

Course Introduction

Information Privacy with Applications
David Sidi (dsidi@email.arizona.edu)

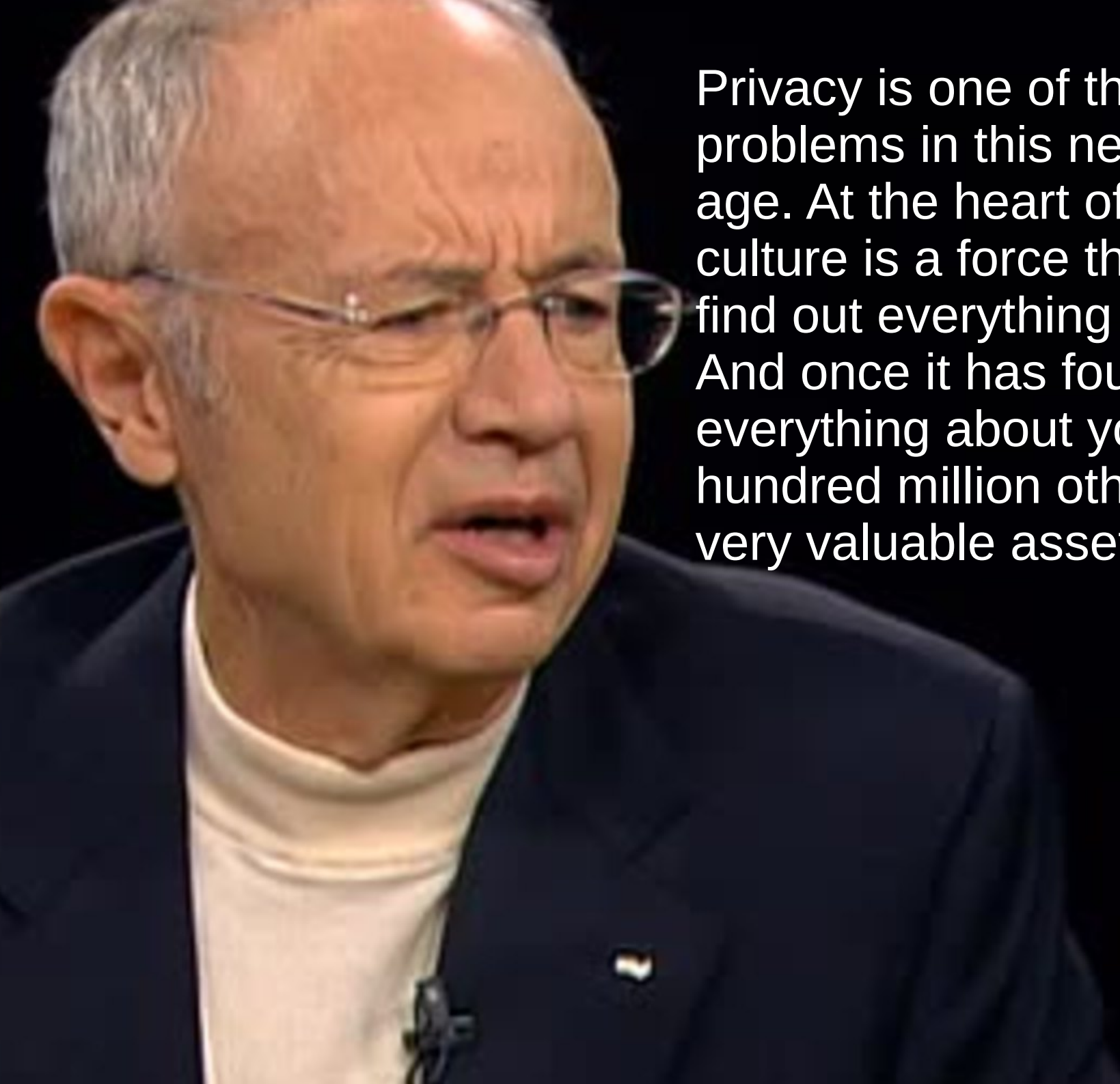
A middle-aged man with thinning hair, wearing a dark suit jacket over a light blue button-down shirt, is speaking. He has a small lapel microphone clipped to his shirt. His right hand is raised, palm facing forward, with fingers spread. The background is dark and out of focus.

