IT Ethics
Professional Ethics

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License

Topics

Ethics of Professions

- do professional roles require different moral evaluations?
- do professions carry different moral obligations?

Volkswagen: The scandal explained

By Russell Hotten
Business reporter, BBC News

10 December 2015 | Business

What is Volkswagen accused of?

It's been dubbed the "diesel dupe". In September, **the Environmental Protection Agency (EPA) found** that many VW cars being sold in America had a "defeat device" - or software - in diesel engines that could detect when they were being tested, changing the performance accordingly to improve results. The German car giant has since admitted cheating emissions tests in the US.

http://www.bbc.com/news/business-34324772

Differentiated Professions

- for some professions: special rights, special responsibilities

- doctors, lawyers, licensed engineers
- legal protections ↔ trust of society

Software Professions

- who will we consider when discussing professional ethics?
- everybody working in IT?
- software engineers only?

- software engineers, quality analists, technical documenters, project managers
- anybody working in the analysis, design, development, certification, maintanence, and test of software systems

Characteristics of Differentiated Professions

- perform an important social function

- require advanced knowledge and education
- division between practitioners and researchers

- usually autonomous in their decisions

- formal organizations
- licensing members for work

- code of ethics and professional conduct

Codes of Ethics

- purpose of codes of ethics:

- inspire
- guide
- educate
- discipline

- what may be expected from a member of this profession?

ACM/IEEE-CS Software Engineering Code of Ethics

- act consistently with the public interest
- act in the best interests of the client and employer
- ensure that the product meets highest professional standards
- maintain integrity and independence in professional judgment
- subscribe to and promote an ethical approach to management
- advance the integrity and reputation of the profession
- be fair to and supportive of colleagues
- participate in lifelong learning (self)

Examples of Clauses

- accepting full responsibility for one's own work
- moderating the interests of the software engineer, the employer, the client and the users with the public good
- considering issues of physical disabilities, allocation of resources, economic disadvantage and other factors that can diminish access to the benefits
- contributing to public education concerning the discipline
- ensuring adequate testing, debugging, and review of software and related documents
- respecting the privacy of those who will be affected

Examples of Clauses

- disclosing conflicts of interest to all concerned parties
- not asking a software engineer to do anything inconsistent with this code
- supporting other software engineers striving to follow this code
- avoiding associations with businesses and organizations which are in conflict with this code
- assisting colleagues in professional development
- crediting the work of others and refraining from taking undue credit

Interpreting

- "The Code is not a simple ethical algorithm that generates ethical decisions."

- who will be affected?
- how will the least empowered be affected?
- are other human beings treated with due respect?
- how would the public view, if reasonably well informed?
- is it worthy of the ideal software engineer?

Responsibility

- moral responsibility
- legal responsibility (liability)
- accountability

- two conditions for moral responsibility:
- causality
- intent

Responsibility

- some engineers and researchers
  refuse to work on projects they find morally wrong

- weapon systems
- surveillance systems

Example: IBM - Nazi Goverment

CNET News

CNET › News › Perspectives
April 5, 2002 4:00 AM PST

Perspective: Selling technology to the Nazis

By Edwin Black

See all Perspectives »

Why did the trains run on time to Auschwitz and Treblinka? How did the Nazis calculate exactly how many Jews should be emptied out of the ghettos each day and dispatched to death camps? How did the Third Reich systemize the plunder of Polish natural resources?

The world now knows the Nazis tabulated it all using custom-made IBM punch-card programs on leased IBM machines. Moreover, the world now knows that IBM's tailored technology in occupied Poland was provided not through its German subsidiary, but directly through a new special wartime Polish subsidiary reporting to IBM New York. IBM New York continued to do business with the Nazis during the extermination of Polish Jews.

http://news.cnet.com/Selling-technology-to-the-Nazis/2010-1071_3-876539.html

- IBM sells technology to the Nazi goverment
- develops custom applications to suit their needs (1940s)

Example: Siemens and Nokia - İran

THE WALL STREET JOURNAL. TECHNOLOGY

TECHNOLOGY | JUNE 22, 2009

Iran's Web Spying Aided By Western Technology

European Gear Used in Vast Effort to Monitor Communications

By CHRISTOPHER RHOADS in New York and LORETTA CHAO in Beijing

The Iranian regime has developed, with the assistance of European telecommunications companies, one of the world's most sophisticated mechanisms for controlling and censoring the Internet, allowing it to examine the content of individual online communications on a massive scale.

