

**Cornell Bowers C·IS** College of Computing and Information Science

# "We have met the enemy and it is us": Debating the ethics of computing in the pages of CACM

A. Feder Cooper, Solon Barocas, Karen Levy, and Gili Vidan

#### "We have met the enemy and it is us"



Communications of the ACM, June 1989

#### "We have met the enemy and it is us"

#### Looking at how a field of ethics can come about in response to a particular event...

...through the response to the Morris Worm (in the CACM issue)

## A (very) brief history of the Cornell Morris Worm



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## The Cornell Commission: On Morris and the Worm

After careful examination of the evidence, the Cornell commission publishes its findings in a detailed report that sheds new light and dispels some myths about Robert T. Morris and the Internet worm.

Ted Eisenberg, David Gries, Juris Hartmanis, Don Holcomb, M. Stuart Lynn, Thomas Santoro

Cornell Information Technologies records, Kroch Library, Box 60, Folder C

## A (very) brief history of the Cornell Morris Worm



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sself either by "infect-	nell, about 9:30 a.m. on Thursday, the sys-	"Virus' investigation continued from p	
by manunthing inelf dx. Connell through the func- drag a national high- rest of the second se	<text><text><text><text><text></text></text></text></text></text>	<text><text><text><text><text></text></text></text></text></text>	sible to prevent a repetition of the deple able incidents of last week."

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## A (very) brief history of the Cornell Morris Worm



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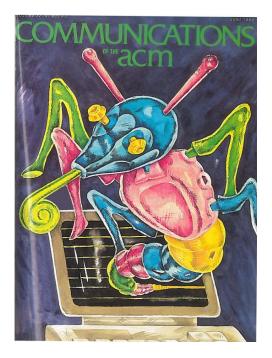
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### **The CACM Special Issue**



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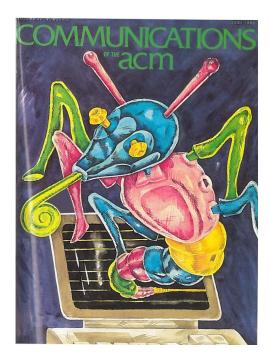
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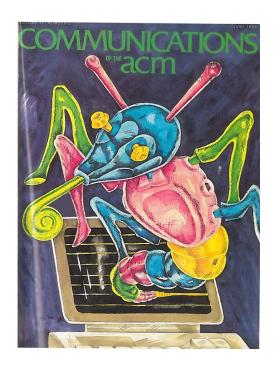
#### The CACM Special Issue