“A computational process is indeed much like a sorcerer’s idea of a spirit. It cannot be seen or touched. It is not composed of matter at all. However, it is very real. It can perform intellectual work. It can answer questions. It can affect the world by disbursing money at a bank or by controlling a robot arm in a factory. The programs we use to conjure processes are like a sorcerer’s spells.”

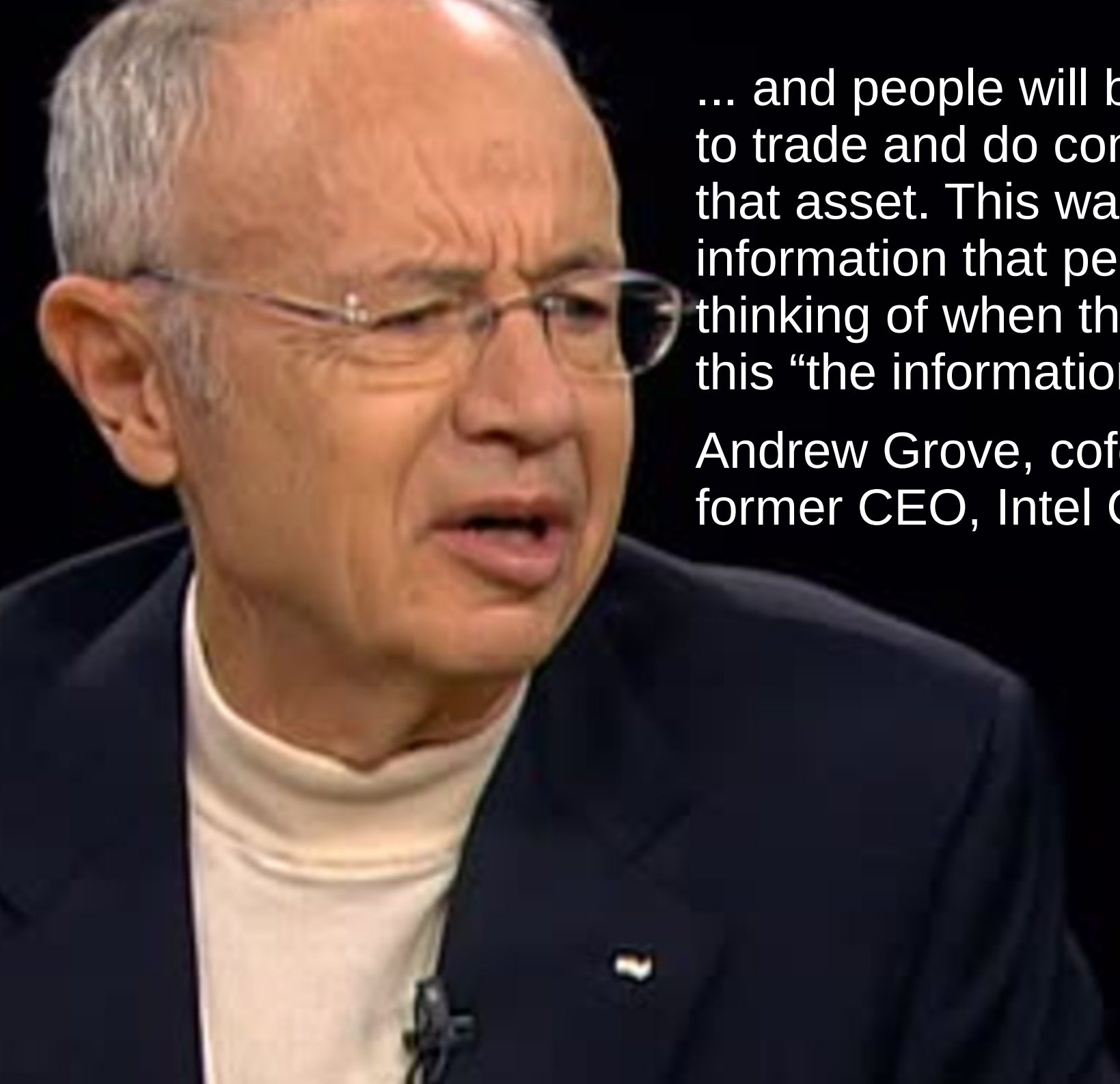
Abelson, SICP



Who will defend us against the dark arts?



