Hi. My name is Jackie Stapleton, liaison librarian at the University of Waterloo.

This video will outline some examples of fraudulent behaviour in academic research.

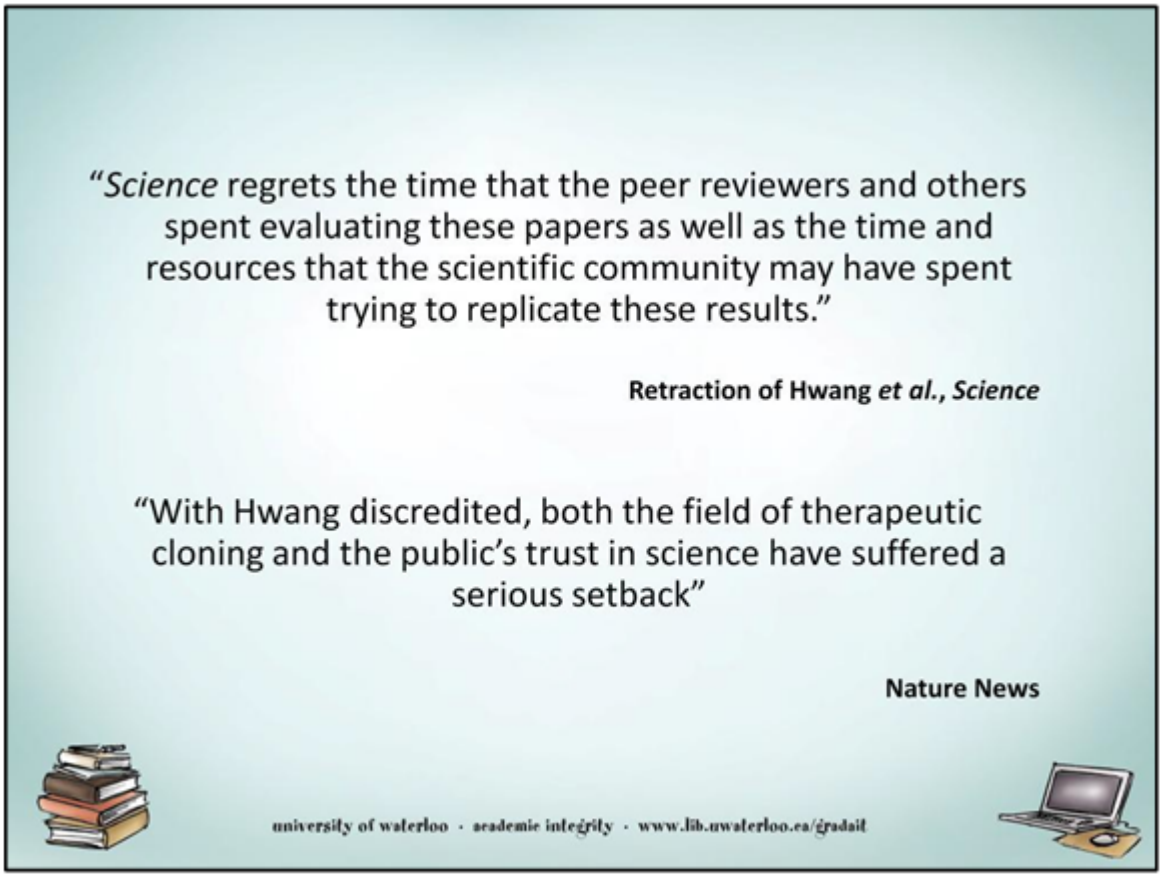
In this real life example:

Dr. Hwang was a highly respected South Korean biomedical scientist, specializing in stem cell and cloning research.

Time magazine named him one of its "People Who Mattered for 2004".

In 2004 and 2005, Dr. Hwang and his colleagues published articles in the journal 'Science', a highly respected, peer reviewed journal. These articles proclaimed a breakthrough in stem cell research however scientists were shocked when a researcher from Dr. Hwang's team announced that the data published in these articles were faked.

As a consequence, Dr. Hwang was dismissed from his institution, he lost all research funding, and he was disbarred from conducting human cloning research.



