 full papers (approx. 32% acceptance rate), 10 short papers and 10 work-in-progress papers were accepted. The 140 submissions represented contributions from 36 countries.

The breadth of the topics/projects presented was (sorry) breath-taking. From mosquito classification by wingbeat sound, for controlling the spread of malaria, to tracking the impact of fake news on US election cycles, to machine learning algorithms to aid in the detection of child trafficking. There were special tracks on Technology against Covid, Environmental Intelligence, Blockchain and DecentralIzed Technologies for Social Good, and Games for Improving Quality of Life. Finally, the conference also had a short papers track and a work in progress/PhD track.

The conference's contributions extended beyond the purely technical. As a first experiment for a post(?)-Covid conference, much was learned regarding the organization of a hybrid conference. Exactly half of the 69 registrants attended in-person. This ratio also extended to the presentations as well; with 24 of the 59 manuscripts for presentations being delivered in-person. The hybrid format worked very well, probably better than the organizers hoped for.

As an academic conference, GoodIT highlighted social good projects being undertaken by University labs/researchers. My very unscientific analysis seems to point to a greater focus on social good projects by European computing departments/researchers than USA-based departments/researchers. Before one draws any conclusions, I acknowledge some of the numerous mitigating factors. These include:

- GoodIT's ancestry is a European conference and may not be on the "radar" of many non-European researchers.
- The original "call" advertised GoodIT as an in-person conference in Italy. This may have scared off non-European submissions out of fear of intercontinental travel.
- Differences in funding priorities by national and regional (e.g. EU) funding agencies.

Building on the success of GoodIT '21, planning for GoodIT '22 is already well underway. Armir Bujari, Ronaldo Menezes, and George Papadopoulos, the GoodIT '22 conference chairs invite the SIGCAS membership in general and those interested in GoodIT in particular to join them in Larnaca, Cyprus in early September for GoodIT '22. Potential submitters should keep an eye on the SIGCAS website, or monitor the SIGCAS announce listserv for the official Call for Participation.

News

CSG-Ed Drop-in Conversations

By CSG-Ed Team*

Computing for the Social Good in Education (CSG-Ed) focuses on the methods for producing computing graduates who are intended on using their computing education towards the benefit of society. The virtual *CSG-Ed Dropin Conversation* events are essentially an "open house", which provides anyone interested in CSG-Ed an opportunity to interact with others, who are also interested in CSG-Ed, by sharing ongoing projects, discussing topics of interest, receiving feedback on projects and ideas, learning how others are approaching CSG-Ed, etc. These events are scheduled three times a year with a fourth SIGCSE Affiliated Event planned.

In October, the second CSG-Ed Dropin Conversation event of 2021 was held and attended by approximately twenty-five members of the CSG-Ed community. The discussion included how to convince colleagues of the importance of including socially focused courses and topics in the computing curriculum. Several attendees described the research projects they are working on including an effort to characterize computing for the social good. Additional discussion focused on how to include CSG-Ed into classroom activities.

A plug for the next Affiliated (CSG-Ed) Event at SIGCSE'22 was also presented. This event will focus on creating ideal curricular recommendations within the computing curriculum, especially computer science, with respect to the objectives of the CSG-Ed mission. Several members of the CS202X Steering committee, which is currently establishing the next curricular recommendations for computer science education, are planning on attending the CSG-Ed Affiliated Event at SIGCSE'22. If you are planning on attending SIGCSE, hopefully you will also be able to attend the CSG-Ed event, which is sponsored by SIGCAS.

If you would like to attend the next virtual Dropin Conversation and are not already on our mailing list, please feel free to contact us and we'll make sure you receive an invite (rblument@regis.edu). See you soon!

