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**TRƯỜNG ĐẠI HỌC BÁCH KHOA HÀ NỘI**  
HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

# Research Ethics

## Technical Writing and Presentation

SOICT - 2020

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# Contents

1. Introduction to Research ethics
2. Plagiarism

# Introduction

- Science is built on trust
- Researchers are expected to be honest and research is undertaken ethically
  - Be honest, trustworthy, fair
  - Respect privacy: prevent re-identification of anonymized data, protect data from unauthorized access, inform users what data is being collected, etc.
  - ...
- No international academic police force, rule of law, investigative agency 😊

# Code of Ethics - Examples

## **Ethics:**

Papers that (1) describe experiments with users and/or deployed systems (e.g., websites or apps), or that (2) rely on sensitive user data (e.g., social network information), must follow basic precepts of ethical research and subscribe to community norms. These include: respect for privacy, secure storage of sensitive data, voluntary and informed consent if users are placed at risk, avoiding deceptive practices when not essential, beneficence (maximizing the benefits to an individual or to society while minimizing harm to the individual), risk mitigation, and post-hoc disclosure of audits. When appropriate, authors are encouraged to include a subsection describing these issues. Authors may want to consult the Menlo Report for further information on ethical principles, the Allman/Paxson IMC '07 paper for guidance on ethical data sharing, and the Sandvig et al. '14 paper on the ethics of algorithm audits (CFP 2020).

# Code of Ethics - Examples

## 4. Lời cam đoan của sinh viên:

Tôi - [ ] - cam kết ĐATN là công trình nghiên cứu của bản thân tôi dưới sự hướng dẫn của [ ]

Các kết quả nêu trên là trung thực, không phải là sao chép toàn văn của bất kỳ công trình nào khác.

### LỜI CAM ĐOAN

Tôi xin cam đoan luận văn thạc sĩ khoa học máy tính: [ ]

[ ] "i" là kết quả của quá trình học tập, nghiên cứu khoa học độc lập, nghiêm túc.

Các số liệu trong luận văn là trung thực, có nguồn gốc rõ ràng, được trích dẫn và có tính kế thừa, phát triển từ các tài liệu, tạp chí, các công trình nghiên cứu đã được công bố trên các website, ...

Các phương pháp nêu trong luận văn được rút ra từ những cơ sở lý luận và quá trình nghiên cứu tìm hiểu của tác giả.

# Code of Ethics - Copyright

- Copyright: Ownership of ideas and description of them in form of:
  - concepts
  - inventions
  - codes
  - documents (text, images, videos, etc.), etc.
- A publication
  - Content: made by author
  - Copyright: author assigns copyright to publisher
  - Publisher owns the text, figures, diagrams, etc.

# Main types of fraud

- Plagiarism: the use of a colleague's work without clear attribution and citation
- Falsification of data: to obtain required outcome that differs from the actual results
- Fabrication: the experiments, data or entire study are made up



# Frauds - Examples

## Falsifying stem cell research

**Haruko Obokata**, a researcher in Japan, was found guilty of falsifying data in a paper she wrote for the prestigious journal *Nature* in 2014. Her fraud rocked the stem cell research community.



<https://slate.com/technology/2014/08/fraud-in-stem-cell-research-japanese-biologist-yoshiki-sasai-commits-suicide-at-riken.html>

# Frauds - Examples

- How did the international science community react?

‘[This is] one of the biggest science scandals in recent history...[The papers] were retracted in July after *Nature* discovered that the papers included plagiarized writing, misidentified images, and misreported data.’

Hu. Jane, C. 2014 ‘Why Do Scientists Commit Fraud?’ Slate.

1. Why did Obokata falsify and plagiarise her research?
2. If you were her colleague, what advice would you give to Obokata?



<https://www.bing.com/videos/search?q=tearful+apology+from+japanese+scientist&view=detail&mid=420F5934B5544476C2B1420F5934B5544476C2B1&FORM=VRDGAR>

# Frauds - Examples

## RESEARCH

### Great Science Frauds

Science is not known for drama, except when a researcher commits fraud

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## Woo Suk Hwang

By Alice Park @aliceparkny | Jan. 12, 2012

← 4 of 8 →  
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It's not often that scientists achieve rock star status, but that's what Hwang enjoyed when, seemingly out of nowhere, the Seoul National University professor of veterinary medicine catapulted South Korea to the top of the science hierarchy with his 2004 success in cloning human cells and making human embryonic stem cells.

Or at least that's what he and everyone else in the world thought he had done. It was the first time anyone had taken a human cell, inserted it into a donor egg, and coaxed it to grow, in theory into a clone of the original cell. He followed that stunning announcement a year later with another first — using the same process to generate embryonic stem cells from patients with spinal cord injury and diabetes, opening the possibility that patients might benefit from stem cell therapies to cure these and other diseases.