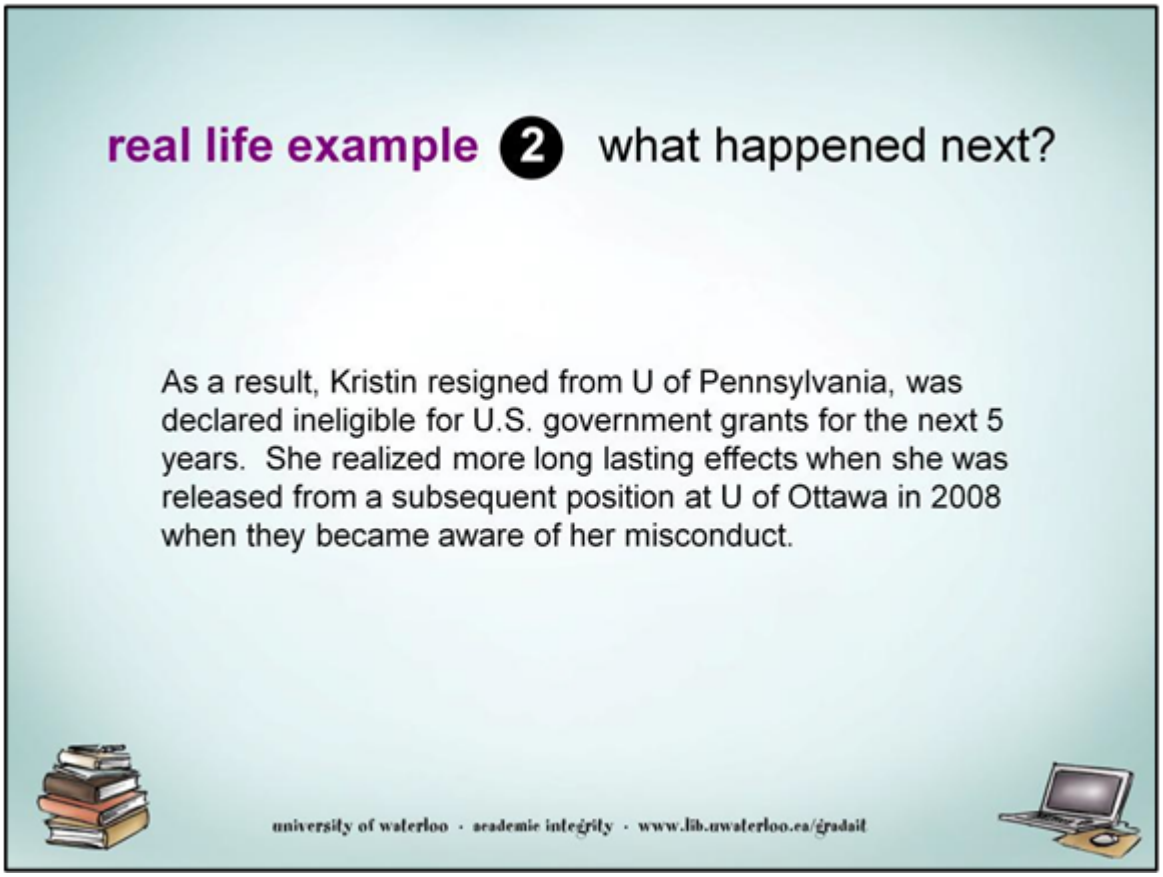
The ramifications from this discovery were felt across academia. Science magazine retracted both articles and acknowledged the time wasted by peer reviewers and other researchers, like yourself, attempting to duplicate the results.

In our second example, Kristin Roovers was a post doc studying the role of cell growth in diabetes.

In 2005, Kristin submitted an article to the peer reviewed Journal of Clinical Investigation. The editor assigned to Kristin's article found that images had been cut and pasted, reversed or flipped in order to better support her research findings.

In our second example, Kristin Roovers was a post doc studying the role of cell growth in diabetes.

In 2005, Kristin submitted an article to the peer reviewed Journal of Clinical Investigation. The editor assigned to Kristin's article found that images had been cut and pasted, reversed or flipped in order to better support her research findings.