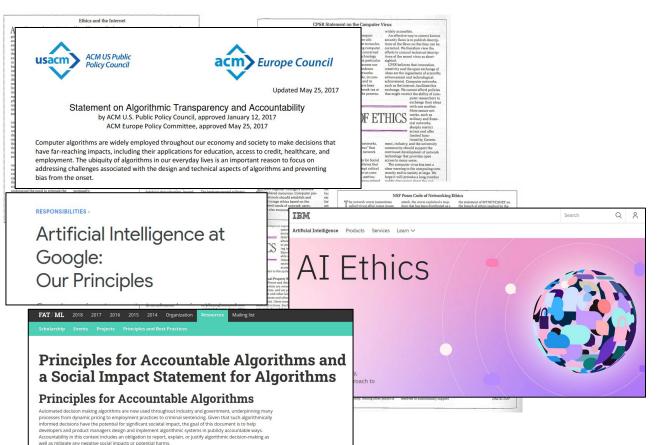


	Ethics and the Internet		1	
A treat human and economic cost, Aresporters drawn from the U.S. academic community have been usershold into a collection of interconnected attrevals called the interact. Bagen as a which of the min-1000 the horizont base become an important national infrastructure toporting an disciplinary community of researchers range, lister alia, from computer scientists and elec- trical engineers to	Euros anu de Internet. Abus of the system thus becomes a federal matter above and bayend simple professional ethos. Statement of Policy The Internet is a ratiocal facility whose utility is lengths a couse of this critical resource poses an escension like the is construated reasoning the chainal cousting of the chaina	. waiter resources (people, capacity, comparing lineage) (a destroys the integrity of computer-based information, and/or . destroys the integrity of compare. The linear extra of the linear extra static in the general mescric million. Particines of it con- tinues to bis said of support research mescreas experimentation on the Internet has the people values, the recassions have the set of recassion of the set of the set of the recassion of the set of the set of the recassion of the set of the set of the set of the recassion of the set of the set of the set of the recassion of the set of the set of the set of the set of the recassion of the set of th		The so-called comp a swept through a na puter network, the hith November (1980) is a d plo of the vulnerability computer systems. It is denied service to those puter users at cademi and military sites. As 6.000 computers across were allocted in only designed to obtain or the impact of a malici- woold have been imm This was an irrespon- that camera be
<text><text><text></text></text></text>	EMEENT OF EXIST Market States and the second secon	on Internet-wide experiments is both irresponsible and unacceptable. The IAB plans to take whatever actions it can, in concert with Fed-	- danieł Alexie Responsibile User M. T. Briden and C. S. Statistical and sensitive and the sensitive and the sensitive statistical and problems by the sensitive Alexies for the sensitive and the sensitive alexies of the sensitive and the sensitive alexies of the sensitive and the sensitive sensitive and the sensitive and the sensitive procession of the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and the sensitive and th	condonad. The Internet should not be treated as a laboratory for uncontrolled experiments in com- puter socurity. Networked software is intrinsically risky, and no programmer program will not have as
		concepts rather than	EMENT' OF ET	destruction of

**CPSR Statement on the Computer Virus** alled computer virus that teach these ethics. widely acrossible. rough a national com-The questions of legal respon-sibility in this instance are ulti-An effective way to correct known security flaws is to publish descrip-1988) is a dramatic exam- mately for our legal system to resolve. tions of the flaws so that they can be alnerability of complex The questions confronting computer professionals and others concerned corrected. We therefore view the efforts to conceal technical descriprice to thousands of comshout the future of our technology at academic, business, y sites. An estimated policy go well beyond this particular case. The incident underscores our sighted. CPSR believes that innovation outers across the country society's increasing dependence creativity and the open exchange of d in only a few hours on complex computer networks. ideas are the ingredients of scientifi advancement and technological the program was not delete or alter data-Security flaws in networks, in computer operating systems, and in achievement. Computer networks. of a malicious views such as the Internet, facilitate this amply demonstrated by break-ins at Stanford University, by the penetraexchange. We cannot afford policies an irresponsible act that might restrict the ability of corr with one another. STATEMENT OF ETHICS works, such as military and financial networks. sharply restrict access and offer limited func tionality. Govern-ment, industry, and the university tee that a self-replicating ill not have unintended tion of national research networks, and by the "Christmas virus" that community should support the clogged the IBM internal network. continued development of network technology that provides open of open networks on the good will and Computer