Privacy is one of the biggest problems in this new electronic age. At the heart of the Internet culture is a force that wants to find out everything about you. And once it has found out everything about you and two hundred million others, that's a very valuable asset, ...



... and people will be tempted to trade and do commerce with that asset. This wasn't the information that people were thinking of when they called this "the information age."

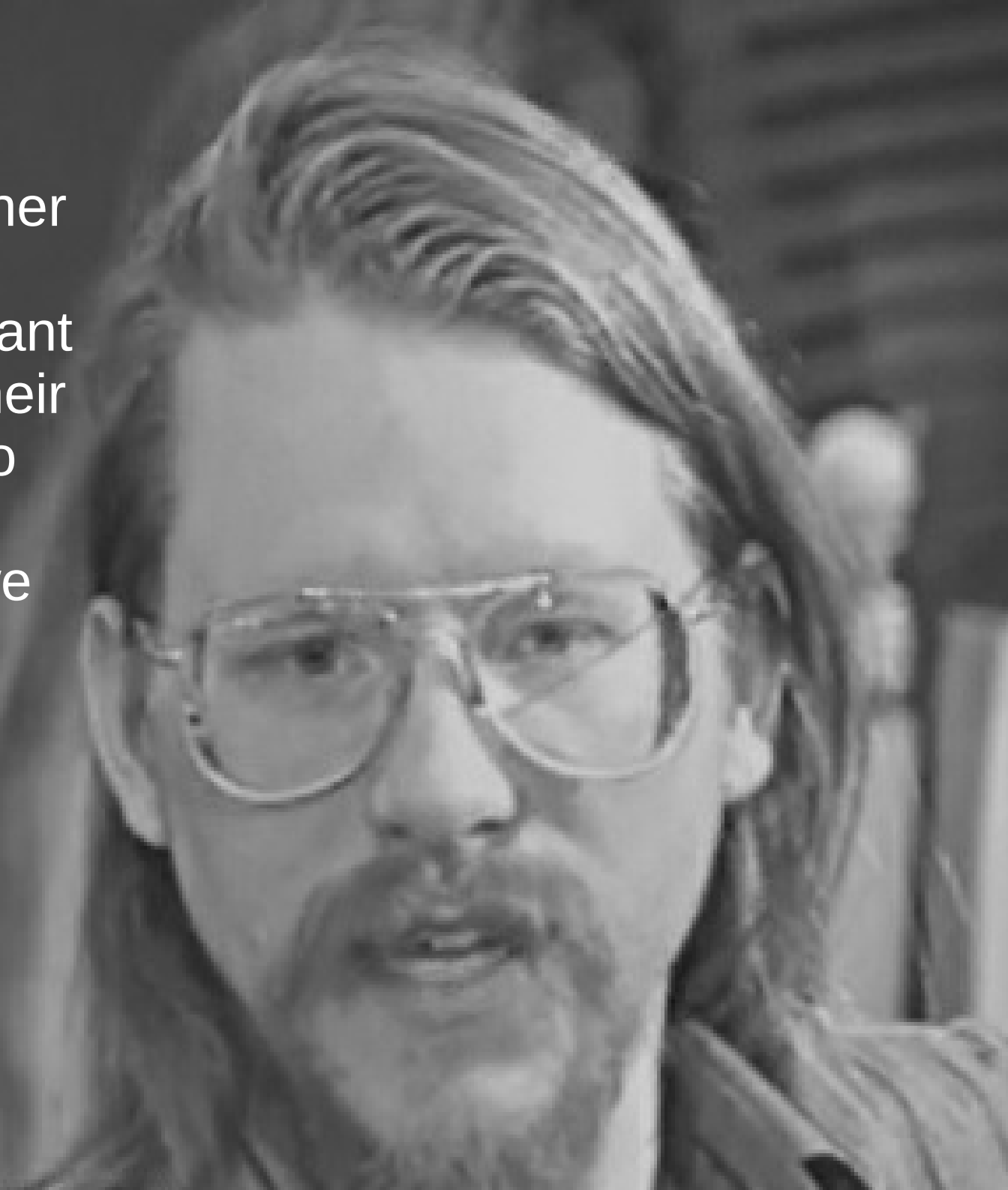
Andrew Grove, cofounder and former CEO, Intel Corp.