*Mikey Goldweber, Lisa Kaczmarczyk, Johanna Blumenthal, and Richard Blumenthal

COLUMN

Cultivating an Ethos of Social Responsibility in an Age of Misinformation

BY MICHELLE TRIM

Keywords: Value-Neutrality Thesis, Technology, Computing and Society, CS202X, CS Curriculum
Categories: • Human-centered computing~collaborative and social computing~collaborative and social computing theory~social media
• Social and professional topics~computing education~computing education programs~computer science eduction

Recently on the evening news, a report aired about public-school vandalism happening across the country, provoked by a recent trending video on Tik-Tok inviting users to share the biggest thing they were able to steal from their school [1]. Bathroom fixtures have been a popular choice, causing significant damage, which is what has elevated this recent trend to newsworthy status. In keeping with similar trends on YouTube such as at the milk crate challenge [2], this is another example of the power of peer suggestion to motivate others at a distance to mimic or even one-up a particular behavior. What gives social media users the persuasive power to influence the behavior of complete strangers? Meanwhile, I am noticing a resurgence in concern about misinformation online. With the Delta variant of Covid-19 exacerbating the impact of this lasting Pandemic, many worry, including the President of the United States [3], that technology platforms are not doing enough to stop the flow of misinformation about the virus and about vaccines. YouTube's recent takedown of anti-vaccination propaganda [4] is a step in the right direction, but its long-term success as a solution to the algorithmic amplification of vaccine misinformation remains to be seen. Profit motivated tech companies make convenient targets for blame, and without a strong counter narrative, the reputation of computing as a field takes the hit.

Celebrities [5] and politicians [6] both share in the blaming of so called 'big tech' for inciting unlawful behavior and for the current misinformation crisis [7] while others blame users themselves. Some critiques focus on the technologies like search engines and social media platforms [8], with the bulk of the more critical research identifying algorithms [9] as the real culprit perpetuating harm on the internet. The argument about the problem of 'amplifying algorithms' goes something like this: engagement is measured mainly in clicks, and revenue streams depend on users engaging repeatedly on the platform; user engagement is more intense, and more sustained when it is provoked by controversy; thus algorithms are designed to promote controversial content and to elicit a strong, negative emotional response in users [9]. The take-away from most of these critiques is that big tech's amoral manipulation of users happens because advertisers are willing to pay large sums of money to extend their reach. Viewed through a dystopic lens, one might say that a few big companies take turns exploiting their user bases, aka the public, to see who can attract and retain the most advertising dollars.

That money is at the heart of the misinformation issue should not be a surprise. It only takes a quick web search to reveal polemical debates placing social media's exploitive use of personal data on one side and some version of 'you get what you pay for' [10] on the other, with an interesting slice of 'users deserve to be treated like customers rather than products' [11] somewhere in the middle. Are ad-driven platforms manipulating users for profit? Yes, and that answer feels perfectly uncontroversial. And therein lies the connection between social media, search engines, and misinformation. Much of the information found on social media is often found to lack credibility. One of the first lessons young people receive is to 'not believe' what they see online. In my perennial battle with YouTube as a parent of 10- and 12-year-old boys, I make a comment at least once a week about the inauthenticity of most of the content my children consume online and bring to dinner table conversations. Likewise, those of us who have been sucked into a debate of dubious utility on social media often welcome the reminder to 'not feed the trolls' – people who enjoy stirring up strife just for the sake of drawing blood in an argument. So, there exists this rather strange duality, not unlike the unrealism of reality TV shows, where users both know something is staged and yet fall for its unlikely realism in the moment [12]. The manipulation of an audience is not unique to reality TV. As I mentioned before, search engines and social media both use algorithms to manipulate users, provoking engagement and optimizing served content for advertising revenue streams. In addition, there is content on social media and delivered via search results that is of dubious quality or accuracy. Finally, users engage with each other on the Internet in inauthentic ways, using avatars, pseudonyms, and employing purposefully incendiary behavior. Nothing I've said here is new. And yet, there is a crisis right now over users believing inaccurate, fake, and/or invented facts about everything from healthcare to vaccines to elections. Whether it is 'fake news' or 'anti-vaxxer propaganda,' the concern tends to be the same. Why won't people just trust science? Why won't people just believe the experts? I am going to come back to those questions in a little bit. When I talk to my 10-year-old, Arthur, about the fakeness of social media content, he tells me that yes, there are fake product reviews and online personalities that take money to try to sell a particular bad product by pretending it is great. When I asked him about challenges and why people put them on YouTube, he said that it is all about revenue; he describes the objective as people post challenges with the hope that one will catch on, attract enough views that they can monetize the content for advertisers, and then make money from ads connected to their challenge video views. What I found most interesting about this explanation is that the revenue model for monetizing content on YouTube incentivizes posting challenges that are risky, socially unacceptable, or even potentially deadly, and my 10-year-old is already fully aware of that. The quality of the content or its veracity is not what gets rewarded. Only the number of views is used to rank what is worth watching. So, despite Arthur's awareness of fake reviews and money-motivated content, he is still a voracious consumer of YouTube. My point here is that lifting the veil of how the profit model of social media impacts content does not discourage its consumption by young people any more than recognizing the staged, edited, and sensationalized production of reality TV diminishes its popularity.