Professionals for Social access to many users. Responsibility (CPSR) believes that The computer virus has sent a this incident should prompt critical review of our dependence on comclear warning to the computing com munity and to society at large. We elves the responsibility at systems are not misplex computer networks, particuhope it will provoke a long overdue idual accountability is er through a network sources. Computer pro-hould establish and NSF Poses Code of Networking Ethics thics based on the The network worm (sometimes called virus) affair raises issues strack, the worm exploited a tranthe statement of BITNETICSNET or is of network users. are door that has been distributed as a the breach of ethics implied by the ourage educators to get software foilsve. Many hours of tal-ent were wasted finding and curing the problems raised by this geve. Many additional hours were lost Both the BITNET Board of Trustees and the CSNET Executive Commit-tee have been struck by the fact that Ethical Network Use Statement LEDIUR OF CREEK many public comments on the event when researchers were unable to The DAP of the NSF DNCRI deplorer passwords or encryption, and destruction or alteration of data ave contained statements such as: "We learned from it." "We will make sure technically access supercomputer and man systems due to system overload and network shutdown. cause disruption to our notional network resources. Industry, govern ment and academe have established We condemn the perpetration of it will not happen again." "He did us a favor by showing...." such experiments, sames, or features commuter networks in support of by workers in our field, be they students, faculty, researchers or providers. We are especially worried about widespread tendencies to jusunaccompanied by expressions of Equally unaccept able are intenethical conorm. As a peofession we have suc-coded technically in creating facilities—the BITNET, CSNET and standards for the ethical use of tify, ignore, or perpetuate such breaches. We must behave as do our DAP defines as unethical any networks. In this regard, the DNCR eccess by legit-system. other components of the national activity which pur-posefully or through erty Rights d data that reside negligence: of science and engi-STATEMENT OF ETHICS neering in our nation's academic, a. disrupts the intended use of the networks industrial, and gov-ernment research laboratories. Par-ther, this technology other contractual b. wastes resources has spread within our nation's commercial research fellow scientists who have organized (people, bandwidth or our nation's commercial research and development organizations and even into their manufacturing and around comparable issues to enforce strong ethical practices in the concomputer) c. destroys the integrity of marketing. duct of experiments. computer-based information just as medical malpractice can We propose to join with the reled. compromises the privacy have a serious effect on an individ-ual's health, one of the costs of our success is that we are now in a posi-tion where misuse of our national compromises the privacy of users
 consumes unplanned resource for control and eradication. vant processional societies and the national research networks to form a Joint Ethics Committee charged with examining existing statements of and private computer networks can professional ethics and modifying We encourage organizations manage have as serious an effect on the them as necessary in order to create a strong statement of networking ethics and recommendations ing and operating networks to adop and rublicity policies and standard nation's economic, defense, and social health. Yet while almost every medical college has at least one course on medical ethics and crone H. Seitzer Ukens Project, M.I.T. for appropriate enforcement age these organizations to adopt 0700 administrative procedures to enforce In its biannual meeting last insists on the observance of ethical appropriate disciplinary responses to violations and to work with appropriate bodies on drafting logislation in this area. Datad J. Farber Cherr guidelines during practice, com-December the Division Advisory puter scientists seem to avoid such non-scientific issues. The worm experiment caused a Penel (DAP) of the National Science Foundation (NSF) Division of Net-working and Communications major disruption in the research Research and Infrastructure (DNCRI) community. Among other points of resolved to unanimously support DNCRIDAR

