

June 25, 2021

Dear Robert Frederking, Amy Burkert, Christian Kästner, and James Herbsleb,

Overview. I am writing out of deep concern about the May 2021 Doctoral Student Review (DSR) evaluation letter that was sent to David Widder, and the process that led to sending that letter. The letter makes unsubstantiated and inappropriate statements about behavior that allegedly is “perceived as bullying” and “has a negative effect on other students.” David spoke out against something that I believe was a real problem in the department; the letter states that the (basically harmless) action he took in protest will be reported to Student Affairs as a violation of the student conduct policy. The DSR letter thereby ignored the real problem and instead focused on having the person who is speaking out about it punished—which in the end effectively coerced David into making a public apology. In practice, the letter functions as an attempt to bully David into silence and to intimidate other students who might speak out.

██████████ The inappropriate letter content should be rescinded, and the DSR process needs to be reformed to ensure that this does not happen again.

Context. Some context is necessary to understand the situation. In particular, there are human subjects studies that are going on or planned in TCS Hall, where our department is homed. The PI of these studies is Yuvraj Agarwal. Yuvraj does research in the area of smart buildings, and builds and deploys smart sensors to go in these buildings. He has built a platform called “Mites” (<https://mites.io/>) which is a small device that is installed on the inner walls of a building and measures temperature, humidity, pressure, light levels, color, a very low-resolution (8x8 pixels) thermal camera, and vibrations. It also has a microphone for sound. The purpose of the research is to help manage and optimize buildings for resident comfort, cost, etc.

The Mites sensors have been installed throughout the new TCS Hall, including in public spaces, meeting rooms, and private offices. Residents of private offices will have the opportunity to control the software on the Mite in their office in order to disable or enable different sensors, and perhaps eventually to enable smart building applications. By default, all the sensors of a Mite will be on and collecting data for research, except the microphone. If the microphone is turned on, the data is processed to make it difficult to extract data such as voices, but still allow detecting things like doors opening.

While I personally support Yuvraj’s research, I believe--and David also believes--that the original way the research was being executed is incompatible with principles of informed consent. My concern is that the studies involve placing sensors in both private offices, shared offices, and meeting rooms in TCS. These sensors are networked, and they can be upgraded over the network. They also have microphones that can record sound in the offices and meeting rooms. These sensors expose residents to new risks and are perceived differently than existing sensors in our environment.

This deployment creates risks to privacy--for example, if the software is compromised, or if there is an insider threat. Since the hardware is capable of recording sound in private offices, a security compromise that disabled the processing of that sound could reveal private conversations. Experts might differ in their judgment of the risk level, but if there was a compromise the consequences could be severe. To someone who believes this kind of sensor

constitutes surveillance that is deeply against their values, the presence of the powered-on sensor in his office also directly causes psychological harm and moral injury. To researchers who wish to interview sensitive subjects in a confidential context, and whose subjects are hesitant to do so in a room with sensors, this deployment causes major inconvenience, as those interviews will have to be done elsewhere.

Given the risks and harms above, it is my belief that the principles of Respect for Persons, Informed Consent, and Voluntariness outlined in the Belmont Report require that research such as Yuvraj's requires the consent of the people residing in offices where sensors are installed.¹ But as of when the DSR letter was written, we had not been given the opportunity to consent to or to opt out of having a sensor in our offices. I don't doubt Yuvraj's good intentions, but nevertheless I believe that deploying these sensors without consent is unethical, and that turning off sensors in software while leaving the device powered on and networked is insufficient to address the ethical concern. (I note that, since the DSR letter was sent, ISR residents have been given the option to have the sensors in their office unplugged, and I thank Yuvraj and his team for doing this).

For all these reasons, David had strong objections to the presence of a sensor in his office--objections that were not adequately addressed by PI Agarwal's previous offer to disable device sensors in software (while leaving the device itself on and network-connected in David's office). He therefore unscrewed the sensor from the wall (it's attached with two standard Phillips screws) and unplugged it (it uses a standard ethernet plug). Note that this is an action that, when carried out by someone like David with modest knowledge of electronics, is very unlikely to damage the sensor. I am not going to debate whether David's action was ethical here, beyond noting that it can be justified under some ethical theories. However, I would like to point out that the harm done is extremely minimal, and no acceptable (in my view) alternative was offered to David until well after all these incidents were passed.

Later, David wrote respectful messages on Slack and email explaining his action and why he did it. This turned into long exchanges on Slack and email totaling many dozens of messages, with both faculty and students speaking out on both sides of the issue.

