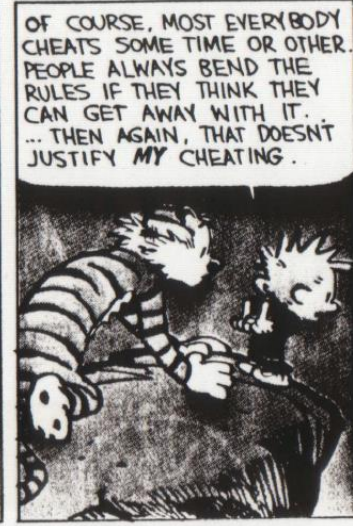
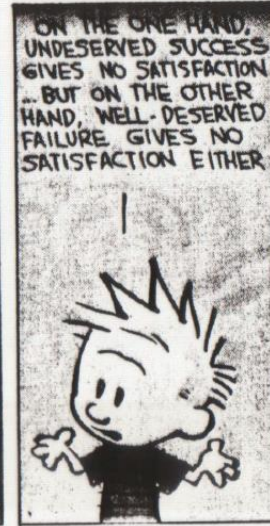


# **Ethics in Engineering and Research**

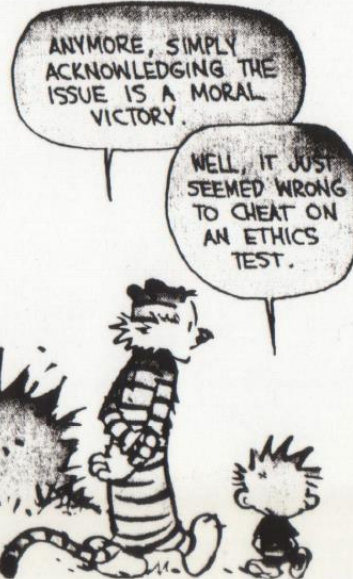
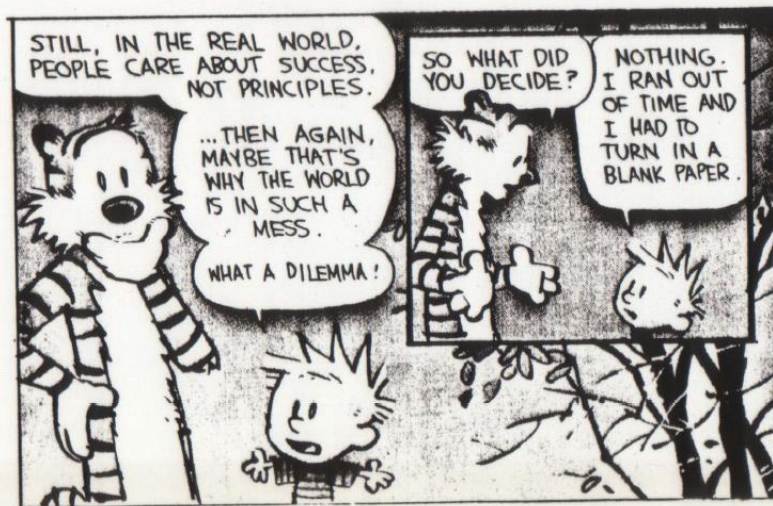
## Lecture #11 Honesty

# calvin and Hobbes



THEN I THOUGHT, LOOK, CHEATING ON ONE LITTLE TEST ISN'T SUCH A BIG DEAL. IT DOESN'T HURT ANYONE.

...BUT THEN I WONDERED IF I WAS JUST RATIONALIZING MY UNWILLINGNESS TO ACCEPT THE CONSEQUENCE OF NOT STUDYING.



# Truthfulness and Trustworthiness

- Truthfulness:
  - Standard of truthfulness in engineering is very high, much higher than in everyday life
  - Ethicists feel that deception is sometimes a necessary evil, and, in moderation and prudence is a healthy part of living – e.g., to protect innocent lives, lie and say someone's clothes look nice, withholding truths in order to protect privacy rights

- Because so much is at stake in terms of human safety, health, and well-being, engineers are required and expected to seek and to speak the truth conscientiously and to avoid all acts of deception (in conduct of their professional duties)
- Two of the six Fundamental Canons in the NSPE Code of Ethics focus on honesty...

