Repository Entry Template
Embedded EthiCS @ Harvard Teaching Lab

<table>
<tr><td colspan="2" align="center">Overview</td></tr>
<tr><td align="right">Course:</td><td>CS 143: Computer Networks</td></tr>
<tr><td align="right">Course Level:</td><td>Upper-level undergraduate</td></tr>
<tr><td align="right">Course Description:</td><td>"Computer networking has enabled the emergence of mobile and cloud computing, creating two of the most significant technological breakthroughs in computing. Computer networks have become even more critical these days since remote activities have become a new norm. We expect several focuses in the coming years. First, we will witness the emergence of 5G wireless mobile networks, which have already begun to replace the current 4G networks. Second, cybersecurity and privacy will receive unprecedented attention from the industry. Third, blockchain technology, which underlies Bitcoin, creates a new trusted network infrastructure for many new distributed applications. Fourth, distance learning and virtual meetings will push the limits of current multicast and network management technologies. In this course, students will learn basic networking protocols as well as these timely topics."[1]</td></tr>
<tr><td align="right">Module Topic:</td><td>5G and Privacy in the Workplace</td></tr>
<tr><td align="right">Module Author:</td><td>Zachary Gabor</td></tr>
<tr><td align="right">Semesters Taught:</td><td>Fall 2020</td></tr>
<tr><td align="right">Tags:</td><td>Networks [CS] 5G [CS] Smart Factories [CS] Privacy [Phil] Workplace governance [Phil]</td></tr>
<tr><td align="right">Module Overview:</td><td>This module focuses on ethical concerns about privacy that arise as a result of the surveillance capabilities enabled by 5G networks in the context of the workplace. Students are asked to consider how and why employees may care about encroachment upon their privacy by employers and to apply these concerns in the context of a discussion regarding the kinds of monitoring and interventions that 5G will facilitate.

The class session begins with a discussion of the very idea that we should be concerned about privacy in the workplace. The discussion is oriented around Anderson's *Private Government* (excerpts of which have been assigned prior to class), which contrasts two models of the workplace: (1) as a marketplace in which labor is sold; and (2) as a communist dictatorship in which workers are subordinate to a near absolute authority charged with organizing production. The class then discusses specific ways in which privacy is valuable, as well as how it might be threatened by the capabilities of a 5G-enabled smart factory.</td></tr>
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Connection to Course Material:	The course focuses on recent developments in computer networks; one of the topics was the network technology undergirding 5G networks. The module is designed to get students to think about how the capabilities of the network technology they were studying have the potential to change a key aspect of peoples' lives viz. their relationship with their employers.	In discussing ideas for the module, CS course staff and Embedded EthiCS GF discussed ways in which privacy concerns overlapped with competing concerns. The workplace context is of interest because it places privacy interests in a context in which there are other interests and obligations which might compete (namely, the interests of the employer and the employee's obligation thereto), and this raises questions about how various ethical considerations might interact. A related question discussed was how we should balance privacy and the interests of the state, particularly security in the network context.

Goals

Module Goals:	1. Identify ways in which sophisticated surveillance can encroach upon privacy in the workplace. 2. Familiarize students with particular kinds of harms associated with the loss of privacy, and how they might be relevant in the workplace. 3.Familiarize students with contrasting models for thinking about the relation between employer and employee, and how these models affect rights and responsibilities. 4. Practice applying these concepts in the context of a hypothetical workplace surveillance environment.	
Key Philosophical Questions:	1. Is the worker better understood as a participant in a voluntary transaction with her employer, or as a subject to her employer's governance? 2. To what extent do workers surrender claims to privacy when they take a job? 3. How does differential access to information between employers and employees redound to the disadvantage of the latter?	The goal of the module is to familiarize students with a way of thinking about why encroachments on workers' privacy might tend to be accepted uncritically, and to consider whether this is the best framework for thinking about the workplace.