YouTube challenges and insincere product reviews are a kind of intentional, monetized misinformation. This practice of misinformation as an industry is so pervasive that my 10-year-old was able to observe and recognize the practice of users knowingly creating these fake digital artifacts just to attract advertisers, which makes me think that platforms must be complicit in this behavior. While platforms and their company owners may see content of dubious quality as a money maker, they cannot force viewers to believe what they see online, nor do they control what users choose to share. Or at least that is what I tell my son. Unfortunately, at least one study found that having a younger age may be a stronger predictor of one's likelihood for acceptance of "fake news" than other demographic features [13]. Another, larger study delved deeper, finding that believing fake news isn't actually a pre-requisite for sharing it. They discovered that regardless of age, some users were likely to immediately share religious posts when they matched an existing belief system or to share any posts based on feeling short on time. Researchers also found that users concerned with their reputation within their social group tend not to immediately share fake news, regardless of age, as a consequence of fact checking the post prior to sharing it [14]. In other words, this study found that misinformation is more likely to be immediately shared, increasing its click-count, when users are rushed and/or when the post contains content conforming to a user's existing ideological bias. One could argue that the simplicity of clicking a 'like' button or of re-tweeting or sharing a post invites this kind of snap decision-making, that the rapid spread of misinformation is a design feature and not a bug. So, while computing may not be responsible for the poor-quality content appearing on users' feeds, the design of the technology itself affords and in fact incentivizes the rapid if not exponentially accelerated promotion of disinformation online. Or, as one research team found, "extreme, unreliable news sources get more engagement — that is, user interaction — on Facebook, at the expense of accurate posts and reporting" [15].

That social media and search technology is designed in ways that profit from misinformation makes it difficult to believe that the companies involved can be ignorant of misinformation's ill effects

on society. Ad revenue depends on the ability to predict who is more likely to click on content containing or leading to a particular advertisement. And so, algorithms arrange search results or news feeds in ways that optimize clicks, rather than according to accuracy or quality of information. It seems to me that computer science (at least) should not be surprised at the level of disinformation consumed online, having typified disingenuousness as a means to economic success in the internet dependent, big tech companies within the computing industry. On this question of complicity, Facebook's cognizance of the negative impacts of Instagram on young people generally and teenage girls in particular erases any continued hope the platform might have for plausible deniability [16]. Add to the list of deliberate actions Facebook's "high-switching costs" approach where users are enticed to upload important digital artifacts, like photos, and leaving the platform feels harder because of the investment people have made in the site to store their memories or make rare human connections [17]. Additionally, Facebook purposefully "blocks interoperability," ensuring "that participating in those relationships and holding onto those memories means" staying bound by Facebook's terms of service [18]. To summarize, particular computing technologies have wormed their way into people's lives, openly conducted business in ways that knowingly cause harm, and trespassed ethical, if not legal, boundaries to maintain their indispensability all while profiting from the accelerated spread of misinformation.