Park Ji-Hwan / Getty Images



# Frauds - Examples

## Great Science Frauds

Science is not known for drama, except when a researcher commits fraud

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### Andrew Wakefield

By Alice Park @aliceparkny | Jan. 12, 2012

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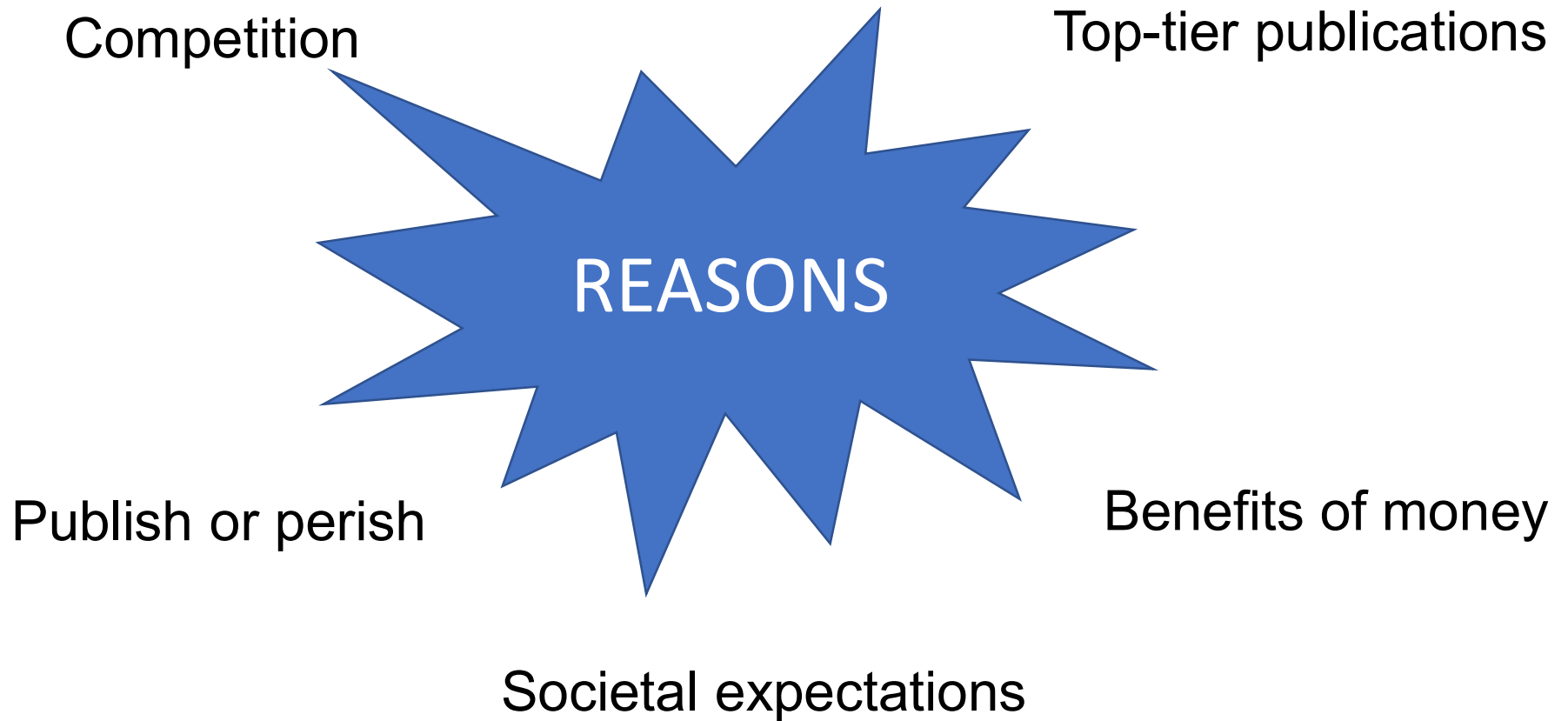
Do vaccines cause autism? Medical experts say no, but we can thank Wakefield for introducing the doubt that won't die in many parents' minds. In 1998, the gastroenterologist at Royal Free Hospital in London published a study describing a connection between the measles-mumps-rubella (MMR) vaccine and autism, after he found evidence of these viruses, presumably from the shot, in the guts of a dozen autistic children, eight of whom developed autism-like symptoms days after receiving their vaccination.

Other scientists could not replicate Wakefield's findings, nor verify a link between the vaccine and autism. In 2010, the journal that published his paper retracted it, and its editors noted that "it was utterly clear, without any ambiguity at all, that the statements in the paper were utterly false." Later that year, the General Medical Council in the U.K. revoked Wakefield's medical license, citing ethical concerns over how he recruited the patients in the study as well as his failure to disclose that he was a paid consultant to attorneys representing parents who believed their children had been harmed by vaccines.