“Saying that you don't care about the right to privacy because you have nothing to hide is no different than saying you don't care about freedom of speech because you have nothing to say. It's a deeply anti-social principal.”



We cannot expect governments, corporations, or other large, faceless organizations to grant us privacy out of their beneficence. It is to their advantage to speak of us, and we should expect that they will speak.

ERIC HUGHES

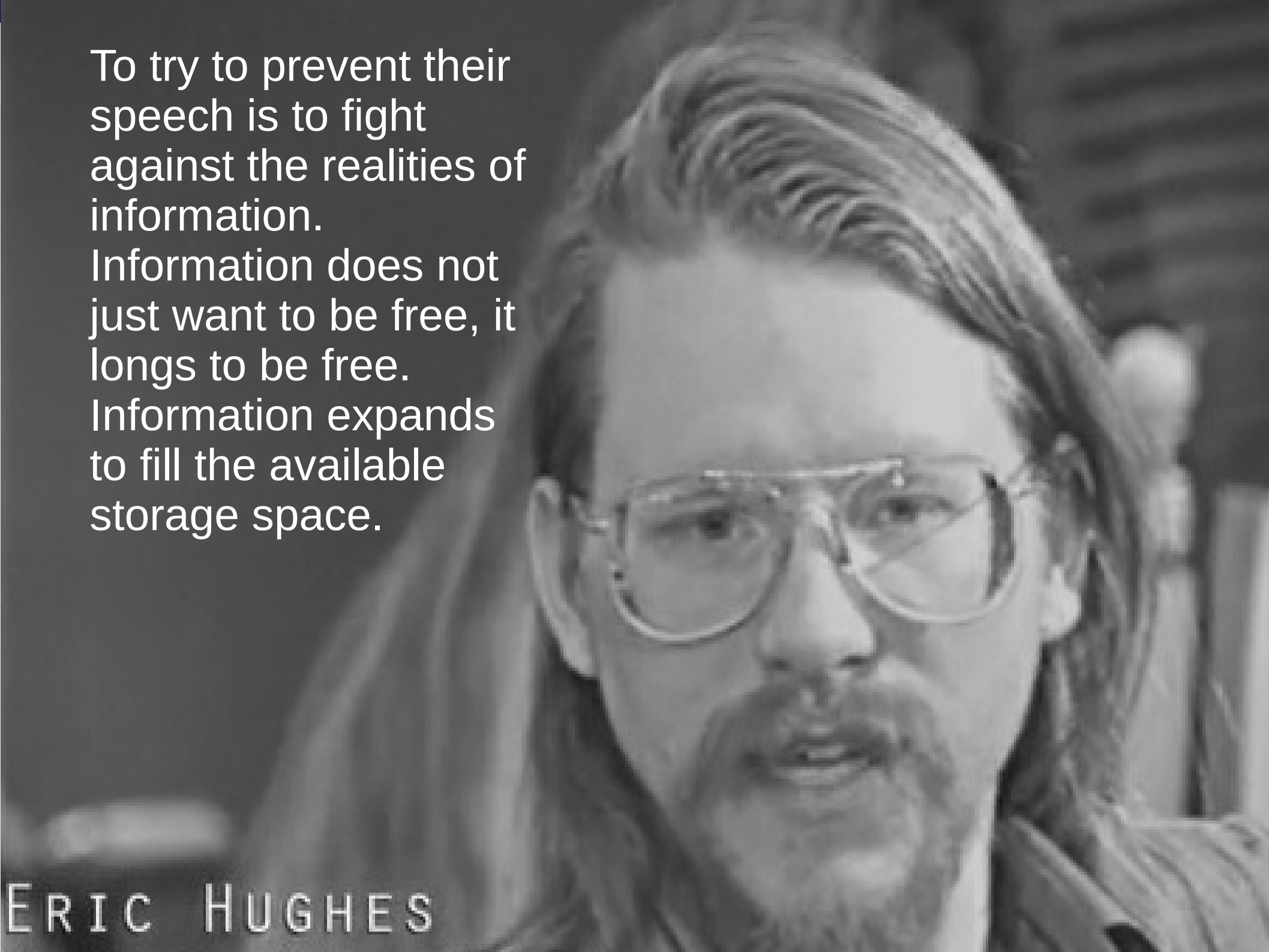


To try to prevent their
speech is to fight
against the realities of
information.

Information does not
just want to be free, it
longs to be free.

Information expands
to fill the available
storage space.