¹Note that the IRB has approved PI Agarwal's studies. But the chair of the IRB communicated to me that deployment of the sensors was judged to be out of scope according to federal guidelines. Thus the IRB's approval of the studies does not mean the deployment of the sensors is ethical; it only means it does not contravene federal human subjects research regulations. Indeed, no regulatory framework can possibly cover all ethical concerns.

Let us turn now to the DSR letter sent to David. **Here is the letter:**

May 2021

David Widder

Institute for Software Research
School of Computer Science
Software Engineering
Carnegie Mellon University
Pittsburgh, Pa 15213

Dear David:

In the semiannual Ph.D. student review meeting, the faculty met to discuss your progress toward a Ph.D. We have determined that your current level of progress is satisfactory.

Your research progress in the spring was very good. You appear to have been systematic and rigorous in your data collection and analysis, and have very interesting and potentially broadly useful results. We anticipate a first-rate submission to a top venue over the summer. You should talk with your advisors about the possibility of proposing in the fall semester.

Despite your good progress on research, we have become quite concerned about issues of professionalism and appropriate conduct that do not reflect well on your development as an independent scholar. In a number of previous Doctoral Review Letters we raised concerns about communication style and professional conduct. We are still concerned about what is perceived as bullying by some students. On the issue of the Mites sensors, students have expressed to us a reluctance to speak out in defense of the work for fear of being attacked. You have every right, of course, to voice your opinions, and to argue forcefully for them, on matters of politics, policy, ethics, or any other realm of academic discourse, but we become concerned when the way you advocate your views is perceived as bullying.

Your behavior has had a negative effect on other students and this is something you must take seriously. Please be mindful about how your behavior influences others. You should talk to trusted faculty members and your advisors about what bullying is and standards of conduct in professional settings. It is important to check in on how other students receive what you are saying and get a better understanding of how you might be affecting them. Not all students have the same command of English or the practice, expertise, and comfort in public advocacy that you bring to disagreements.

You must gain a better understanding of these issues by reflecting on how your conduct is detrimental to the community, and should change your conduct accordingly.

We are concerned that your conduct threatens your future as a member of a scholarly community.

We plan to ask Student Affairs to investigate your behavior in removing the Mites sensor from your office, and take appropriate action. We consider this matter especially serious and crossing a line of permissible conduct. You unilaterally and knowingly interfered with another student's research over

less destructive (to the community and general research environment) alternatives. You were clearly and specifically warned by ISR's deputy director that such conduct would be in violation of university policy against tampering with computing equipment. You could easily have protected your own privacy by having sensors disabled. This option was made known to you, but nevertheless you decided to engage in expressly prohibited behavior.

Pending the outcome with Student Affairs, your advisors plan to work with you both on research and on professional development in the summer (unless you accept an internship) and in the fall semester.

Christian Kästner, Director
Software Engineering Ph.D. Program

CC: Jim Herbsleb, Laura Dabbish

Note: a table of program progress appearing here, after the signature line, is redacted

Unsubstantiated and inappropriate statements about David's speech. My first concern with the letter is that it makes unsubstantiated and inappropriate statements about behavior that allegedly is "perceived as bullying" and "has a negative effect on other students." These statements are criticizing David's speech, as the context makes clear: it says that this is about "the way you advocate your views." If David really bullied students as part of this episode or at any time in the past semester, the statements might be justified. But there is no evidence that he did. The letter does not contain [REDACTED] anything he said or did that would be bullying. The only thing mentioned in the letter is that "students have expressed to us a reluctance to speak out in defense of the work for fear of being attacked." That much is true: an [anonymous Q&A form](#) set up by Yuvraj includes the following two comments:

No questions beyond what's been asked. Just want to offer my anonymous support to Yuvraj and Sudershan as I'm too scared by the activists in the dept email chain. This is toxic and you shouldn't have to go through this.

Why are a few self-righteous bullies getting away with this? They're intimidating everyone else. How will their office mates who are ok with sensors stand up to their pressure?

Clearly, some students do feel intimidated or bullied. But the two comments above--the sole factual basis for concern about bullying in the mites episode--do not mention David. Several other students also contributed in the Slack and email threads raising issues such as consent with the mites research. At least two faculty also expressed such concerns (I was one of them). How do we know that it is David who was doing the bullying? Why is he singled out? No other SE Ph.D. student received a mention of bullying in their DSR letter.