- Iran buys its surveillance systems from Siemens and Nokia (2009)

http://online.wsj.com/article/SB124562668777335653.html

IT Systems

- are there any extra moral obligations in IT systems?

- safety-critical applications

- medicine
- air traffic, mass transport
- power systems
- weapon systems

Example: Ariane 5

ARIANE 5

Flight 501 Failure

Report by the Inquiry Board

The Chairman of the Board :

Prof. J. L. LIONS

[originally appeared at http://www.esrin.esa.it/htdocs/tidc/Press/Press96/ariane5rep.html]

FOREWORD

On 4 June 1996, the maiden flight of the Ariane 5 launcher ended in a failure. Only about 40 seconds after initiation of the flight sequence, at an altitude of about 3700 m, the launcher veered off its flight path, broke up and exploded. Engineers from the Ariane 5 project teams of CNES and Industry immediately started to investigate the failure. Over the following days, the Director General of ESA and the Chairman of CNES set up an independent Inquiry Board and nominated the following members :

- a French launcher destructs itself: 500 million $ (1996)
- overflow when converting a 64–bit floating point number to a 16-bit integer

http://www.ima.umn.edu/~arnold/disasters/ariane5rep.html

Example: Aegis radar system

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1988: US warship shoots down Iranian airliner

An American naval warship patrolling in the Persian Gulf has shot down an Iranian passenger jet after apparently mistaking it for an F-14 fighter.

All those on board the airliner – almost 300 people – are believed dead.

The plane, an Airbus A300, was

The captain of the USS Vincennes, Will Rogers, mistook the airliner for an F-14

- a US warship shoots down an Iranian airliner: 290 dead (1988)

http://news.bbc.co.uk/onthisday/hi/dates/stories/july/3/newsid_4678000/4678707.stm

Example: Sweden factory robot

The Local
SWEDEN'S NEWS IN ENGLISH

"My J better t

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Robot attacked Swedish factory worker

Published: 28 Apr 09 10:12 CET | Double click on a word to get a translation

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A Swedish company has been fined 25,000 kronor ($3,000) after a malfunctioning robot attacked and almost killed one of its workers at a factory north of Stockholm.

http://www.thelocal.se/19120/20090428/

- a Swedish factory robot almost kills a worker (2009)

Example: Therac-25 radiotherapy device

An Investigation of the Therac-25 Accidents
by N G Leveson, C S Turner
Computer and Information Science › Miscellaneous Papers

Overview
Related research

Computer (1993)
Volume: 26, Issue: 7, Publisher: {IEEE} {C}omputer {S}ociety {P}ress, Pages: 18-41
ISSN: 00189162
Available from portal.acm.org
or   Find this paper at:

Abstract

Between June 1985 and January 1987, the Therac-25 medical electron accelerator was involved in six massive radiation overdoses. As a result, several people died and others were seriously injured. A detailed investigation of the factors involved in the software-related overdoses and attempts by users, manufacturers, and government agencies to deal with the accidents is presented. The authors demonstrate the complex nature of accidents and the need to investigate all aspects of system development and operation in order to prevent future accidents. The authors also present some lessons learned in terms of system engineering, software engineering, and government regulation of safety-critical systems containing software components.

http://www.mendeley.com/research/investigation-therac25-accidents/

- radiotherapy device overdoses: 3 dead, 2 seriously injured (1985-87)
- many faults: interface design, race conditions
- hardware protections removed

Example: CT scan device

Hospital error leads to radiation overdoses

After Cedars-Sinai reset a CT scan machine in February 2008, more than 200 brain scans on potential stroke patients were performed at eight times the normal dose of radiation, the hospital says.

October 13, 2009 | Alan Zarembo

Scores of radiation overdoses at Cedars-Sinai Medical Center have been traced to a single cause: a mistake the hospital made resetting a CT scanner.

Hospital officials said Monday that the error occurred in February 2008, when the hospital began using a new protocol for a specialized type of scan used to diagnose strokes. Doctors believed it would provide them more useful data to analyze disruptions in the flow of blood to brain tissue.

