

Hackers

Peeking inside a tech subculture

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A controversial term

- Possible original meaning: woodworker, carpenter (one who works with an axe)
- Has also been used to mean amateur radio enthusiasts, phone exploiters, distributors of illegal software, programmers or even experts of any kind
- In early MIT meant a prankster or practical joker
- Thus, this lecture is not about intruders and criminals

Who is s/he?

- Media: smart but evil, breaks into computers
- Cyberpunk: a kind of Internet anarchist
- Warez: Distributor of Windoze, Office 'n stuff

- Serious guys: an (IT) enthusiast with exploratory mindset and solid knowledge
- Not necessarily an IT person!

Different opinions – who to believe?

- Opinions differ quite radically
- Yet the last one comes from the guys with most authority (they built the Internet)
- Messing stuff up is easy – building something noteworthy is what counts
- Some people: RMS, Linus, Larry Wall, Rasmus Lerdorf, Miguel de Icaza, Matthias Ettrich a.o.

Main sources of this treatise

- *Hackers: the Heroes of the Computer Revolution* by Steven Levy
- Writings of Eric S. Raymond, plus some ideas from Richard M. Stallman and Linus Torvalds
- *Hacker Ethic and the Spirit of Information Age* by Pekka Himanen

The rest of the zoo

- (WARNING: some tongue-in-cheek stereotyping ahead!)
 - Crackers
 - Phreak(er)s
 - Script kiddies
 - Warez d00dz
 - Cyberpunks
 - Geeks and nerds
- Note: the characters of the *Hackers* movie are mostly crackers, phreakers and cyberpunks, with a small hacker element; the movie has some hints though)

Crackers

- The term was created by hackers to defend themselves against accusations in media
- A person who does bad things (for a variety of reasons)
- Motivation counts – hacker ethic allows some pranks or in some cases disciplinary activity
- Reciprocity ==> a real hacker keeps away

Phreak(er)s

- In the Age of Analog, exploring phone networks used to be similar to ham radio – and as such, a fitting pastime
- Modems became ubiquitous ==> phreaking blended into cracking
- An extreme example: in June 1989, someone redirected NYC 911 number to a phone sex worker named Tina
- Has somewhat revived today, in the form of mobile / smartphone hacking (both black and white forms)

Script k1 dd13s

- A cracker wannabe
- Uses downloaded ready-made tools, does not know that much about him/herself (but feels magnificent)
- Main activity: web defacement
- "K00l D00dz 0wned diz s3rw3r. U sux0r! R2ging F2rting B2dger."
- On the one hand, limited skills limit damage, on the other hand, having no life means time to burn – can become grunts for bigger baddies
- Some types favour outrageous handles (TwinTurbo, Dr Death ...)

Warez d00dz

- Descended from magpie – loves to steal and collect shiny stuff without using it much
- Typical hard disk content: 1% useful soft, 10% newest games, 50% random apps (w/o licenses), the rest is random (ancient games, pr0n etc)
- A more sophisticated branch - a *k00l d00d* would 'release' software on the day it hits stores (*0-day warez*). Can involve amateurs or a whole dark industry
- Nowadays, somewhat blended with other subgroups due to license violating becoming trivial (especially in web content)

Cyberpunks

- Named after the *Neuromancer* by William Gibson
- Superficially tech savvy, but definitely talkative computer fashionista (not related to the Sex Pistols kind of punks)
- Treated somewhat ambiguously by hackers proper:
 - Newbies and ignoramuses must be talked to so that they understand; hackers with good social skills are a minority and should be valued accordingly
 - A cyberpunk can produce loads of bullshit with extreme confidence

Geeks

- Originally a 'wild man" in circuses of Old England biting heads off chickens (computer geeks treat bugs the same way)
- Someone valuing his/her goals more than social accept (sometimes, some Asperger's is involved). Can end up on black or white side (sometimes both)
- Generally, geeks are content with being geeks
- U.S. version: propellerhead

Nerds

- Someone with very high IQ but highly awkward social behaviour (might have originally been spelled as *knurd*)
- The term used to be very offensive, nowadays can also mean the 'crazy professor' types
- Often unhappy with being nerds (in comparison, geekiness is typically a chosen way of life)

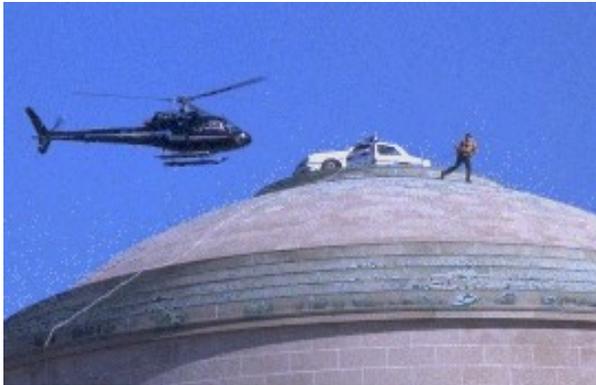
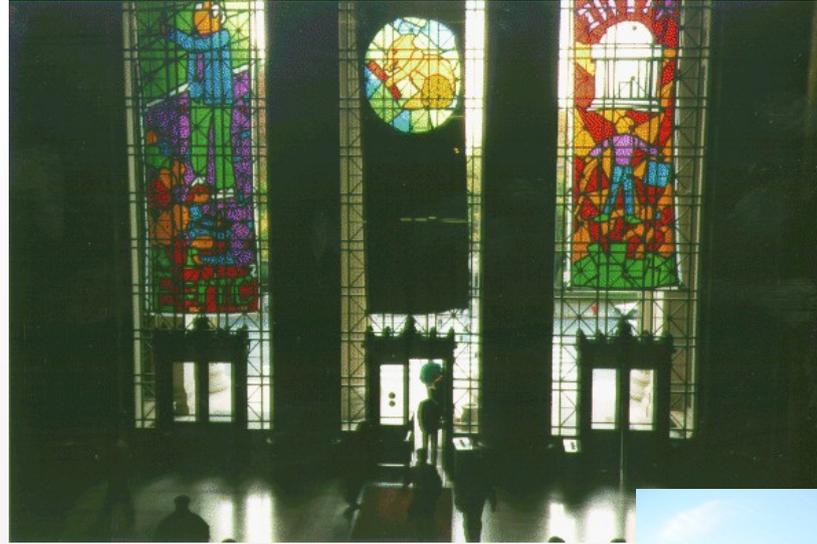
Coloured hats