- Cannon 3 requires engineers to “Issue public statements only in an objective and truthful manner”
- Cannon 5 requires engineers to “Avoid deceptive acts”
- **IEEE Code of Ethics:** “to be honest and realistic in stating claims or estimates”, “to seek, accept, and offer honest criticism of technical work”



## NSPE BER Case No. 90-4

- An engineer who is an expert in hydrology and a key associate with a medium-sized engineering consulting firm gives the firm her two-week notice, intending to change jobs. The senior engineer-manager at the consulting firm continues to distribute the firm's brochure, which lists her as an employee of the firm.
- Violates NSPE Code of Ethics

# NSPE BER Case No. 89-2

- A city advertises a position for a city engineer/public works director, seeking to fill the position before the incumbent director retires in order to facilitate a smooth transition. The top candidate is selected after an extensive screening process, and on March 10 the engineer agrees to start April 10. By March 15 the engineer begins to express doubts about being able to start on April 10, and after negotiations the deadline is extended to April 24, based on the firm commitment by the engineer to start on that date. On April 23 the engineer says he has decided not to take the position.
- This violates NSPE Code of Ethics. Why?

## NSPE BER Case No. 92-6

- An engineer working in an environmental engineering firm directs a field technician to sample the contents of storage drums on the premises of a client. The technician reports back that the drums most likely contain hazardous waste, and hence require removal according to state and federal regulations. Hoping to advance future business relationships with the client, the engineer merely tells the client the drums contain “questionable material” and recommends their removal, thereby giving the client greater leeway to dispose of the material inexpensively.
- Violates NSPE Code of Ethics. Why?



## Engineer's truthfulness responsibility...

- Forbids lying
- Forbids intentional distortion and exaggeration
- Withholding confidential information
- Claiming undeserved credit
- Other misrepresentations designed to deceive

# Trustworthiness

- Honesty:
  - Truthfulness
  - Trustworthiness: centers on meeting responsibilities about trust (so that the public, clients, etc. can trust in the expertise of the engineer)
- Engineering is based on exercising expertise within fiduciary (trust) relationships in order to provide safe and useful products

# Academic Integrity, Undergraduate Students, Graduate Students

- **Cheating:** Intentionally violating the rules of fair play in any academic exercise, for example, by using crib notes, copying from another student during a test. **Case**
- **Fabrication:** Intentionally falsifying or inventing information, for example by faking the results of an experiment. **Case**
- **Plagiarism:** Intentionally/negligently submitting others' work as one's own, for example, by quoting the words of others without using quotation marks and citing the source. **Case**
- **Facilitating academic dishonesty:** Intentionally helping other students to engage in academic dishonesty, for example, by loaning them your work. **Case**

# Academic Integrity, Undergraduate Students, Graduate Students

- **Misrepresentation:** Intentionally giving false information to an instructor, for example, by lying about why one missed a test. **Case**
- **Failure to contribute to a collaborative project:** failing to do one's fair share on a joint project. **Case**
- **Sabotage:** Intentionally preventing others from doing their work, for example, by disrupting their lab experiment. **Case**
- **Theft:** Stealing, for example, stealing library books or other students' property. **Case**

# Academic Integrity: Faculty, Implications for Future

- Faculty unethical behavior:
  - Failure to show up for class; condescending
  - Failure to monitor exams, failure to report unethical behavior, re-use of old exams?
- Cases?
- Is above related to the engineering workplace?
  - Give credit where credit is due (in IEEE Code of Ethics)
  - Misrepresentation of expertise
  - Setting up a professional environment

# The Ethics of Resume Writing

Clinton D. Korver

- Over 50% of people lie on their resume.
- A Monster.com blog about the dangers of lying on your resume elicited 60 comments from job seekers recommending lying and only 46 discouraging it. Recommenders justified lying by claiming: everyone else is doing it, companies lie about job requirements, and it's hard to get a good job.
- Executives caught lying on their resumes often lose their jobs.



# The Ethics of Resume Writing

Clinton D. Korver

You probably are not tempted by outright fabrication

- Claiming a degree that was not earned because you did most of the work and were only a few credits short.
- Creating a more impressive job title because you were already doing all of the work of that position.
- Claiming a team's contributions as your own, because other members did not carry their weight.
- Inflating the number of people or range of functions for which you had direct responsibility because you really did have a great deal of influence over them

# The Ethics of Resume Writing

Clinton D. Korver

When in doubt, ask an old boss. While asking an old boss may be difficult, it has many benefits. Precisely because it is difficult, it forces you to think clearly and sometimes creatively. Asking also verifies the accuracy of your claims, trains your prior boss in how to represent you during reference checks, and sometimes your old boss may give you better ways to represent yourself.

A former VP of Engineering from one of my startups recently asked me if he could call himself a co-founder even though he joined nine months after the company started. Given his months without salary and his co-founder like commitment to the company, I enthusiastically agreed. I now think and talk about his employment differently. But if he had joined a few months later or had been on salary a few months sooner, I would have said “no.”

What do you think? Is there ever a time when it is OK to lie on a resume? How have you resolved questions of how to tell the best story possible without crossing the line?