## The CACM Special Issue





#### **The CACM Issue Ethics Statements**

At great human and economic cost, presuruera drawn from the US. government, industry and the resources drawn from the US. Seeman and the seeman and the seeman and the seeman and the interconnection networks called the latenet. Begun as a which for experimental network research infrastructure supporting an increasingly whicepred, multi- disciplinary community of researchers maging, liter alls, from computer scientists and elec- trical might to	Abuse of the system thus becomes a circleral nutser allows and beyond simple professional ethics. Searcest of Plus The Internet is a national facility whose utility is largely a conse- quence of its wide availability and a constantisty. The search of the other search of the search of the common linear to its continued community. The U.S. government—spontoer of this system—suffers when highly	C. waste resources (people, capacity, computer) through such actions. d. destroys the integrity of and/or -based information, and/or -based information, and/or -based information, e. compromises the privacy of users. The internet exists in the general research milleu. Pertions of 1 com- net operation of the com- net operation of the com- later of the perturbation on networks. Because experimentation on the Internet has the perinal to affect all of its components and users, presentability of the perinal the offect.
physicists, medical	EMENT OF ET	exercise great cau-

Teaching Stu	dents About Responsible Use	of Computers
There has been sume discussion in this forward recently, about what index forward recently, about what index forward recently about what index is the same of employers and the same of employers of the provides around the same of employers of the same of the same of the provides around the same of the provides around the same of the same of the same of the same of the provides around the same of the	M.I.T.Bulletia under exclusion produces and the off memory of the observed of	expressed by setting the accord process of the setting of the sett
is no claim that publicizing these principles com-	EMENT OF ET	HICS ing to other users. Equally unaccept-
pletaly solves any problem nor that it completely answers any question, but it does represent	sponsored research activities that	tional efforts to restrict or deny access by legit- imate users to the system.
one organization's attempt to blue and the single of the single structure of the single single single structure of the single single single single single single single services monght to alk a student to services monght to alk a student to for the conversation. The Principle of Research Section 2016 (Entity For elevation in Consister Depict Albanes in NLTS comparing facility for elevations of the MLT comparising to alk and MLT comparising the single single single single MLT comparising the single single single single single single single sing	normally world make use of other MLT facilities requires peeplic authorization of the director. <b>Process ad Society</b> The operating system used by Pro- tect Athene recovery heading of for protecting information from instanted access, the outside, and the system of from the outside, and the system of the system in a nanous interpret and the system in a nanous interpret and the system in a nanous model and the system in a present world out for the system in a nanous model and the system in a present world out for the system in the a nanous model and the system in the system outside and the system in a nanous model and the system in the system in a nanous model and the system in the system in a nanous model and the system in the system in a nanous model and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system outside and the system in the system in the system in the system outside and the system in the system in the system in the system outside and the system in the system in the system in the system outside and the system in the system in the system in the system outside and the system in the system in the system in the system outside and the system in the system in the system in the system outside and the system in the sy	Individual Property Rights can be appresented by search on the system and owned by search on the system and owned by search carpyright and other laws, signifies the system of the system of the system of the system of the system of the system in clock of problem significant system of data or programs or data for searce on any sinched problem system to be read- outed and the system of the system of the system of the system of the system of data or programs or data for searce of data or programs or data for searce of data or programs or data for searce without the owner's authorization.
the responsibility to use the system in accordance with M.I.T.s standards of honesty and personal conduct. Those standards, outlined in the	attempt to gain accoss to the files or directories of another user without clear authorization from the other user (typically that authorization is	make any such restrictions known to the user. E ferome H. Saftzer Athena Project, M.I.T