Shaun Curry / Getty Images

# Reasons of Fraud



# Facts



- 1.97% of scientists admitted to have fabricated, falsified or modified data or results at least once
- 33.7% admitted other questionable research practices

# Plagiarism

- Present someone else's work in any format as your own original work without appropriate acknowledgement of the author or its source.
  - Ideas, text, images, illustrations
  - Even whole paper
- It can also be deliberate cheating or copying and pasting from sources without correct acknowledgement.
- Scientists' reputations are built on their papers: both the work and how it is reported

# Example

- Original text (Barlman and Trey, 2001):
  - The impact of viruses has become a major issue in many large organizations, but most still rely on individual users maintaining virus definitions, with no internal firewalls to protect one user from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable.
- Plagiarism
  - Viruses have become a major issue in many large organizations, but most organizations still rely on users maintaining virus definitions on their individual computers, with no internal firewalls to protect one computer from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable to infection (Barlman and Trey 2001).



# Example

- Original text (Barlman and Trey, 2001):
  - The impact of viruses has become a major issue in many large organizations, but most still rely on individual users maintaining virus definitions, with no internal firewalls to protect one user from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable.
- Appropriate text
  - As discussed by Barlman and Trey (2001), who investigated the impact of viruses in large organizations, “most still rely on individual users maintaining virus definitions, with no internal firewalls to protect one user from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable.”

# Example

- Original text (Barlman and Trey, 2001):
  - The impact of viruses has become a major issue in many large organizations, but most still rely on individual users maintaining virus definitions, with no internal firewalls to protect one user from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable.
- Appropriate text
  - Barlman and Trey (2001) investigated the impact of viruses in large organizations. They found that organizations are vulnerable if individuals fail to keep virus definitions up to date, as internal firewalls are rare.

# Avoid Plagiarism

- When using the ideas of others (except for common knowledge): quote, paraphrase or summaries + reference the sources



Quoting



Paraphrasing



Summarising



Referencing

- <https://vccs.libguides.com/c.php?g=647106&p=4536818>
- <https://integrity.mit.edu/handbook/academic-writing/incorporating-words-and-ideas-others>

# Quoting

## **When should I quote?**

- When language is particularly vivid or expressive.
- When exact wording is needed for technical accuracy.
- When the words of an important authority lend weight to an argument.

## **How do I show I am quoting?**

- Name the source in an introductory phrase.
- Use quotation marks or indent long quotations.
- Cite the source appropriately.

# Quoting example

Original	Accurate quoting	Plagiarism
<p>Because of their unique perspective, Americans fear globalization less than anyone else, and as a consequence they think about it less than anyone else. When Americans do think about globalization, they think of the global economy as an enlarged version of the American economy.</p> <p>(Source: Thurow, L. (1993). <i>Fortune Favors the Bold</i> (p. 6). New York: Harper Collins.)</p>	<p>Economist Lester Thurow (1993) has asserted that the American reaction to globalization is different from that of the rest of the world in that "American's fear globalization less than anyone else, and as a consequence . . . think about it less than anyone else" (p. 6).</p> <p><b>Why is this accurate?</b></p> <ul style="list-style-type: none"> <li>❖ <i>The writer has introduced the quotation with his/her own words.</i></li> <li>❖ <i>S/he has also named the source in an introduction phrase.</i></li> <li>❖ <i>S/he has indicated where exact words of the source begin and end by using quotation marks.</i></li> <li>❖ <i>(Complete Thurow reference appears in bibliography)</i></li> </ul>	<p>The American view of globalization is unlike that of the rest of the world. <b>Because of their unique perspective, Americans fear globalization less than anyone else, and therefore think about it less than anyone else</b> (Thurow, 1993).</p> <p><b>Why is this plagiarism?</b></p> <ul style="list-style-type: none"> <li>❖ <i>The writer has identified the source <b>but</b> has <b>not</b> put quotation marks around the words.</i></li> <li>❖ <i>Lack of quotation marks allows the reader to think the words are the writer's, not Thurow's.</i></li> </ul>

# Paraphrase

- **Take the words of another source and restating them, using your own vocabulary.** In this way, you keep the meaning of the original text, but do not copy its exact wording
- **What strategies can I use to paraphrase?**
  - Use synonyms for all words that are not generic. Words like world, food, or science are so basic to our vocabulary that is difficult to find a synonym.
  - Change the structure of the sentence.
  - Change the voice from active to passive and vice versa.
  - Change clauses to phrases and vice versa.
  - Change parts of speech.