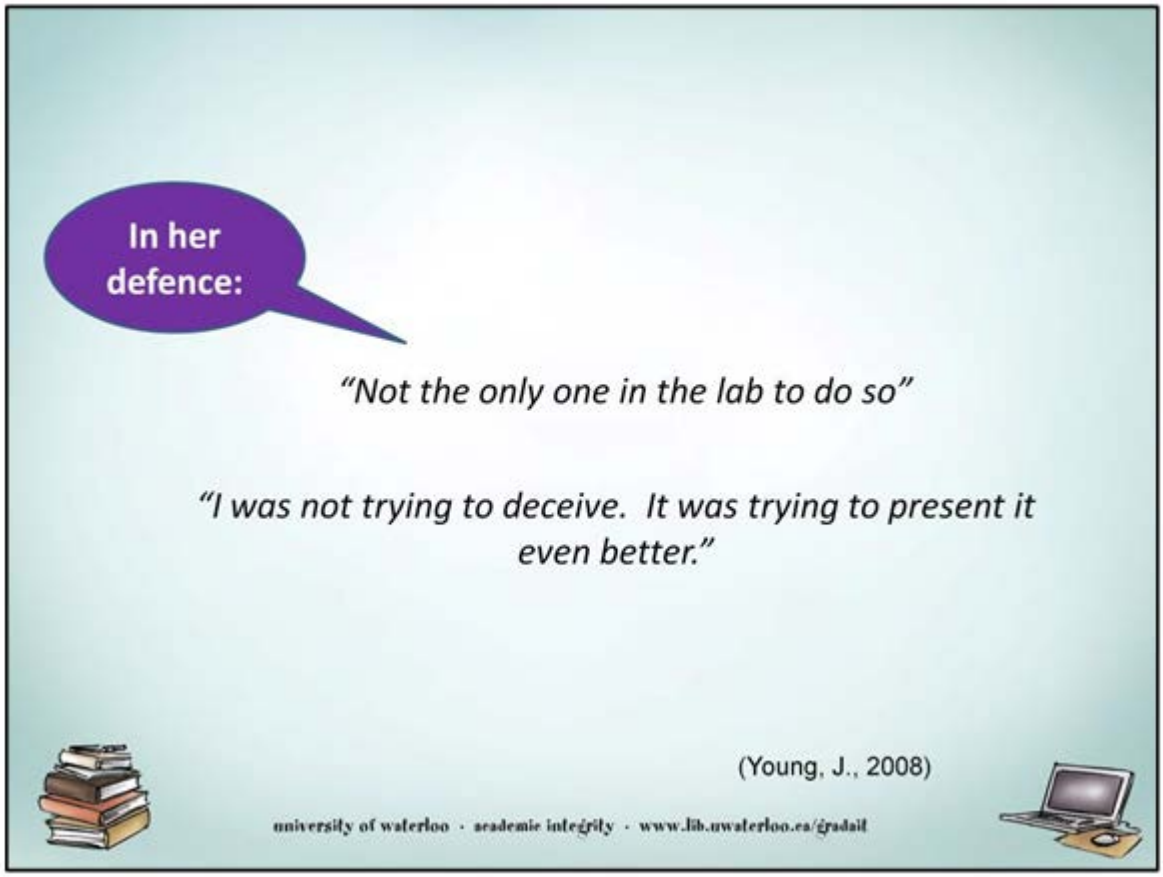


What happened to Kristin next?

Well, her article was not published and articles in other journals were retracted