When we look at the impact of companies like Facebook on Computer Science as a field, we see that entire areas of research, curricular offerings, and job preparation are happening in support of the work of those industries. Advances in recommender systems, personalization-driven machine learning, data science and even internet infrastructure all enable these companies to succeed and grow. Am I saying that every CS researcher and educator approves of Facebook's practices? No, of course not. But I am saying that the science of computing has a credibility problem because of its facilitation of and cooperation with companies like Facebook. In coming back to my question about why people won't just believe the experts, what if Facebook is to computing as vaccines are to 'Big Pharma' or the pharmaceutical industry? When we ask why the public won't just trust the experts about the safety of vaccines, we tend to scoff and cast aspersions on everything from folks' educational background to their partisanship. Yet Big Pharma has a very negative reputation in the US, and some who distrust vaccines as products recognize the pharmaceutical industry as a key player in the system producing those vaccines [19]. A recent poll finds that "only nine percent of U.S. consumers believe pharmaceutical and biotechnology companies put patients over profits" [20]. Another recent poll shows that almost as many republicans (77%) as democrats (96%) want the US Government to intercede and negotiate drug prices directly with the manufacturers [21]. A poll from 2019 shows the pharmaceutical industry ranking dead last by Americans in the US, with 27% having a positive and 58% having a distinctly negative view of the industry [22]. Vaccine hesitancy is related to the level of trust people have in the medical establishment. While improving in some areas, COVID-19 vaccination rates for Black and Hispanic people still lag behind in most states [23], and so it is not a leap to see vaccine hesitancy as a consequence of the U.S. healthcare system's loss of credibility with minoritized people [24]. Even with the effectiveness of the COVID-19 vaccinations, the reputation of the pharmaceutical industry as one motivated by money extends to doctors, and to the healthcare industry as well. Will computing end up facing a similar problem? Is Facebook to computer scientists as Big Pharma is to doctors?

That Facebook has dramatically lost public trust over the last several years has been demonstrated in poll after poll, with the most recent reporting a decrease in the percentage of Facebook users who get their news on the platform, down to 47% in 2021 from 54% in 2020 [25]. Knowing it has a credibility problem, Facebook has chosen to implement 'Project Amplify' which is designed to prioritize articles in the newsfeed that reflect positively on Facebook itself [26]. Popular computing blogger and author, Cory Doctorow is correct to invoke Orwell [17] considering that Facebook has chosen to mitigate its public mistrust problem by seeking to manipulate users' exposure to news exposing Facebook's misdeeds and mal intent. This sort of misdirection-away-from-the-truth approach to managing its credibility problem only further erodes Facebook's trustworthiness. For science and for computer science to regain public trust, there must be an accounting of mistakes "highlighting the limitations of what we know," [27] and not a gaslighting enterprise where a convenient algorithm directs people away from looking behind the curtain, claiming that there is nothing to see here, folks.

The same lack of transparency enabling Facebook to play its shell game of media attention, Congressional interest, and dark pattern enriched technological cleverness makes it harder for those working on the inside within the computing field to see how Facebook's shadow is extending to cover computer science as a whole. This credibility problem impacts public trust, recruitment of academically strong students, recruitment and retention of diverse candidates, municipal cooperation on public ventures, and even the potential adoption of technologies that could save lives. CS hasn't quite got the rep of Big Pharma, at least, not yet. So, there is still time. There is time for computing to decide to distance itself from those industries and technologies that predate on our young people, that profit from conflict and strife, and that purvey lies in the guise of personalized content.

These are strong words.
These are fighting words.
And so, if they seem too strong to you,
I ask you this: What will be the tipping point?

These are strong words. These are fighting words. And so, if they seem too strong to you, I ask you this: What will be the tipping point? How far can these companies and technologies go before disavowing them becomes palatable? The social media and search industry are not going to change on their own. They are not going to just decide to adopt a different profit model. We need to build better versions of these tools and platforms and stop enabling big tech's perpetuity. Instead of continuing to crank out new models and optimization algorithms and personnel who functionally improve existing bad systems, we need to design new ones. We need to begin with the democratic values of inclusion, diversity, and representation to design the technologies that enable computing to be a model for inclusive scientific exploration and healthy development. We need to take responsibility for our credibility problem and focus on building those pieces of our world that are worthy of public trust.

In his recent Communications of the ACM article, Doctorow describes some clear pathways toward the kind of focus I am arguing for here. He too begins with democratic values, reminding us that we can't rely on fixes that only those already dominating the market are able to provide: "Once we decide that providing a forum for online activity is something that only giant companies with enough money to pay for filters can do, we also commit to keeping the big companies big enough to perform those duties" [28]. And while I agree with Doctorow that we desperately need a national privacy law that enables citizens to seek redress from companies capturing and misusing their information, I find most compelling his argument that "instead of enshrining Google, Facebook, Amazon, Apple, and Microsoft as the Internet's permanent overlords and then striving to make them as benign as possible, we can fix the internet by making Big Tech less central to its future." Doctorow argues for a future where we use the law to require interoperability and to enable competition so that users have the freedom to decide for themselves how much of their lives they want to spend inside Facebook's (or any other company's) walled garden. And some computing organizations and scientists are already working on that path of resistance [29] [30] [31]. Continuing to allow scientific inquiry to be shaped by industry wish-lists makes computing complicit in the actions and activities of these few companies whose dominance is hurting the field, limiting the democratic possibilities that new innovations in computing might bring. We can do better.

