

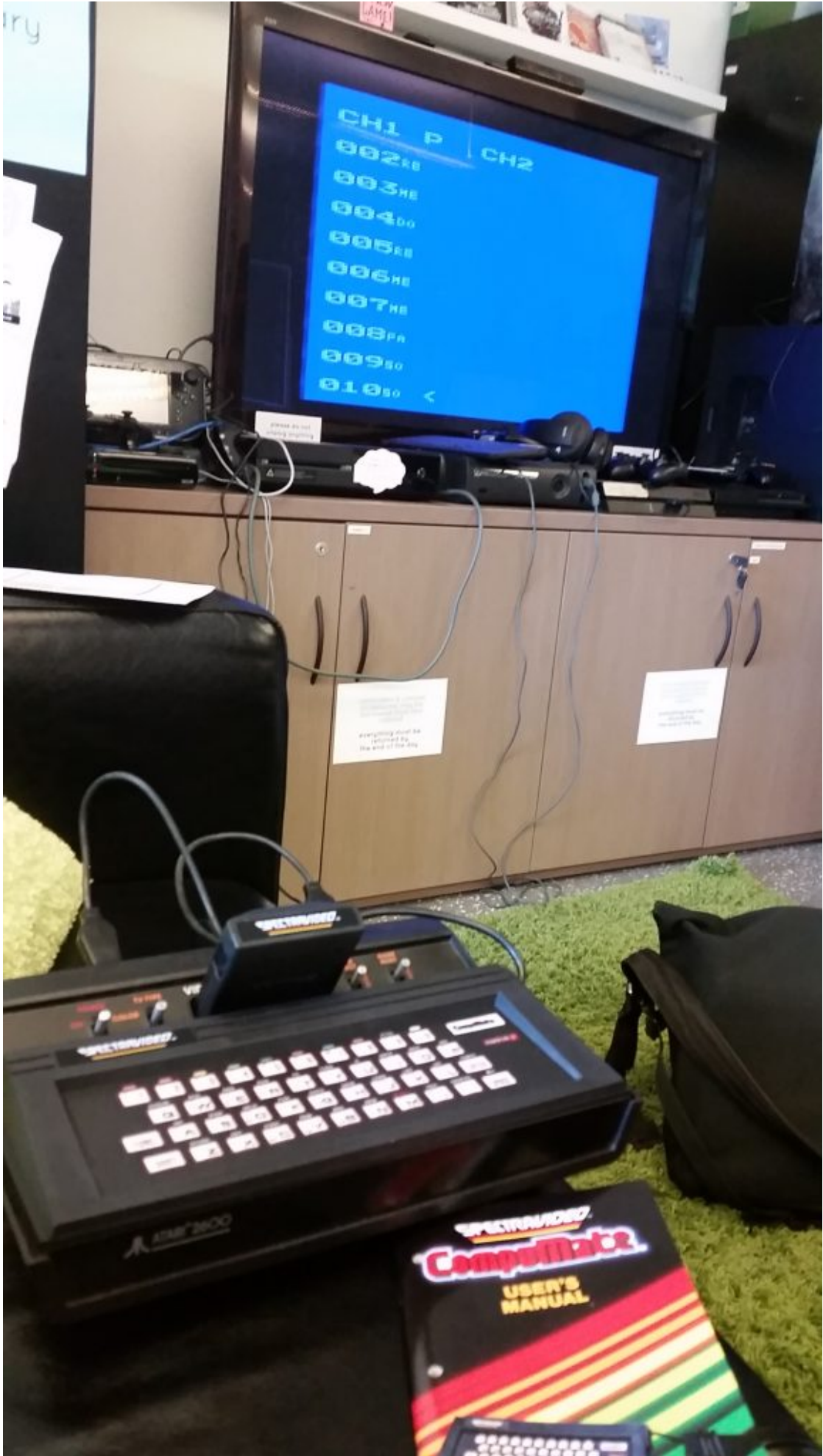
Interventions in Machine to Machine Writing