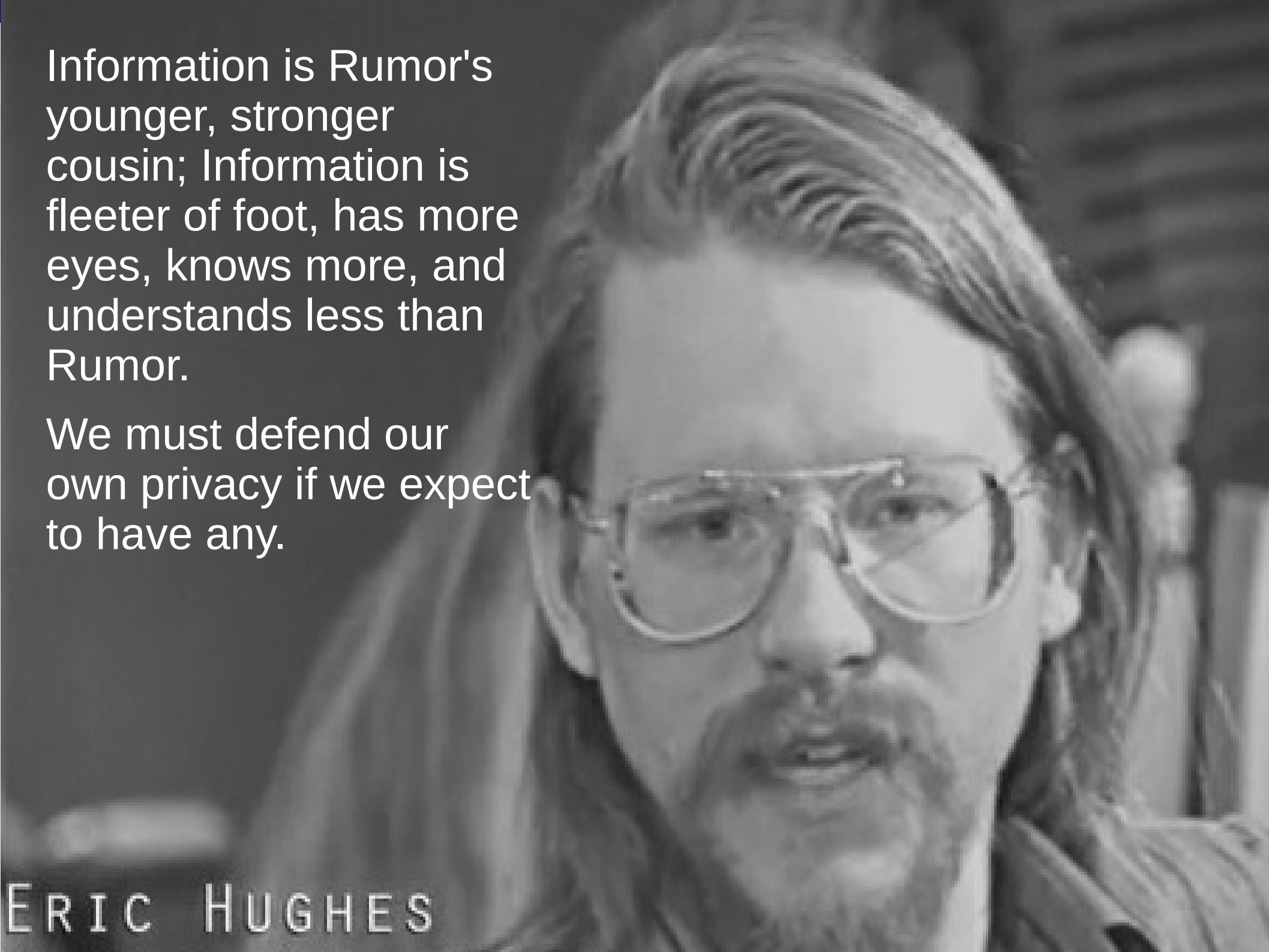
ERIC HUGHES



Information is Rumor's
younger, stronger
cousin; Information is
fleeter of foot, has more
eyes, knows more, and
understands less than
Rumor.

We must defend our
own privacy if we expect
to have any.