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COMPUTERS & SOCIETY

News

Fifty Years Ago

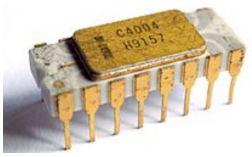
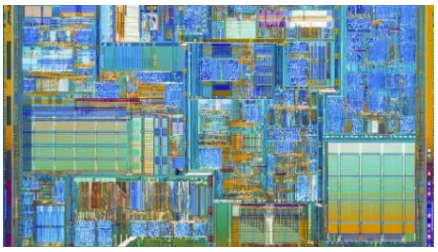


Photo: © Thomas Nguyen
https://commons.wikimedia.org/wiki/File:Intel_C4004.jpg

In Novermber 1971, Intel® released its first microprocessor, the C4004™. The C4004 was the first commericially available microprocessor and society was about to change forever.

The 4004 was comprised of 2,300 MOS transistors, which implemented a 4-bit data path and general-purpose central processing unit. The address bus was 12 bits wide and the instruction words were 8 and 16 bit words. There were fourty-six instructions in the 4004 instruction set (http://e4004.szyc.org/iset.html). The chip was clocked at 740kHz [2]. For comparsion, the laptop on which I'm writing this news article is clocked at over 4 GHz, has a 64-bit word size with about 3 billion CMOS transistors.



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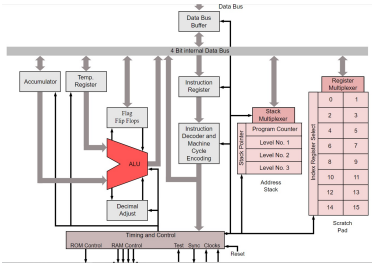

Photo: © Appaloosa

The 4004 was first used in the Busicom calculator and a prototype pinball machine [2].

Photo: © Michael Holley

The 1971 Intel® 4004 sold for $60, while the Pentium Core i7™ sells for $359.

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ARTICLE

Paranoid Posting: An Analysis of Being Too Online

By Jillian Christine Johnson

Keywords: Social Media, Freedom, Paranoia, Consumer
Categories: • Social and professional topics~professional topics~computing and business

General paranoia is the term that best describes a user's social media experience. The spaces we go to socialize online are full of suspicion, potential bad-faith actors, and advertisements that seem to know your every move. This attention-grabbing, habit-forming culture is sold on dreams of limitless love between family, friends, and community (as promised by the Facebook slogan "bring the world closer together"). Genuine connection can be found online, but the heart of this network lies outside fiber optic cables.

In the previous issue of ACM's Special Interest Group on *Computers and Society*, Sual Almualla posted the question: "[Is social media] guided by push algorithms that decide for us what to watch and hence what to think?" This question is compelling due to the idea that computers could control the way humans think, and not the other way around. We could push this line of questioning further by asking, what are the underlying functions that make this control possible? The answer lies in the nature of social media algorithms and the political conditions that help them function. In short, social networking sites create an illusion of freedom that is controlled by hegemonic forces.

Platforms such as Facebook, Twitter, TikTok, and YouTube all have attention economy business models. This means that their stockholders' bottom line rests on the shoulders of the user. Actions such as watch time or retweets become engineered variables used in recommendation systems. According to ex-Google employee Guillaume Chaslot, who worked on YouTube's recommendation algorithm, "The problem is that the AI isn't built to help you get what you want—it's built to get you addicted to YouTube. Recommendations were designed to waste your time." [1]. These sites are deliberately programmed to make you stay online for as long as possible. The sites also aim to keep you engaged and stay reacting to content. Taking from the playbook of social engineering, sites do this through content that baits a user based off of their data. Clickbait, a specific type of content that maliciously hooks in a viewer, undermines user experience, and its nature is not weighed in consideration for recommendation engines [2]. True clickbait uses tactics such as headlines that ask provocative questions that a user must click through to find the answer to, or falsely implying the article contains must-see content such as the identity of the Zodiac killer. But this obvious manipulation is not the only form of bait. In its more generalized form, bait is ubiquitous online. It attacks two archetypes: the consumer and the doomer.