Furthermore, even if the comments above did refer specifically to David--and we have no evidence that this is the case--we are still left with the question: how exactly did he bully anyone? I saw all of the relevant correspondence, and I can see nothing that could plausibly be interpreted as an attempt to bully or intimidate. [REDACTED] Because the two comments above are anonymous, we cannot follow up with the commenters to find out whether they were

referring to David, or what was said that is alleged to be bullying. **An accusation of bullying cannot be based merely on the feeling of having been bullied; it must be based on actual speech or actions that a reasonable person would consider to be bullying.** Thus, without knowing the actual speech or actions that were supposedly intimidating, it is completely invalid to criticize David on a basis of bullying. Simply raising concerns about consent and the mites cannot be bullying in and of itself; David, like anyone at CMU, has the academic freedom to express views like this even if they are unpopular or could impact someone else's research.

It is completely outrageous that criticism like this would be put into an official Doctoral Student Review evaluation letter based on two anonymous comments that cannot be validated, may not be based on any actual bullying behavior, and may not even refer to David. It is outrageous that of the many people who commented on Slack and email with concerns about this issue, David is singled out as the putative "bully."

What all of this suggests is that the letter functions as a way to punish David for speaking up about an issue that is inconvenient to the faculty, and to silence criticism from him and others in the future. David was singled out because he was the first to raise the issue, because he did so more loudly than other students, and because he has a history of activism (for good causes, in my opinion--things like student representation, fighting racism and sexism, student healthcare, windowed offices for students, etc.). This is bullying and intimidation--but David is the victim, not the perpetrator.

Punishing the protester but not the originator of the problem. The letter contains harsh language regarding David's unscrewing and unplugging of the sensor in his office, and promises a referral to Student Affairs for disciplinary action. As described above, David's actions are basically harmless. On the other hand, in taking this action he was responding to a serious matter: research that places sensors with microphones into private offices without consent of the occupants, causing privacy risks, psychological harms, moral injury, and substantial inconvenience for some researchers. The department had to that point completely ignored the underlying issue; no remedy had been offered for those who do not feel comfortable having a powered-on, network-connected mite in their office regardless of whether the mite has been programmed to take measurements or not. The faculty member who put devices in people's offices without consent has not been reprimanded. On the other hand, the protester who raised the issue received a harsh DSR letter and a referral for student affairs punishment. In my view this also functions as a way to intimidate him, and other people who might dare to raise ethical concerns about a faculty research project, into silence. This intimidation is real, and is having an inimical effect on our students: a number of them were saying, in private, that they do not want these sensors in their office, but they felt scared to speak up and say this given the response that David received. In the end, this intimidation coerced David into making a public apology—a deal he was offered in exchange for dropping the student conduct complaint.

Again, David is not doing the bullying--he and other students with concerns about the mites are the ones being bullied. And to be clear, I am not saying PI Agarwal should be reprimanded or forced to apologize—indeed, I think he should not, because he genuinely did not initially understand that this was something that requires consent, and he has made an effort to make things right. Rather, I am saying David's actions were less harmful, and he should not be reprimanded or coerced into making an apology if the faculty member is not.

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What must be done. As I hope the above makes clear, there are serious problems with the content of the letter and with the process by which it was written. In my view, the following actions should be taken to remedy the problem:

- All content in the letter from the word “Despite” onwards should be retracted. It is fatally flawed from that point to the end.
- Accommodate remaining ethical concerns about the ability to disable sensors in meeting rooms, and an opt-out email that does not go to the PI/researchers.
- Reform the Doctoral Student Review meetings as follows:
 - DSR letter text should never be based on anonymous complaints or accusations for which there is no evidence
 - Faculty making negative comments about character or behavior, whether in the letter or not, should be prepared to share the basis for them
 - Faculty should be educated about tone policing (criticizing the tone of speech rather than addressing the issue being raised), and how it can threaten academic freedom. They should understand that tone policing has no place in student evaluations, or anywhere else in department culture.
- Start a conversation about ethics within ISR, including a larger view of ethics as more than just IRB/regulatory issues. Provide a supportive environment where it's OK to disagree about the ethical implications of technology deployments such as mites, and where concerns are taken seriously and not dismissed as misinformation or an attack on the researchers. Include research ethics training to students and faculty, so we have a common vocabulary and experience with which to discuss research ethics without people feeling personally attacked.

Sincerely,



Jonathan Aldrich