The so-called computer virus that	teach these ethics.	widely accessible.	NS	SF Poses Code of Networking Et	thics
I swept through a national com-	The questions of legal respon-	An effective way to correct known	The network worm (sometimes	attack, the worm exploited a trap-	the statement of BITNET/CSNET or
puter network, the Internet, in early	sibility in this instance are ulti-	security flaws is to publish descrip-	called virus) affair raises issues	door that has been distributed as a	the breach of ethics implied by the
November (1988) is a dramatic exam-	mately for our legal system to resolve.	tions of the flaws so that they can be	that are very important to our field.	software festure. Many hours of tal-	worm. The group also unanimously
le of the vulnerability of complex	The questions confronting computer	corrected. We therefore view the	Both the BITNET Board of Trustees	ent were wasted finding and curing	endorsed the following statement:
omputer systems. It temporarily	professionals and others concerned	efforts to conceal technical descrip-	and the CSNET Executive Commit-	the problems raised by this onne.	
nied service to thousands of com-	about the future of our technology	tions of the recent virus as short-	tee have been struck by the fact that	Many additional hours were lost	Ethical Network Use Statement
outer users at academic, business.	policy go well beyond this particular		many public comments on the event	when researchers were unable to	The DAP of the NSF DNCRI deplore
			have contained statements such as:	access supercomputers and mail	lapses of ethical behavior which
military sites. An estimated	case. The incident underscores our	CPSR believes that innovation.	"We learned from it."	systems due to system overload	cause disruption to our national
,000 computers across the country	society's increasing dependence	creativity and the open exchange of	"We will make sure technically	and network shutdown.	network resources. Industry, govern
ere affected in only a few hours.	on complex computer networks.	ideas are the ingredients of scientific	it will not happen again." "He did us a favor by showing"	We condemn the perpetration of such experiments, games, or features	ment and academe have established computer networks in support of
ortunately, the program was not	Security flaws in networks, in com-	advancement and technological	unaccompanied by expressions of	by workers in our field, be they	research and scholarship. Recent
esigned to delete or alter data-	puter operating systems, and in	achievement. Computer networks,	ethical concern.	students, faculty, researchers or	events have accentuated the impor-
he impact of a malicious virus	management practices have been	such as the Internet, facilitate this	As a profession we have suc-	providers. We are especially worried	tance of establishing community
vould have been immeasurable.	amply demonstrated by break-ins at	exchange. We cannot afford policies	coeded technically in creating	about widespread tendencies to jus-	standards for the ethical use of
This was an irresponsible act	Stanford University, by the penetra-	that might restrict the ability of com-	facilities-the BITNET, CSNET and	tify, ignore, or perpetuate such	networks. In this regard, the DNCRI
that cannot be	otamora oniversity, by the penetra-	puter researchers to	other components of the national	breaches. We must behave as do our	DAP defines as unethical any
ondoned. The			research network-		activity which pur
nternet should	and and become a set of the	exchange their ideas	which are now crit-		posefully or throu
		with one another.	ical to the conduct		negligence:
		More secure net-	of science and engi-		
	THENT OF THE	More secure net-	neering in our	EMENT OF FT	HICC a. disrupts the
a laboratory for uncontrolled STATE	EMENT OF ET	THICS works, such as military and finan-	neering in our nation's academic. STAT	EMENT OF ET	HICS a. disrupts the intended use
a laboratory for uncontrolled STATE	EMENT OF ET	THICS works, such as military and finan- cial networks.	neering in our nation's scademic. industrial, and gov-	EMENT OF ET	
laboratory for incontrolled experiments in com. STATH	EMENT OF ET	THICS works, such as military and finan- cial networks,	neering in our nation's scademic, industrial, and gov. ernment research	EMENT OF ET	b. wastes
laboratory for incontrolled experiments in com- puter security.	EMENT OF ET	THICS works, such as military and finan- cial networks, sharply restrict	neering in car nation's academic, industrial, and gov- ernment research laboratories. Fur- ther, this technology	EMENT OF ET	
Industry for incontrolled experiments in com- puter security. Networked software	EMENT OF ET	THICS works, such as military and finan- cial networks, sharply restrict access and offer	neering in car nation's scademic, industrial, and gov- ernment research laboratories. Par- ther, this technology bas spread within		b. wastes resources
a laboratory for ancontrolled experiments in com- puter security. Setworked software s intrinsically risky,	EMENT OF ET	THICS works, such as military and finan- cial networks, sharply restrict access and offer limited func-	neering in our nidion's academic. industrial, and gov- ernment research laboratories. Fur- ther, this technology has speed within our nation's commercial research	fellow scientists who have organized	b. wastes resources through
a laboratory for uncontrolled experiments in com- puter security. Networked software is intrinsically risky, and no programmer		THICS works, such as military and finan- cial networks, sharply restrict access and offer limited func- tionality. Govern-	neering in our industrial, and gov- ernment research laboratories. Fuir- ther, this technology has spread within our nation's commercial research and development organizations and	fellow scientists who have organized around comparable issues to enforce	b. wastes resources through such actions (people, bandwidth or computer)
a laboratory for uncontrolled experiments in com- puter security. Sattive security. Sattive security. Sattive security. Sattive security. Sattive security. Sattive security.	tion of national research networks,	THICS works, such as military and finan- cial networks, sharply restrict access and offer limited func- tionality. Govern- ment, industry, and the university	neering in our mation's academic, industrial, and gov- ernment research laboratories. Fur- ther, this technology has spread within our nation's commercial research and development organizations and even into their manufacturing and	fellow scientists who have organized around comparable issues to enforce strong ethical practices in the con-	b. wates resources through (people, bandwidth or computer) c. destroys the integrity of
a laboratory for ancontrolled superiments in com- puter security. Networked software is intrinsically risky, and no programmer can guarantee that a self-replicating program will not have unintended	tion of national research networks, and by the "Christmas virus" that	THICS works, such as military and finan- cial networks, sharply restrict access and offer limited func- tionality. Govern- ment, industry, and the university community should support the	neering in our nation's scademic. STAT: industrial, and gov- ernment research laboratorics. Fur- ther, this technology has spread within and development carried research and development carried research and even into their manufacturing and marketing.	fellow scientists who have organized around comparable issues to enforce strong ethical practices in the con- duct of experiments.	b. waites resources through such ections [people, bandwidth or computer] c. destroys the integrity of computer-based information
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#### The CACM Issue Ethics Statements