- a CT scanner in Los Angeles overdoses patients (2009)

http://articles.latimes.com/2009/oct/13/local/me-cedars13

Example: Grand Theft Auto

Related Game

Grand Theft Auto: Vice City

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Grand Theft Auto sparks another lawsuit

By **Tor Thorsen, GameSpot**   Posted **Feb 16, 2005 5:37 pm PT**

Rockstar parent Take-Two Interactive, Sony, Wal-Mart, and GameStop are blamed for the murder of three policemen by a teenage car thief.

Share   Tweet

Just when the furor over Grand Theft Auto: Vice City's "Kill all the Haitians!" level had finally died down, the game sparked another lawsuit. Along with its predecessor Grand Theft Auto III, the crime-action game is being blamed for inspiring the triple murder of three Fayette, Alabama, police officers.

- a teenager in USA imitates GTA: 3 policemen dead (2003)

http://www.gamespot.com/news/grand-theft-auto-sparks-another-lawsuit-6118699

Example: Video games

- GTA: "kill all the Haitians"
- pornographic extensions

- some countries ban violent video games:
- Thailand bans GTA (2008), Australia bans Manhunt (2004)

http://www.gamespot.com/news/haitian-americans-protest-vice-city-6084645
http://www.gamespot.com/news/prostitutes-call-for-ban-on-gta-6144286
http://www.theregister.co.uk/2009/09/02/take_two_settles_investor_class_action_lawsuit/
http://www.reghardware.com/2008/08/04/gta_ban_thai/
http://www.theregister.co.uk/2004/09/30/oz_manhunt_ban/

Loyalty

- employees should be loyal to their employers

- what about the loyalty of employers to their employees?
- can we expect loyalty to be mutual?

- from the code of ethics:
- act in the best interest of the employer
- moderate it with the public interest

Example: Challenger space shuttle

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1986: Seven dead in space shuttle disaster

The American space shuttle, Challenger, has exploded killing all seven astronauts on board.

The five men and two women – including the first teacher in space – were just over a minute into their flight from Cape Canaveral in Florida when the Challenger blew up.

The astronauts' families, at the airbase, and millions of Americans witnessed the world's worst space disaster live on TV.

The danger from falling debris prevented rescue boats reaching the scene for more than an hour.

Watch/Listen

The explosion was witnessed by millions on live TV

PLAY VIDEO
Footage of the Challenger disaster as it happened

PLAY VIDEO
President Reagan pays tribute to lost astronauts

- shuttle launched despite known risk:
  7 astronauts dead (1986)

http://news.bbc.co.uk/onthisday/hi/dates/stories/january/28/newsid_2506000/2506161.stm

Example: Challenger space shuttle

Los Angeles Times | OBITUARIES

LOCAL U.S. WORLD BUSINESS SPORTS ENTERTAINMENT HEALTH LIVING
BREAKING PHOTOS VIDEO CRIME OBITUARIES WEATHER TRAFFIC CROS

IN THE NEWS: MANNY RAMIREZ | BETHENNY FRANKEL | PRESIDENTS DAY | STEPHEN COLBERT

Roger Boisjoly dies at 73; engineer tried to halt Challenger launch

The night before the 1986 explosion, Boisjoly and four others argued that joints in the shuttle's boosters couldn't withstand a cold-weather launch.

Comments 48
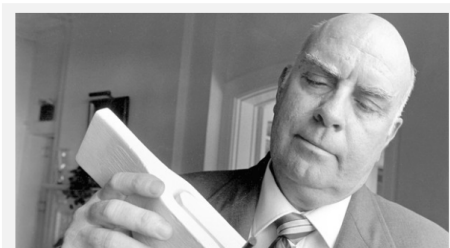
- Roger Boisjoly
  tries to stop the launch
- he tells the truth
  in the investigation
  despite company pressure

http://www.latimes.com/news/obituaries/la-me-roger-boisjoly-20120207,0,2248999.story

Example: Bay Area Rapid Transit

- computed aided mass transportation system
- delayed and over-budget
- engineers tell the risks of the system to the press:
  they lose their jobs (1970s)

- legal protections to encourage this type of behavior

Whistle-Blowing

- when is it allowed?

- if there is going to be serious damage

- if all channels have been tried in the instution

- when is it a moral obligation?

- if there is evidence

- if exposure will prevent the damage

Collective Responsibility

- software engineers don't see the whole of a project

- is moral responsibility always individual?

- thinking and acting as a profession instead of as individuals

References

Required Reading: Tavani

- Chapter 4: Professional Ethics

Required Reading: ACM-IEEE/CS Code of Ethics

- http://www.acm.org/about/se-code