- Mostly used in information security:
 - white hat – hacker
 - black hat - cracker
 - grey hat – someone in between (or fluctuating)
- The types reflect only the legal view on the activities (reflected in the very names – in the Western movies of old, good guys wore white and bad ones black hats)

The Hack

- In today's IT slang, mostly means a working but obscure solution
- In early MIT, meant a prank
- 1950-s: exploration of old buildings of the campus, usually with lockpicking (tunnel hacking)
- Today's MIT: an elaborate tradition of pranking

Some MIT hacks



<https://hacks.mit.edu>

The MIT hack tradition

- A hack must be
 - surprising
 - public
 - using technology in an innovative way
 - harmless
 - good-natured (not directed against anyone)
- A good example: On the 20th of November 1982, the Delta Kappa Epsilon fraternity hacked the American Football game between Yale and Harvard teams
- See also <https://hacks.mit.edu>

The Delta Kappa Epsilon football hack



<https://www.youtube.com/watch?v=LC6mIP83nUQ>

The rise of classical hackerdom

- The Real Programmers. Physicists, batch processing and vacuum tube computers. Murphy's Laws
- MIT Tech Model Railroad Club, later the AI Lab. PDP computers and Arpanet. The recorded folklore begins
- Unix vs VAX; BASIC and minicomputers
- 80-s: crisis. FSF, Unix and PC-s
- 90-s - Linux, *BSD, WWW - return of hackers
- New century – spreads elsewhere (Wikipedia, Open Educational Resources, DeviantArt etc)

Some fun facts from old times

- Playful cleverness
- A pre-Internet sharing culture („programming into a drawer“)
- Non-standard use of technology (music, chess, ping-pong, Spacewar)
- Slang (-P, T/NIL, MU!)
- Hacking Chinese food
- Wordplay (“Government Property - Do Not Duplicate” => “Government Duplicity - Do Not Propagate” (written on keys))

The original hacker code (S. Levy)

- 1. Access to computers – and anything which might teach you something about the way the world works – should be unlimited and total. Always yield to the Hands-On Imperative!
- 2. All information should be free
- 3. Mistrust authority – promote decentralization
- 4. Hackers should be judged by their hacking, not bogus criteria such as degrees, age, race, or position
- 5. You can create art and beauty on a computer
- 6. Computers can change your life for the better

ESR on hacker nature

- The 90s hacker culture has been described by Eric S. Raymond:
 - Likely evolved from cats...
 - Elitary yet democratic
 - Does not seek social approval
 - Distrusts power
 - Values intellect and originality
 - (A proverb: no matter what colour the cat if it can catch mice...)

Who?

- attitude: "Do you identify with the goals and values of the hacker community?"
- skills: "Do you speak code, fluently?"
- status: "Has a well-established member of the hacker community ever called you a hacker?"

- All three must be met

Proper attitude

- The world is full of fascinating problems waiting to be solved
- No problem should ever have to be solved twice
- Boredom and drudgery are evil
- Freedom is good
- Attitude is no substitute for competence

Becoming one

- Learn how to program: Python, C, C++, Lisp, Java, Perl
- Get one of the open-source Unixes and learn to use and run it
- Learn how to use the World Wide Web and write HTML (HTML5 and CSS3 atm)
- If you don't have functional English, learn it

Points of style

- Learn to write your native language well.
- Read science fiction, go to science fiction convention
- Join a hackerspace and make things
- Train in a martial-arts form and/or study an actual meditation discipline
- Learn to appreciate music, to play some musical instrument well, or how to sing
- Learn to appreciate puns and wordplay

Becoming great

- Based on reputation and respect
- A gift culture – status is obtained by giving away something substantial
- Time, skills and results for reputation
- Also, Linus' Law on motivation:
 - Survival
 - Social status
 - Fun

Two approaches to ethic (P. Himanen)

- Protestant ethic
 - Money
 - Work
 - Flexibility
 - Determination
 - Accountability
 - Optimality
 - Stability
- Hacker ethic
 - Passion
 - Freedom
 - Hacker work ethic
 - Hacker money ethic
 - Hacker net ethic (nethic)
 - Caring
 - Creativity

Applications

- .Most of the Free Software / Open Source
- Open Educational Resources (OER) and MOOCs
- The original Google
- Wikimedia Commons
- Makers (Garage48 a.o.) and some startups
- In Estonia, most things around Robotex
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To be respected:

- Write FLOSS
- Help test and debug
- Publish useful information
- Help keep the infrastructure working
- Serve the hacker culture itself

Ancient Japanese hackers once said:

*To follow the path:
look to the master,
follow the master,
walk with the master,
see through the master,
become the master.*

Thanks