	Ethics and the Internet	
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mathematicians, physicists, medical researchers, chem- ists, astronomers and space scientists.	EMENT OF ET	THICS responsibility to exercise great cau- tion in the conduct of their work. Negli

Teaching Stu	dents About Responsible Use	of Computers	
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principles com- pletely solves any problem nor that it completely answers	EMENT OF ET		or programs belo ing to other user Equally unaccep able are inten- tional efforts to restrict or deny access by legit-
any question, but it does represent one organization's attempt to take a	sponsored research activities that normally would make use of other	imate users to th	ie system.
one organization's artempt to take a step in the right direction. Some ver- sion of these principles have been posted for abust four years, and whenever we have an incident serious enough to ask a student to talk to the director, these principles have provided a useful starting point for the conversation.	hormally voluto make use of other M.T.T. facilities requires specific authorization of the director. Privacy and Security The operating systems used by Proj- ect Athena encourage sharing of information. Security mechanisms for protecting information from unintended access, from within	on the system as third parties, an copyright and of with licenses an agreements. Use these restriction	perty Rights ind data that resid is owned by users d are protected by ther laws, together d other contractu- irs must abide by s. Such restriction shibitions against
Principles of Responsible Use of Project Athena Project Athena Encility for deutorian. It consists of a networked system of workstations and services, and includer commu- and services, and includer commu- net services and includer commu- popertunities for immimers of the ALT. community to share comes that responsibility to subsect the system the responsibility to subsect the system the responsibility to subsect the system of hemativ and exercised conduct.	Uninterfaced access, noise within the system of from the outside, are set minimal. These mechanisms, by themselves, are not sufficient (n existing a state of the system of from privacy is a large community in which protection of individual privacy is a simplering. Uner mutity appearance in the system of from the system of	copying program non-Athena sys- tion outside M.I. of data or progra- them for noned or for financial a public disclosus about programs without the own It is the respons of protected soft	ns or data for use of tems or for distrib .T., against the ree uns or the use of acational purpose gain, and against re of information (e.g., source code set's authorization thillity of the own

The so-called computer virus that	R Statement on the Computer V	
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Internet should not be treated as a laboratory for uncontrolled experiments in com-	EMENT OF ET	THICS with one another. More secure net- works, such as military and finan- cial networks, sharply restrict

#### **Internet Activities Board**

#### **MIT Athena Project**

## Computer Professionals for Social Responsibility

(RFC 1087) January, 1989

(Student handbook) 1985-1986

#### (Member newsletter) January, 1989

NS	F Poses Code of Networking Et	hics
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vorm experiment caused a	Foundation (NSF) Division of Net- working and Communications	appropriate bodies on drafting legislation in this area.

#### NSF

(DAP Panel minutes) November 29-30, 1988

## **Themes in the Ethics Statements**

- Tensions between research and professionalization
- Individual responsibility and the end user
- The relationship between ethics and education
- Computers as (potentially wasted) capital
- Tacit notions of privacy

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### Tensions between research and professionalization

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### Ethics as a part of professionalization

"Just as medical malpractice can have a serious effect on an individual's health, one of the costs of our success is that we are now in a position where misuse of our national and private computer networks can have as serious an effect on the nation's economic, defense, and social health."

"The incident underscores our society's increasing dependence on complex computer networks."

CPSR Ethics Statement, June 1989 CACM Issue, p. 699

"The IAB plans to take whatever actions it can, in concert with Federal agencies and other interested parties, to identify and to set up **technical and procedural mechanisms to make the Internet more resistant to disruption**.

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"The IAB plans to take whatever actions it can, in concert with Federal agencies and other interested parties, to identify and to set up technical and procedural mechanisms to make the Internet more resistant to disruption. Such security, however, may be extremely expensive and may be counterproductive if it inhibits the free flow of information which makes the Internet so valuable." IAB Ethics Statement, June 1989 CACM Issue, p. 710

"CPSR believes that **innovation**, **creativity and the open exchange of ideas** are the ingredients of scientific advancement and technological achievement. Computer networks, such as the Internet, facilitate this exchange. We cannot afford policies that might restrict the ability of computer researchers to exchange their ideas with one another."

## What is "ethics" in relation to professionalization?

"Because experimentation on the Internet has the potential to affect all of its components and users, researchers have the responsibility to exercise **great caution** in the conduct of their work. **Negligence in the conduct of Internet-wide experiments is both irresponsible and unacceptable.**"

## What is "ethics" in relation to professionalization?

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"...unethical and unacceptable ... activity ... purposely:

(a) seeks to gain unauthorized access to the resources of the Internet,

(b) disrupts the intended use of the Internet,

(c) wastes resources (people, capacity, computer) through such actions,

(d) destroys the integrity of computer-based information, and/or

(e) compromises the privacy of users."

Principles of Responsible Use

- Intended Use
- Privacy and Security
- System Integrity
- Intellectual Property Rights

## **Themes in the Ethics Statements**

- Tensions between research and professionalization
- Individual responsibility and the end user
- The relationship between ethics and education
- Computers as (potentially wasted) capital
- Tacit notions of privacy

### Individual responsibility and the end user

"The value of open networks depends upon the **good will and good sense of computer users**. Computer professionals **should take upon themselves the responsibility** to ensure that systems are not misused. **Individual accountability** is all the more important when people work together through a network of shared resources."

