Make Friends, Not Tools: Designing AI for *Technoamicitia*

Christopher D. Quintana[1*, †], Georg Theiner[2, *, †]

[1] *Department of Philosophy, Villanova University, 800 Lancaster Ave, Villanova, PA 19085*
[2] *Department of Philosophy, Villanova University, 800 Lancaster Ave, Villanova, PA 19085*

Abstract
In this paper, we argue that the joy and pleasure that reciprocity, shared life, and personal development often associated with human technology use identifies a relation we call *technoamicitia*. The term *amicitia* denotes a friendship relation that stops short of *philia* (love) but is grounded in a recognition of affection and attachment that people have for their technologies and what this implies for their psychological and moral growth. It calls for a "user-friendly" design of technologies—with an emphasis on friendliness that is markedly more demanding than what is commonly captured by the "Five E's" of usability. Given the increasingly tenuous foundations for viewing artificial intelligence as akin to a tool, we believe designing for *technoamicitia* is an especially attractive framework for human-artificial intelligence interaction.

Keywords
Ethics of AI; value-sensitive design; techno-moral virtues; friendship; extended mind; AI extenders

1. Defining *Technoamicitia*

When some musicians speak about their instruments, you might mistake them to be speaking about their friends or loved ones. Here is classical cellist Natalie Clein, describing her experience when she first "met" her cello:

> I met this cello in Vienna. I fell in love with it on second or third sight. It's like the best people: they take a little bit of time to start unravelling some of their layers. The first time I thought, "I dearly hope this is my cello for life" was when I played a concert with it. [1]

For Clein, the experience of encountering her cello was less like shopping for a tool and more like encountering someone whom you immediately feel will become your friend or

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[1*] Corresponding author.
[†] These authors contributed equally.
christopher.d.q@gmail.com (C.D. Quintana); georg.theiner@villanova.edu (G. Theiner).
0009-0005-0800-4211(C.D. Quintana); 0000-0001-7632-0412 (G. Theiner)

companion. And like making a new friend, the extent of the connection was built over time through mutual understanding. Despite the cello's inanimate nature, the relationship involved mutual change: Clein struggles to disambiguate her voice and "the voice that came from my Guadagnini [cello]" [1]. Through shared time spent performing, practicing, traveling, housing, and all the wear this comes with, the musical instrument changes in a way characterized by the musician's engagement. At the same time, the features and material composition of the instrument intertwine with the voice brought about by the player's skill. In short, the musician-musical instrument relation suggests a relation that goes beyond mere tool-use and comes much closer to the reciprocal relationship and bond characteristic of human friendships.

In this paper, we argue that the joy and pleasure that reciprocity, shared life, and personal development that our example identifies is not so much one of tool-use, and more like a relation we call *technoamicitia* [2]. The term *amicitia* denotes a friendship relation that stops short of *philia* (love) but is grounded in a recognition of affection and attachment that people have for their technologies and what this implies for their psychological and moral growth. It calls for a "user-friendly" design of technologies—with an emphasis on friendliness that is markedly more demanding than what is commonly captured by the "Five E's" of usability [3]. Importantly, our notion of *technoamicitia* not only goes beyond a purely instrumental dependence users might have on technologies, but also departs in important ways from their functional characterization as a cognitive extension beyond the boundaries of the biological organism [4, 5]. Given the increasingly tenuous foundations for viewing artificial intelligence as akin to a tool, we believe designing for *technoamicitia* is an especially attractive framework for human-artificial intelligence interaction. In the paper, we illustrate our framework through some applications.

2. *Technoamicitia* and The Extended Mind Thesis

By referring to the use of technologies to extend cognition beyond the boundaries of the biological organism we refer to the "extended mind" thesis—an influential paradigm in philosophy of mind and cognitive science for understanding the deep functional integration of artifacts (such as notebooks, smartphones, or GPS) into our (extended) cognitive repertoires. To use a stock example, to a blind person using their cane, it feels as if the extended system [biological body + cane] is sensing the world, not (usually) as if they were sensing the cane with their hands. For the extended mind thesis, what distinguishes such tightly wound agent-environment couplings from mundane cases of tool use is conceptualized along several dimensions of cognitive integration [6], such as bidirectional information flow, reliability, ease of access and interpretability, effortless deployment, and level of customization. Recently, this framework has been used to analyze the ethical and societal implications of "AI-extenders" [7]—cognitive extenders infused with AI-technologies that are neither fully autonomous nor fully internalized.

Our notion of *technoamicitia* is meant to interrogate the dominant framing of artifacts as tools to which the "extended mind" thesis is beholden. Despite its emphasis on cognitive integration, the fundamental relationship between a user and a technology remains one of asymmetric (and arguably exploitative) dependence, with no expectation

that the user become an object of affection and concern for the technology, in the manner we associate with a budding friendship. To be sure, we are not asserting that our contemporary technologies fully satisfy the requisite criteria of human friendship as understood by Neo-Aristotelian philosophy. Instead, we argue that technologies, by tapping into a range of criteria to varying extents, allow for gradations of friendship. In articulating those criteria, we largely draw on the "degrees-of-friendship" view developed in the social robotics literature [8]. Our intervention should be understood as a heuristic for prompting value-sensitive design, rather than a naïve expression of anthropomorphism. By projecting the familiar characteristics of friendship onto the artifacts we engage with, we aim to create a comparative reference point for detecting the (intended or unintended) harms that are tantamount to the undermining of a friendship. Put differently, since the design of amicable technology is inherently imbued with the normative expectations associated with friendship, designing for *technoamicitia* (rather than merely for cognitive extension) means we will be better positioned to design with ethics in mind from the outset.

In order to prepare our framework for real-world AI applications, we propose and briefly examine the following design principles for technoamicitia:

1. Enable the enjoyment of the wide variety of goods that can characterize human lives;
2. Help create social structures that can foster the kinds of social relationships that sustain shared practices, including the discursive aspects of those relationships;
3. Set the conditions for, to the extent possible, intellectual and moral virtues rather than vices [9].
4. Facilitate the user's ability to raise (what Alasdair MacIntyre understands as) "Aristotelian questions," i.e., questions centered on the place of different goods, pleasures, and activities in one's life [10].

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