Materials

Key Philosophical Concepts:	● Private government ● Privacy ● Dignity ● Nudge ● Paternalism	Anderson's conception of the workplace as a private government – a unit of social organization in which some have the authority to direct others on pain of sanction, where the governed have no say over the principles according to

| Assigned Readings: | ● Anderson *Private Government: How Employers Control our Lives (And why we don't Talk about it)* pp. 37-41, 48-56 | which they are governed – provides students with a way of understanding why privacy is a concern even in the context of the workplace, where, it might otherwise be thought, workers surrender their right to privacy. An emphasis on the relationship between privacy and dignity helps students to think about the ways in which even non-adversarial interventions in privacy might be objectionable.

The excerpts assigned include Anderson's compelling chapter 2 introduction, entitled "Communist Dictatorships In Our Midst," in which she suggests the analogy between a communist dictatorship and a workplace, and a section in which she considers and criticizes the competing model of the workplace as a marketplace in which workers sell their labor for wages. These passages set the context for a discussion of these two ways of thinking about the workplace. |

Implementation

| Class Agenda: | 1. Overview: Different models of the employer-employee relationship
2. Discussion: Why care about privacy in the workplace?
3. Case Study: Surveillance and 5G-enabled Smart Factories
4. Activity: Surveillance in an Amazon fulfillment center | The preliminary discussion involved both discussion of the competing models of a workplace, and why privacy is of different significance depending on which model you accept, as well as a discussion of the particular ways in which privacy is valuable. In discussing the ways in which smart factories might gather data that can encroach upon privacy, we introduced the notion of a nudge to suggest that interventions made on the basis of surveillance need not be overt to be impactful. Examples of nudges which rely on selective presentation of information are also useful to convey the relationship between the asymmetric access to information that surveillance |

Sample Class Activity:	Students were asked to consider how the use of cameras in the workplace which were enabled to detect complex patterns in warehouse workers might be used. They were asked first to consider from the point of view of the employer what information they might be interested to try to gather using these capabilities. They were then asked from the point of view of a worker, how the ability of their employer to know these things might threaten some of the values that privacy protects: their sense of dignity, their control over their relationships, and their ability to attain material advantages.	enables and the material advantage toward which it can be used. This was done over Zoom as a whole class, but in an in-person setting, it might be better to first discuss in small groups. The goal is to get students to think about applications that are in the interests of workers as well as employers – like seeing that workers are lifting with their knees and not their backs – and ones that are not in the interest of workers, like a social analysis of movements designed to detect potential union organizers. In cases that were not adversarial, students were encouraged to think about whether the relevant kind of surveillance might still be objectionably paternalistic.

Module Assignment:	A follow-up activity asks students to consider the way in which an employer's ability to monitor their location while not at work would affect the values protected by privacy.
	
	 It turns out in the United States, workers have no clear legal protection against being required to share location data with their employers using a company-issued smartphone. Suppose you are an employer: what are three things about your employees' off-the-job conduct that you might be interested in using their location data to attempt to determine? Now consider, from the perspective of an employee: would your employer knowing the above about you (if the answer is not obvious, briefly say why or why not)
	  a) Would it threaten your sense of dignity?
	  b) Would it threaten your control in determining the nature of your personal relationships?
	  c) Would it threaten your ability to exercise any other rights or obtain other material benefits?
	  d) Would your employer knowing any of the three be harmful to you in other ways?
		This exercise reinforces themes from in class, but also invites students to think about ethical issues raised by employers extending their control over employees beyond the time they spend at work.

Lessons Learned:	Students offered thoughtful comments and questions during discussion, and were interested in engaging the issue from more than one perspective. Students noted that they found the focus on a particular kind of concrete environment, the workplace, and its practicalities to be helpful. One thing to watch for: some students interpreted the question about competing models for a workplace not as a descriptive question, but as a normative one, i.e. "should a workplace be more like a communist dictatorship or a marketplace?"