# Paraphrase example

Original	Acceptable Paraphrase #1	Acceptable Paraphrase #2
<p>Like drought, excess rainfall and flooding can also contribute to epidemics of waterborne infectious diseases, in this case due to poor sanitation resulting from runoff from overwhelmed sewage lines or the contamination of water by livestock.</p> <p>(Source: Shuman, E., M.D. (2010, March 25). Global climate change and infectious diseases. New England Journal of Medicine; 362, 12, 1061-1063. Retrieved from nejm.org at MIT Libraries.)</p>	<p><u>Used Synonyms</u></p> <p><b>An overabundance of</b> rainfall can also <b>be a factor in spreading</b> infectious diseases <b>carried by</b> water, usually as a result of <b>overflowing sewers</b> and <b>pollution from farm animals</b> (Shuman, 2010).</p>	<p><u>Changed Sentence Structure</u></p> <p><b>When</b> there is an overabundance of rainfall, <b>two situations can occur:</b> sewers can overflow and water can become polluted by the presence of livestock, <b>both of which can lead to</b> outbreaks of waterborne diseases (Shuman, 2010).</p>

<https://integrity.mit.edu/handbook/academic-writing/incorporating-words-and-ideas-others>



# Paraphrase example

Original	Acceptable Paraphrase
<p>Current political and economic incentives favor industry and other interest groups at the expense of health: consider the subsidies paid for corn-based agriculture and mass-produced processed foods, the tobacco revenue generated in countries with a government-owned tobacco industry, industrial growth in the face of environmental pollution, and the spread of the sedentary automobile-and-television culture.</p> <p>(Source: Venkat Narayan, K.M., Ali, M.K., and Koplan, J. (2010, September 23). Global noncommunicable diseases – where worlds meet. The New England Journal of Medicine, 363; 13. 1196-1198. Retrieved from nejm.org at MIT Libraries.)</p>	<p><b><u>Changed Voice and Changed Parts of Speech</u></b></p> <p>Researchers point out that in attempting to implement economic growth, industry is often favored over health: government may subsidize certain forms of agriculture and food production, contribute to tobacco consumption in nations where it owns the industry and otherwise promote growth of industries that pollute. (Venkat Narayan et. al, 2011).</p>



# Paraphrase example

Original	Acceptable Paraphrase: Changed Clause to Phrase
<p>The prevalence and impact of non-communicable diseases continue to grow. Chronic diseases account for 60% of all deaths worldwide, and 80% of these deaths occur in low-or middle-income countries, where the toll is disproportionate during the prime productive years of youth and middle age.</p> <p>(Source: Venkat Narayan, K.M., , Ali, M.K., and Koplan, J. (2010, September 23). Global noncommunicable diseases – where worlds meet. The New England Journal of Medicine, 363; 13. 1196-1198. Retrieved from <a href="http://nejm.org">nejm.org</a> at MIT Libraries.)</p>	<p><b>The increasing spread of non-communicable diseases</b> can be seen in figures that show these diseases are responsible for 60% of all deaths on the planet, and that in countries where the population is primarily of low or middle income, the impact is greatest, often focusing on those who are young or middle-aged (Venkat Narayan et. al, 2011).</p>

# Quote and Paraphrase

- Quote only if the language is particularly expressive and/or adds weight to your argument.
- **Good use of quotation:**

After the Challenger disaster of 1986, it was learned that NASA was so anxious to launch the shuttle that it had overlooked certain safety measures. Nobel physicist Richard Feynman later observed that "for a successful technology, reality must take precedence over public relations, for nature cannot be fooled" (Feynman, 1986).

Feynman's credentials and fine wording of his comment deserve quotation here.

# Quote and Paraphrase

- In January 2012, the World Health Organization published a set of recommendations for policy-makers regarding marketing food and beverages to children. The report noted that “In Norway, the Broadcasting Act bans advertising directed at children and advertising in connection with children’s programming on television and radio. The ban applies to the advertising of any products, including food and beverages.” (p. 22)

## Good use of paraphrasing

- In January 2012, the World Health Organization published a set of recommendations for policy-makers regarding marketing food and beverages to children. The report noted that the country of Norway has enacted a law that prohibits all advertising to children, including advertisements for drinks or food. (p. 22)

# Summarising

- A good summary:
  - Identifies the writer of the original text.
  - Synthesizes the writer's key ideas.
  - Presents the information neutrally.
- Summarizing and paraphrasing are somewhat different.
  - A paraphrase is about the same length as the original source, while a summary is much shorter. Nevertheless, when you summarize, you must be careful **not to copy the exact wording** of the original source. Follow the same rules as you would for paraphrase.

# Referencing

- [https://www.youtube.com/watch?v=10eg\\_GB\\_A9E](https://www.youtube.com/watch?v=10eg_GB_A9E)