We've all seen this dynamic play out, in both its forms, many times. First, let's consider the consumer. The act of idly browsing apolitical content, searching for products, and checking notifications on a new selfie are ways to act as a consumer, and brands target accordingly. This online archetype is created through exploitation of a user's data footprint for advertising purposes. A consumer's game is buying the hottest trends and engaging with popular brands. They take in information, publish quick thoughts, and produce nothing. Consumers get baited in ways that keep them content, and when that peace is disrupted by neural inhibitors not getting their normal level of serotonin, they seek out notifications and products to fill their impulse [3]. To put a price tag on this phenomenon, the social media market leader Facebook made $28.6 billion off of ad revenue the first three months of the Covid-19 pandemic [4].

The doomer is created out of similar manipulations, but they are specifically targeted to react in "political" ways. A doomer's game is online activism: posting infographics, news, or donation links, making arguments in favor of their ideas, or arguing in the comments of someone with an opposing view. They circulate information regarding their belief systems, which can come from any point on the political spectrum. Doomers get baited in ways that make them feel anger by exposing them to views they find harmful (such as someone concerned about climate change or seeing climate change denial), or vindication by exposing them to information that confirms their views (such as that same person seeing climate change statistics). Both forms of manipulation are based on the impulsive reaction of fear. The instinct to respond to this type of content is not necessarily wrong, but it does benefit social networking sites, and content a user reacts to gets pushed back into their user model.

These sites are deliberately programmed to make you stay online for as long as possible.

This type of online activism could be more accurately described as slacktivism. Youtuber Khadija Mbowe describes slacktivism in saying, "It makes it easy for people to feel engaged in a lot of issues or topics, but it doesn't really go beyond online engagement because all they have to do is repost or retweet something to make it seem like they're aware, or that they're paying attention, or that they care. [It is] virtue signalling" [5]. In the same video, Khadija goes on to talk about the ways online activism can be useful in circulating information, getting donation links to people who can help, and transforming into on-ground activism within one's physical community.

However, the dividing line between useful online engagement and virtue signaling isn't always clear. This lack of distinction is what makes slacktivism so insidious. Because doomers tend to engage in both, a distinction within oneself must be made between working towards social progress and lying in bed feeding an algorithm. Obsessive reading of dystopian news is aptly known as "doomscrolling" [6]. Not only does it rarely lead to change, it also causes the user depression, paranoia, anger, and a general sense of hopelessness. This does not lead to productive, material change; further, it is how doomers get engineered. They are supposed to keep clicking, posting, and watching without threatening the systems controlling their time.

The same individual can act in ways that invoke both the doomer and the consumer at different times or on different social networks. The archetypes are not mutually exclusive, and are fueled by similar control schemas. Both consume media in ways fueled by biased recommendation systems. And both are driven by fear, whether it's of missing out on social life or of environmental destruction. Fear is a positive from the network's perspective because it drives engagement. It gets clicks and views.

According to a study by Pew Research Center on tweeters in the United States, 39% of surveyed users tweeted at least once about national politics over the year, while 97% of these tweets came from just 10% of users [7]. Additionally, Twitter has been shown to statistically amplify reactionary politics [8]—a post asserting a reactionary idea, such as "Trump did nothing wrong," is more likely to appear in a user's feed without their searching for it, compared to posts expressing other views. These facts together suggest a deliberate corruption of user experience, especially within the political realm, with an aim of reaction. A doomer's fear can be justified, but their responses may not be helpful within the community they desire to help, or even their own mind.

The idea of such a feedback loop that exploits a user's emotional vulnerability is described in Wendy Hui Kyong Chun's concept of control-freedom. This neologism describes the deliberate conflation of the limitless radical possibilities of cyberspace—freedom—and the exploitation of this dream's vulnerabilities—control. It is a deliberate illusion of agency that increases the user's confidence while actually making them more vulnerable.