# The Ethics of Resume Writing

Clinton D. Korver

So where is the line? You need to decide that for yourself. Here are some tests to keep your thinking clear:

- Other-shoe test. How would you feel if the shoe were on the other foot and you were the hiring manager looking at this resume? What assumptions would you draw and would they be accurate?
- Front-page test. Would you think the same way if your accomplishment in question were reported on the front page of the *Wall Street Journal*? Or your prior employer's internal newsletter?

# Inconsistent information in Resume, Be careful!



17. **G. S. Rao**, T. Hussain, M. Sagynbaeva, M. S. Islam, Dipti Gupta, P. Panigrahi and Rajeev Ahuja, “Adsorption Properties of Graphene like ZnO Monolayer towards CO<sub>2</sub> molecules: Enhanced CO<sub>2</sub> Capture” **Nanotechnology** **27** (2015) **1**.

18. **Gollu Sankara Rao**, Tanveer Hussain, Muhammed Shafiqul Islam, Puspamitra Panigrahi, Dipti Gupta, and Rajeev Ahuja, “Hydrogen Storage Properties of Light Metal Adatoms (Li, Na) Decorated Fluorographene Monolayer”, **Nanotechnology** **26** (2015) **275401**.

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PAPER

## Hydrogen storage properties of light metal adatoms (Li, Na) decorated fluorographene monolayer

T Hussain<sup>1,2,4</sup>, M S Islam<sup>1</sup>, G S Rao<sup>1,3</sup>, P Panigrahi<sup>1,5</sup>, D Gupta<sup>3</sup> and Rajeev Ahuja<sup>1,2,6</sup>

Published 12 June 2015 • © 2015 IOP Publishing Ltd

[Nanotechnology](#), [Volume 26](#), [Number 27](#)

9. **Sankara Rao Gollu**, Ramakant Sharma, Srinivas G, Souvik Kundu and Dipti Gupta, “Incorporation of SiO<sub>2</sub> dielectric nanoparticles for performance enhancement in P3HT: PCBM inverted organic solar cells” **Organic Electronics** **24** (2015) **43-50**.

10. **Sankara Rao Gollu**, Ramakant Sharma, Srinivas G, Souvik Kundu and Dipti Gupta, “Enhanced power conversion efficiency and device stability in inverted bulk heterojunction organic solar cells with reduced graphene oxide/zinc oxide composite film as an electron transport layer” **Nanoscale** **6** (2015) **10879-10886**.

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## List of Publications in International Journal

1. **Sankara Rao Gollu**, Ken.K.S, Alana K.S, Xiang Zhang, MY.Hassan, P. S. Kalaga, Yang kong Tye and D. S. Ang, “High-performance plasmonic assisted perovskite flexible photodetectors based on solution- processed all-inorganic CsPbBr<sub>3</sub> thin films”.

(Submitted to Journal of Materials Chemistry C).

2. **Sankara Rao Gollu**, Ken.K.S, Alana, Xiang Zhang, MY.Hassan, P. S. Kalaga, Yang kong Tye and D. S. Ang, “Performance improvement in solution- processed all-inorganic perovskite CsPbBr<sub>3</sub> thin films inverted solar cell with MOS<sub>2</sub> as an hole transport layer”

(Submitted to Journal of Materials Chemistry C).

3. M. Y. Hassan, **S.R. Gollu** Y. Zhou, H. L. Liu, Joel K. W. Yang, and D. S. Ang, Plasmon-assisted zone-selective disruption of electrical breakdown paths in the AlO<sub>x</sub>/Al/SiO<sub>2</sub>/AlO<sub>x</sub>/Al stack, **ACS Nano** (Minor revision, accepted)

No volume and page number is provided. Article is also not found in web search!

4. L. Polavarapu, **Sankara Rao Gollu**, A. S. Urban, “Quantum confinement in perovskite nanocrystals” **Adv. Energy. Mater**, 2017 (invited progress report)

5. Y. Tong, B. Bohn, **Sankara Rao Gollu**, E. Bladt, M. Dobliger, S. Bals, A.S. Urban, L. Polavarapu, J. Feldmann, “Lead halide perovskite nanowires” **Adv. Funct. Mater.** 2017 (Submitted)

15. S. R. Naqvi, **G. S. Rao**, Wei. Luo, R. Ahuja and T. Hussain, “Hexagonal Boron Nitride (h-BN) sheets decorated with OLi, ONa and Li<sub>2</sub>F molecules for enhanced energy storage”, **ChemPhysChem In Press, Accepted Manuscript (2017).**

Too many submitted and accepted manuscripts. Isn't it doubtful?