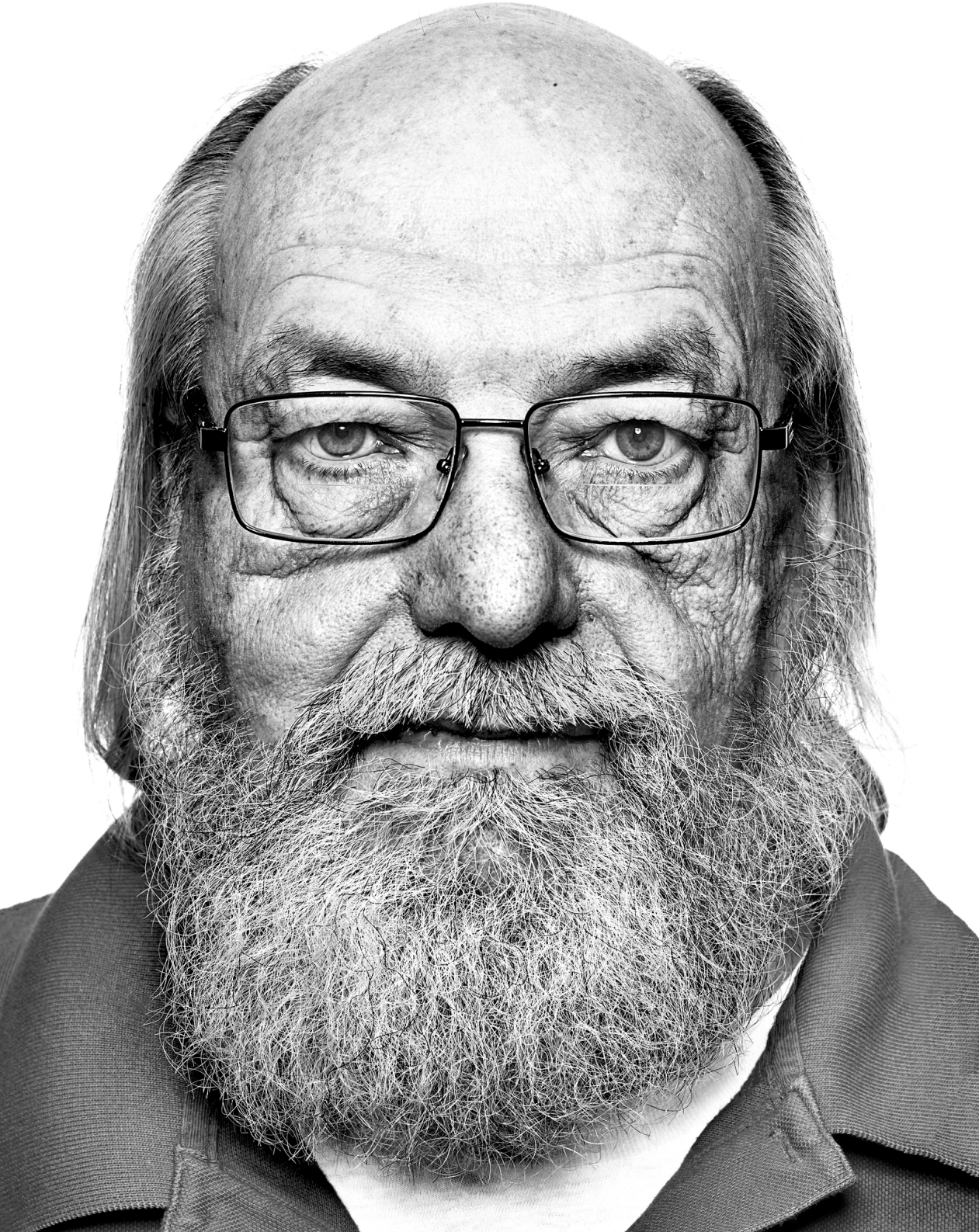
ERIC HUGHES



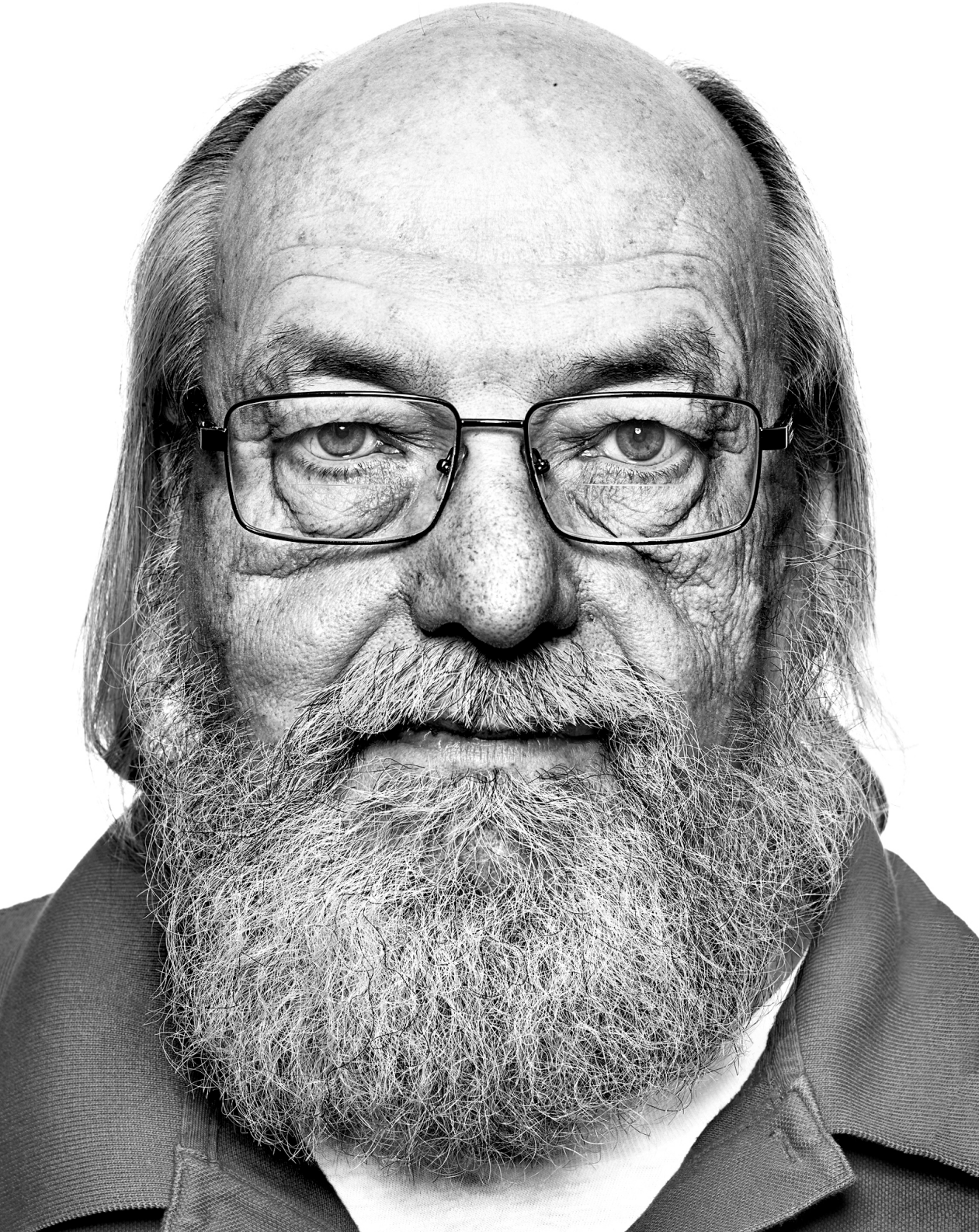


The real danger is the gradual erosion of individual liberties through the automation, integration, and interconnection of many small, separate recordkeeping systems, each of which alone may seem innocuous, even benevolent, and wholly justifiable.”

Privacy Protection Study Commission, Personal Privacy in an Information Society



The actual bug I planted in the compiler would match code in the UNIX "login" command. The replacement code would miscompile the login command so that it would accept either the intended encrypted password or a particular known password. Thus if this code were installed in binary and the binary were used to compile the login command, I could log into that system as any user. ...



The moral is obvious. You can't trust code that you did not totally create yourself. (Especially code from companies that employ people like me). No amount of source-level verification or scrutiny will protect you from using untrusted code.