In this system, the role of the user is very different than they may realize. Most people expect their role to be that of a flâneur—a lurker or observer with the job of idly scrolling through content. However, this only part of a user's role. As Chun notes, "In order to operate [...] the Internet turns every spectator into a spectacle: users are more like gawkers—viewers who become spectacles through their actions—rather than flâneurs. Users are used as they use" [9, p 28]. Social media is a churning machine producing spectacles fueled by spectacular reactions. Its grandiose promise of social progress devolves into vain madness, causing more paranoia than change. This fear of being a spectacle is a part of the anxiety of being online. For

example, a frequent fear on Twitter is becoming the "main character," or most posted-about person, a term created by user @maplecocaine in a Tweet stating that "Each day on twitter there is one main character. The goal is to never be it" [10]. While users who log on to talk politics have real fears (about environmental destruction, supply chain breakdown or whether social security will still exist when they retire), in the process of posting this is replaced by paranoia about how their posts will be perceived and whether they risk becoming a "main character."

Attempts to control fear through posting may only make the problem worse. Elsewhere in Chun's discussion of control-freedom, she describes virtual methods of resistance as inferior to on-ground action, similar to slacktivism. Virtual methods in isolation further the profitable reaction of fear: "Technological solutions alone or in the main cannot solve political problems, and the costs of such attempts are too high: not only do such solutions fail but their implementation also generalizes paranoia" [9, p. 25]. This idea highlights the folly of the doomer in trying to allay fear through posting: In fact, posting has only so much use before it begins to amplify fear.

This political angst must be taken outside of its virtual environment in order to break free of its constructed boundaries. A final quote by Chun describes how users can turn control-freedom on its head to change power and knowledge:

By questioning the position of the consumer—and its counterpart, the user—we can begin to expose the objectification and virtualization of others that underlie this myth of supreme agency, and begin to understand how the Internet can enable something like democracy. By examining the privatization of language, we can begin to understand the ways in which power and knowledge are changing. [9, p. 127]

Self-acknowledgment, therefore, is a way to circumvent control-freedom devices. Using the internet as an active tool instead of a passive influencer may help users reclaim cyberspace. Online zines, blogs, and forums, for example, provide spaces for long-form critical analysis rather than shallow 280-character posts. The process of writing substantive arguments that aren't direct responses to someone else's post allows users to think through ideas and form content based on thought instead of reactions.

The lack of distinction between rational fear and paranoia is a real and dangerous consequence of technological use.

The lack of distinction between rational fear and paranoia is a real and dangerous consequence of technological use. You start to question if your emotions are your own, or if they were manufactured by whatever you are consuming. People become distracted by vapid aesthetics and are weaponized politically, while others justifiably fear control but are mentally restricted from meaningful action. Sometimes collective action fights this dynamic, but it is often quelled by actions such as violent police response, misinformation campaigns in media, and corrupted legislature. It takes great efforts of organizing and publicizing to get collective actions off the ground, only for them to be combated with a little bit of effort by the powerful. Viable solutions, then, seem to be getting off corporate-controlled social media networks and creating content that deliberately jams commodified culture.

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News

THE TECH WORKER HANDBOOK

As an increasing number of prominent tech workers break their silence and reveal surprising details regarding the interworkings of renown tech companies [1, 2, 3], other tech workers may be tempted to speak out against their own company on matters of public concern. "The Techworker Handbook is a collection of resources for tech workers who are looking to make more informed decisions about whether to speak out on issues that are in the public interest" [4]*.

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*SIGCAS is neither encouraging or discouraging speaking out against tech companies. If you are considering doing so, you should seek appropriate counsel. The Tech Worker Handbook is simply a resource available to the community. It is not affiliated with SIGCAS in any way.

News

Climate Change & Technology

In November, world leaders are meeting in Glasgow to dimate change. What is the relationship of technology to climate change? Some say technology has led us to precipice of disaster, whereas other believe technology is the only way out of our current predicament. For example, consider data centers,, which consume massive amounts of energy, but also have the potential to execute consumer applications using less energy than might otherwise be possible on local machines (as a result of the data center using greener energy production) [1].