"In the final analysis, the health and well-being of the **Internet is the responsibility of its users who must, uniformly, guard against abuses** which disrupt the system and threaten its long-term viability." IAB Ethics Statement, June 1989 CACM Issue, p. 710

With that ability to share comes the responsibility to use the system in accordance with M.I.T.'s **standards of honesty and personal conduct**.

MIT Ethics Statement, June 1989 CACM Issue, p. 704

### Individual responsibility and the end user

"...unethical and unacceptable ... activity ... purposely:

(a) seeks to gain unauthorized access to the resources of the Internet,

(b) disrupts the intended use of the Internet,

(c) wastes resources (people, capacity, computer) through such actions,

(d) destroys the integrity of computer-based information, and/or

(e) compromises the privacy of users."

Principles of Responsible Use

- Intended Use
- Privacy and Security
- System Integrity
- Intellectual Property Rights

## Individual responsibility and the end user

"Choosing the **proper boundaries between functions** is perhaps the primary activity of the computer system designer. ... The [end-to-end principle] appeals to application requirements and provides a rationale for moving a function upward ... **closer to the application that uses the function**."

Salzer, Reed, and Clark, End-To-End Arguments in System Design, 1984, p. 277

(And see Cooper and Vidan, Making the Unaccountable Internet, 2022)

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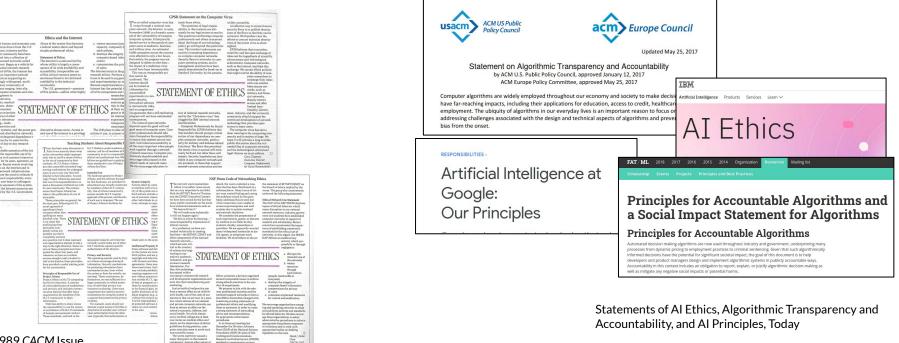
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Principles of Responsible Use

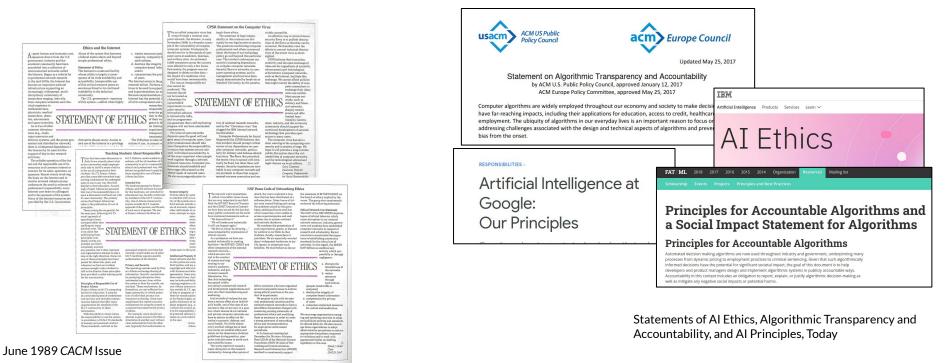
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#### **Resonance with AI ethics today**

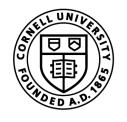


June 1989 CACM Issue

#### **Resonance with AI ethics today**



"The American public and its leaders are beginning to be concerned about computing...Clearly, we can no longer ignore public concerns about our profession. We must take control of professional computing or others will control it for us" Bryan Kocher, ACM President, June 1989 CACM Issue, p. 660



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# "We have met the enemy and it is us": Debating the ethics of computing in the pages of CACM

A. Feder Cooper, Solon Barocas, Karen Levy, and Gili Vidan

Thank you!