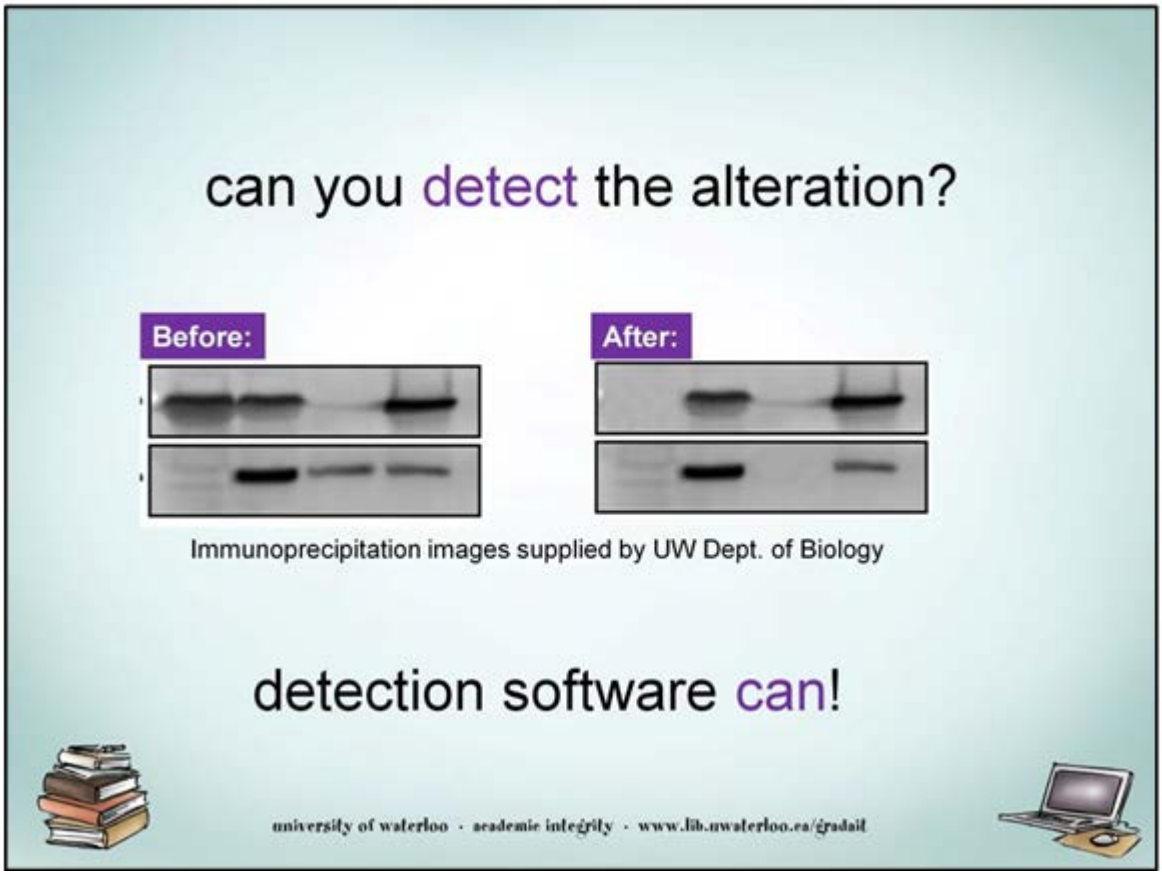
The incident was reported to the Office of Research Ethics and now Kristin is ineligible for US government grants for 5 years.

Kristin resigned from her position at Pennsylvania and was later expelled from a position at the University of Ottawa once they became aware of her past misconduct. Her actions have resulted in long lasting effects to her academic career.



When Kristin spoke in her defence, she commented that she "was not the only one in the lab doing this" and she "wasn't trying to be deceitful" she was "trying to present the information in a better way."

Of course this is not a justification for doing what she did but might you find yourself making similar comments to justify certain actions?



Simple imaging software such as Photoshop makes it very easy for people to adjust or manipulate image.

These before and after pictures demonstrate how difficult it can be for the naked eye to detect an alteration.

Journals are responding to this growing problem by using detection software which can find digital codes or marks left behind when images are altered.

Edit or alter images with caution.

Talk to your instructor before editing images for a class assignment or lab report. Also, read journal submission guidelines in respects to images. For example, the journal 'Nature' provides a Guide for Digital Images for all authors planning to submit articles for publication.

I'll leave you with these questions for self-reflection.

What would you do if you saw someone in your lab or research group fabricate or falsify research results?

Is it OK to make slight changes to clean up an image or data set if it will present the results better?

Think about your response to these situations as you may encounter them during your graduate career.

references

Hwang, W.S., Ryu, Y.J. Park, J. H., Park,E.S., Lee, E. G., Koo, J. M, et al. (2004).Evidence of a pluripotent human embryonic stem cell line derived from a cloned blastocyst. *Science, 303(5664),* 1669-1674.

Hwang,W. S., Roh, S.I., Lee,B. C., Kang,S. K. Kwon, D. K., Kim,S., et al. (2005). Patient-specific embryonic stem cells derived from human SCNT blastocysts. Science *308(5729),* 1777-1783.

Miller, L. 2006. Not picture-perfect. *Nature,* 438. 891-892.

Munro,M.,(2008,June 19). Researcher's tainted past leads Ottawa heath facility to sever ties. *Ottawa Citizen.* Retrieved May 22, 2009 from http://www2.canada.com/ottawacitizen/news/story.html?id=7bb725df-40d9-4d29-bf13-bc22875asfb0

Time Magazine. *People Who Mattered 2004.* Retrieved May 22,2009 from http://www.time.com/time/asia/2004/personoftheyear/people/hwang_woo_suk.html

Kennedy, D.(2006). Editorial retraction. *Science, 311 (5759),* 335.

Young,J.2008.Journals find many images in research are faked. *Chronicle of Higher Education,* 54 *(39).* Retrieved May 22, 2009 from http://chronicle.com/weekly/v54/i39/39a00102.htm