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PARTING OPINION

"Teach your children well" Value-Neutrality and CS202X*

BY RICHARD BLUMENTHAL

Keywords: Value-Neutrality Thesis, Technology, Computing and Society, CS202X, CS Curriculum
Categories: • Social and professional topics~computing eduction~model curricula

Beginning with the work of the ACM *Curricular Committee on Computer Science* in the early 1960s, and continuing approximately every decade since, ACM members have contributed to establishing curricular guidelines for undergraduate computer science education [1, 2]. This work is continuing with the recent formation of the CS202X Steering Committee, which is tasked with revising the recommendations for the next decade [3]. As such reports are reflect the work of their associated Steering Committees and the input of the computing community, "the reports are documents that reflect their time" [6]. Furthermore, curricular reports are not value-neutral, nor should they be (see below). Instead, as SIGCAS members, we should attempt to infuse into the CS202X curriculum the values we expect computer science graduates to exhibit throughout their computing careers. Naturally, what specific values should be included is up to our membership and, as a individual member of SIGCAS, I'll explore this topic in the remainder of this *Parting Opinion* column.

Curricular reports are not value-neutral, nor should they be.

Scientific Objectivity and Value-Neutrality

In the seventeenth century, Scientific Objectivity emerged as an ideal that science should be, and in fact is, value-free [9]. Specifically, "the idea that scientific claims, methods, results – and scientist themselves – are not, or should not be, influenced by particular perspectives, values judgments, community bias or personal interests, to name a few relevant factors" [13]. Closely related is the Value-Neutrality Thesis (VNT) with respect to technology posits that "technology is morally and politically neutral, neither good nor bad; only its uses have moral or other value, not the technology itself" [11].

Until recently, I imagine the broader public only considered the VNT when hearing the phrase "Gun's don't kill, people kill". In addition to being associated with the National Rifle Association within the United States, this phrase was the title of an article advocating for the VNT [12]. Though, I expect this exposure is changing as society questions the social impact of software applications on our lives. That is, in one form or another, focus on the VNT in part of this examination. For example, consider the recent release of *What is Collateral Damage*, an internal Facebook document, which includes the conclusion:

"the mechanics of our platform are not neutral" [7] with respect to the platform's influence on society (both positive and negative). It's interesting that anyone would come to such a non-neutrality position in the first place.

In fact, while most philosophers argue against the validity of Scientific Objectivity and the VNT, there are still scientists and engineers that subscribe to these positions [10, 11]. As a computer scientists, I'll except a there-exists proof approach. Hence, consider the example, which I first learned about from M. Trim, where a presenter at Artificial Intelligence, Ethics, and Society responded "I'm just an engineer," when asked about the ethical implications of the gang-related-crime labeling software they developed [7, 14]. From a more academic perspective, consider *Pitt's Guns Don't Kill, People Do* article, which presents an argument for the VNT [12].

There are also a plethora of arguments against Scientific Objectivity and the VNT (e.g. [10, 11]). One approach to arguing against the validity of the VNT is to demonstrate counter examples [15], which to me is essentially a proof-by-contradiction. With respect to Scientific Objectivity, who can doubt that Alan Turing's work at Bletchey Park to crack the Enigma code wasn't motivated by a value judgment against the Nazi regime. With respect to VNT, software isn't guns and can trigger on its own in response to some event, even if the designers designed it way; though, machine learning appears to raise new concerns. No matter your thoughts on the Scientific Objectivity and the VNT, educators are not value-neutral.

Neutrality and Computing Education

Scientific ideas are disseminated to the community as part of education and it has been argued that such dissemination, and educators themselves, cannot be value-neutral [15]. Once again, nor do I think they should be. Consequently, I argue that CS202X should reflect the societal values we want graduates to exhibit.

Values like adherence to the ACM Code of Ethics [4] and the existing topics from the CS'13 curricular report [2]. Not only these, but desired society values should be considered in every aspect of the curriculum. As a simple example, every time students learn about or implement an algorithm, they should be required to consider the impact of this algorithm on the broader society, that is, beyond their immediate stakeholders. They should learn every action they take has an impact and they can choose to make these actions positive.

In a previous *Parting Opinion*, I encouraged SIGCAS members to be unapologetic not neutral [5] with respect to technology, In this current opinion, I once again encourage our members to be unapologetically not neutral to infusing values into the CS curriculum, as represented by CS202X. What values are important to infuse into the curriculum. Please take a stance and contact the CS202X committee with your ideas.

*Crosby, D., Stills, S., Nash, G., and Young, N. (1969). *Teach Your Children*. Atlantic Records. In using this lyric, I am not implying any endorsement from these musicians or Atlantic Records, but I can hope.

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