SOFTWARE DEVELOPERS WRITE A CODE OF ETHICS

Interviewee: Ilene Burnstein
Interviewers: Michael Davis, Anthony Spencer
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1.) What is your educational background?

Ilene received a Ph.D. in chemistry in 1969 from IIT. She also has a masters in computer science from IIT (1984) and a masters in chemistry from the University of Maryland (1965).

She was encouraged to enter the field of software engineering by a colleague. However, her formal involvement in computer science teaching came somewhat by happenstance. She recalled volunteering as a computer mother in her children's elementary school. She enjoyed working with children, and thought this would be a great opportunity to use the programming she had learned as part of training in chemistry. Ilene said this experience is one of the factors that got her interested in going back to graduate school in computer science and in teaching in that field.

Ilene has been programming (software) since the 60s. She related a funny story about dropping a stack of computer cards. She's relieved that technology has advanced so much since then, "and that it's no longer necessary to use those cards."

2.) What sort of organization do you work for? What do you do there?

Ilene works for an educational organization (IIT), Computer Science Department, for which she teaches and conducts research.

3.) What experience, if any, have you had in software development? If you are a software developer, what led you into that field?

Ilene said she has been developing software for years. As noted above, her experience with programming goes back to her days as a graduate student in chemistry. Further, she held a post-doctorate doing software development for a chemist. She said that these experiences helped her to see that a field involving science and programming would be a good mix for her.

Ilene also was worked as a consultant and has developed and maintained software at government labs. Her development work in academia initially focused on developing artificial intelligence applications and expert systems for chemistry. These interests broadened into systems applications, software engineering support tools, and software

testing. Though her experience with computers and science is broad, she considers herself an academic first and a software developer second. ("If asked what I do, I'd say I'm an academic.") She spoke about the differences between academics and software developers, regarding the services they provide and their responsibility to the public. She sees the role of academics as contributing to the "world body of knowledge", and she takes this very seriously.

While on the surface academic software engineers and software developers in industry may seem different, "they both produce products and tools" (though the latter may "cut corners due to economic pressure"). She spoke about the accountability both academics and software developers have to the public. She mentioned that,"in Illinois and a few other states, people who claim to be software engineers can be fined or jailed, since if you call yourself an engineer you have to pass the engineering certification exam." (She said she considers herself a software engineer because she has the necessary years of experience in the field. She also said that many people who started their programming careers in the 1960-70's do not have formal software engineering training and education since software engineering did not exist as a discipline at that time.) Ilene believes that such laws should apply to software developers too "because software impacts on so many people in the health and safety fields and people need to know the seriousness of this." She seemed disturbed by the fact that only one state, Texas, tests the proficiency and competence of its software engineers but indicates that other states will follow.

Ilene believes that such measures "help to put the public at ease." She sees the software engineering profession as evolving to address the public's concerns, and that is one reason why she believes developing a code of ethics for software developers is a step in the right direction.

4.) Are you an engineer?

"No, not an engineer in the formal sense, but a software engineer." This answer is, in part, explained in 3 above.

5.) How did you hear about the IEEE/ACM Joint Task force on Software Engineering and Professional Practice (SEEPP)?

She learned of the IEEE/ACM Joint Task force on Software Engineering and Professional Practice (SEEPP) from Vivian Weil, Michael Davis, and a few trade publications that ran advertisements asking for volunteers.

(Tony asked her if she could recall how the idea was presented in the publications. She said she could not remember. Tony thinks it might be worthwhile to do a content analysis of the advertisements, so as to obtain a better understanding of how the ads might have been perceived by those who did and did not volunteer.)

6.) What lead you to participate in SEEPP's work?

Ilene said that her own interests led her to participate. Specifically, she "wanted to contribute to the growing profession of software engineering." She commented, "Chemistry has been around for years, so there's not much one person can do to shape the field anymore, but software engineering is new. I saw this as an opportunity to contribute to the development of a new profession."

7.) Were you familiar with codes of ethics before you became involved in SEEPP? Explain.

She said she received information about computers and ethics from Charlie Bauer (CS, IIT), who taught the department's "introduction to computers" course and had just taken a summer workshop on "Ethics Across the Curriculum." (1991?) Also, in one of her classes she used an exercise dealing with ethics that she developed in conjunction with a Faculty Workshop on Ethics in the Professions conducted by Vivian Weil (1998). Ilene was surprised by some of her students' responses to the exercise, which caused her to see the necessity of including a section about ethics in her lesson plans. She related that, "Students are sometimes driven by goals of technical proficiency and profit, and don't realize the seriousness of what they do, how software impacts on peoples lives." Hence she wishes she had more time to discuss ethics in the classroom, but time constraints (what's required for accreditation) prevent her from doing so.

8.) In what ways did you participate in SEEPP's work, especially in the process of preparing the code? (The more details, the better.)

