



Module 1

Software Engineering Ethics

Required

- Part I: Applying a Contextual Analysis of Privacy in Big Data Research from *Ethical Reasoning in Big Data: An Exploratory Analysis*
- Karasneh, R. A., Al-Azzam, S. I., Alzoubi, K. H., Hawamdeh, S. S., & Muflih, S. M. (2019). Patient data sharing and confidentiality practices of researchers in Jordan (Links to an external site.). *Risk Management & Healthcare Policy*, 12, 255–263. <https://doi.org/10.2147/RMHP.S227759>
- Hermon, R. (2019, May 27). Being an Ethical Software Engineer (Links to an external site.). InfoQ. <https://www.infoq.com/articles/ethical-software-engineer/>

Recommended

- Vakkuri, V., Kemell, K. K., & Abrahamsson, P. (2019). Ethically aligned design: An empirical evaluation of the RESOLVEDD-strategy in software and systems development context (Links to an external site.). 2019 45th Euromicro Conference on Software Engineering and Advanced Applications (SEAA).
 - Xenos, M., & Velli, V. (2019). A serious game for introducing software engineering ethics to university students (Links to an external site.). [White Paper]. ICL2018, 21st International Conference on Interactive Collaborative Learning. September 25-28 2018 Kos, Greece. 263-274.
 - Poulson, B. (2018). The data science of retail, sales, and commerce (Links to an external site.). [Video]. LinkedInLearning.
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▼ What is an example of an ethical issue in software reviews?

The shortened lifecycle has weakened software review by management and legal teams. In the extreme, for Web applications like Facebook, it is normal for individual engineers or small groups of engineers to code and deploy features directly; indeed, the culture takes pride in this.

▼ What is an example of an ethical issue in bug fixes?

Even where more traditional development practices prevail, at least some deployments like bug fixes are shipped with only technical (and not ethical) oversight. At any rate, engineers at least retain the ability to deploy code directly to end-users, an ability that can easily be abused.

▼ What is an example of an ethical issue related to scale?

Typically, the entire world is part of the addressable market. Of course, it is the scale that has led to the potential for individual engineers to create great good, but with it, naturally, also comes the ability to cause great harm.

▼ What is the ACM Code of Ethics and Professional Conduct?

- The Code is designed to inspire and guide the ethical conduct of all computing professionals, including current and aspiring practitioners, instructors, students, influencers, and anyone who uses computing technology in an impactful way.
- [Code of Ethics \(acm.org\)](http://acm.org)

▼ What is informed consent?

- **Data collected should be done with the knowledge of a consumer (informed consent)**
- Informed consent should enable individuals to allow or deny access to data that might be collected from them.
- The consent form should legally allow for the consumer to opt-in or opt out of data collection.
- Informed consent is more easily accomplished when physically collecting data from a user via a survey or another device. However, it becomes more difficult via software, unless a user is not prompted to sign an appropriate release.

▼ What are some ethical questions to consider as a software engineer, or as a manager of software engineers?

- With regards to the public, can the provided software cause any harm?
- With regards to the public, what type of harm can be prevented?
- Are software engineers able to contribute positively to the public?
- What are the ethical obligations that a software engineer has to the public?
- What general ethical obligations are software engineers under, beyond their distinctive professional obligations?
- Are there specific professional software engineering ethical codes that need to be followed?

▼ Is there an automatic approach to how ethical issues can be analyzed?

No. Moral analysis or study must more so happen on a case-by-case basis.