Ken Thompson, ACM Turing Award Speech, "Reflections on Trusting Trust"



This course

- This course is partly about practicalities: understanding and working with technologies for enhancing information privacy (including building them)
- It is *also* about developing a sophisticated conception of the dimensions of privacy



Recommended related courses outside the iSchool at UA

- Information Privacy (Law, Jane Bambauer)
- Social and Ethical Issues of the Internet (MIS, Laura Brandimarte)
- Cultures of Surveillance (HNRS, Victor Braitberg)
- Computer Security (CS, Christian Collberg)

Related courses outside the UA

- Berkeley's 'Privacy, Security, and Cryptography'
- Harvard's 'Privacy and Technology'
- Michigan's 'Privacy in Information Technology'
- University College London (UCL) 'Privacy Enhancing Technologies'
- Ruhr-University Bochum (RUB) 'Private and Anonymous Communication'
- ...relatively few, and none spot on



This is a big, beautiful topic

- Don't let defeatism or reductivist thinking convince you otherwise



defeatism



“ People have really gotten comfortable not only sharing more information and different kinds, but more openly and with more people. That social norm is just something that's evolved over time...”

Mark Zuckerberg

(shown in “incognito mode”)



“If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place”

Eric Schmidt

(shown in “cowboy ensemble”)



reductivism



“privacy is implemented by security”

“privacy is cryptology, mostly”

“privacy is protected by policy, mostly (losing arms race)”

“privacy is protected by technology, mostly
(history teaches that policy can’t be trusted, and
moves too slowly)”



This is a big, beautiful topic

- Don't let defeatism or reductivist thinking convince you otherwise
- Looking in detail at computational privacy technologies helps to develop a nuanced understanding not only of how they work but where they fit in broader social, historical, and legal contexts