"Michael and Vivian had a framework for a code. I worked on it with them giving them the software engineers' perspective. And that's how I got involved." She also said that corresponding with other volunteers via e-mail and letters was another way she participated. However, she added that, "It seemed like nobody was doing anything until Michael and Vivian produced a framework for version 0 (what became version 1). I think Michael and Vivian are the ones who really got the project going". Vivian was interested in "the process and the documentation, and Michael was the one who picked up the ball and put the code framework together."

9.) By what means did you participate? For example, did you participate by e-mail, or by phone, or through face-to-face meetings, or by letter, or by informal conversation, or the like?

"E-mail, phone calls, face-to-face meetings. The primary activity was formal meetings, or face-to-face meetings with Michael and Vivian. Then there was e-mail. I seem to recall that we met once every 2 weeks over a 3-month period. I enjoyed the meetings, and I thought that the issues that arose were interesting."

Ilene then commented on the process of developing the code and how these meetings contributed to it. "We went over each section of the code and I made comments from a software engineers prospective. I tried to identify what items were critical to make the code workable."

Tony asked Ilene how her departmental colleagues viewed the project and her participation in it. She said that many were not aware of it. She also said that there wasn't a great deal of interest in participating from the one colleague in the software engineering field. This person was not enthusiastic. There are also some differences between software engineers and computer scientists, the former may be more interested in the ethics code.

10.) Did any of these means of participation seem to work better than the others? Any seem to work worse? Which would you recommend as best? Why?

"Face-to-face discussion worked best. I would recommend face-to-face meetings and conference calls. E-mail isn't the best, though. There is too much room for misunderstandings and missing information"

11.) Any events that particularly stick in your mind relevant to the process? (The more details, the better.)

"Michael's and Vivian's initial framework for the ethics code, and the approval of the code by the national societies [IEEE and ACM]," was particularly relevant.

12.) Do you have any documents, paper or electronic, relevant to your participation in the process? May we have a copy?

Ilene provided a stack of documents, all of which she'd like returned to her.

13.) Has your thinking about codes of ethics changed as a result of your participation in SEEPP's work? How?

Ilene's thinking about codes of ethics has changed as a result of her participation in SEEPP's work. She now understands "why they're so important and how they can positively influence people working in the field." She has become much more aware of the content of codes, the details. Ilene believes that the code is especially important for young people, and that "they should be exposed to the code and made to see that they're accountable for their work and its effects, because an ethics code gives you a framework for how to work, and how to evaluate the impact of your work on users and society in general."

Further, as noted above, Ilene's sense of importance regarding ethics codes has increased as a result of participating in SEEPP's work. For instance, the various parts of the code have caused her to think about how her work might affect the public.

(Tony then asked Ilene a few questions about the code's applicability to those who are not software engineers, or who do not possess the appropriate certification to call themselves software engineers: Would these people as well as computer scientists view the code as applicable to them since it was written for software engineers? If no, what can be done to ensure that they adhere to the code? Is it necessary to write a separate code for those who are not software engineers?)

14.) What, in your opinion, is important about having a code of ethics?

"People need to understand the impact of what they do on society, and that's why the software developers need to think about their actions." Ilene also believes that it's in industry's best interest to implement such a code, because it "helps to protect against unsafe practices and errors (that might provoke law suits)." As such, Ilene feels that the push to create and implement ethics codes is coming from both within industry and outside it (i.e., the public). But "I don't think the public is up in arms about software yet."

15.) Is there anything about your participation that you are especially pleased with or unhappy about?

Ilene's happy that she was able to "contribute to this growing profession."

16.) Is there anything about the final code that you are especially pleased with or unhappy about?

Ilene is pleased that the code covers a lot of the issues regarding software engineering, but she is concerned that computer scientists and others who do not identify themselves as software engineers might not see its applicability to them. She thinks it's a "good code because it makes people feel that they should be held accountable, that what they're doing is important."

17.) Is there anyone whose participation in the process seems to you especially important? Explain.

"Michael and Vivian's work started it all." (We also discussed the potential importance of interviewing those that did not volunteer. This might add to our

understanding of how and why the code was developed as it was.) Also once the code was developed and approved by the task force the IEEE and ACM were supportive, and worked to gain approval by the membership. Members did participate in discussions on code-related issues. IEEE publications had articles about the code and they did publish the code in its entirety when it was completed giving credit to all who were involved. They also provide access to the code on their web sites.

18.) Anyone who you think we should be sure to talk to? Explain.

Ilene could not think of anyone, except "all the people who didn't volunteer or who voted against the code."

19.) If you had been in charge of the process, what, if anything, would you have done differently?

"I think more conference calls for the task force as a whole would have been helpful. There should also have been an initial meeting with everyone involved in the process present, sort of like a "kick-off" meeting used in industry when a major project begins. Also, I would be curious to know why so many people did not volunteer."

20.) Is there anything we should have asked but didn't? Anything you want to add to what you have already said?

Ilene did not add anything further, but said she would contact us if she recalls anything that she forgot to share with us.