by Kyle Bickoff

Hi all—

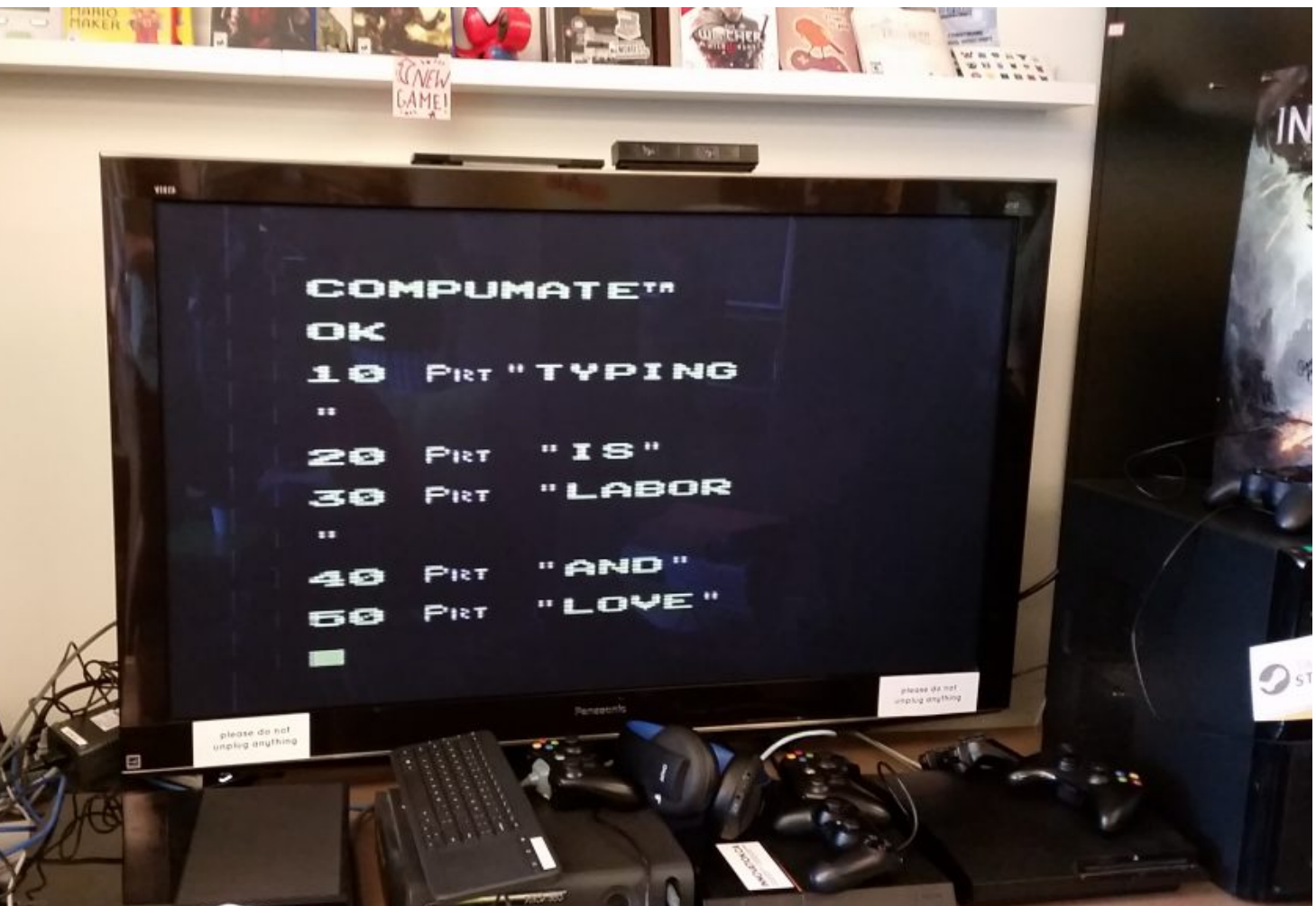
I really tried to bring my hands-on work and some of the theory I've been interested in all together here. I'll first talk about the additional research I did before speaking, and then I'll go into what I believe this can help me understand. In particular, I'm concerned with, perhaps, illuminating the moment of human intervention in machine-to-machine writing, a moment clearly marked when we 'codebent' Super Mario Bros.

So, after talking yesterday in class, and after Patrick's suggestion, I looked most closely into Footnote 6 in Chapter 1 of Kirschenbaum's *Mechanisms*. Kirschenbaum here discusses a great many of the origins surrounding inscription, particularly in relation to the divide between the terms *communication* and *signification*. But, by attempting to better define these terms, our understanding of the message's inscription is complicated by this—Kirschenbaum notes that while magnetic media may be inscribed, this is typically not visible to the eye, so typically not meaningful. Thus, the oft used term 'writing,' which typically refers to 'communication,' can now be used to refer to messages that may be intended for machine to machine communication, rather than machine to human communication.



Removable Storage on the SpectraVideo Compumate

Writing, it seems, becomes no longer about communication to humans, but it *can* well serve the purposes of machines alone. Kirschenbaum, citing Umberto Eco, suggests that any information transfer, from the source to the destination (including from machine to machine) is communication. Kirschenbaum even suggests that, perhaps, computer data inscription follows traditions of symbolic numeracy record keeping. Kirschenbaum also adds that Salomon suggests a continuity in this record keeping, during its shift to computing, rather than the harsh break with writing that we may traditionally consider. What Kirschenbaum speaks to here is, of course, the extremely complicated nature of 'inscription,' and the complication of calling this communicative message 'writing.' Yet, throughout the text the term 'writing' and 'inscription' are indeed used. Kirschenbaum, in defining this term shows the lack of one single definition that might be appropriate and instead suggests we might include terms like digital 'writing' and 'language' without quotations (as I've written them)—they're already such a part of our lexicon and they need not be marked as other.



ctravideo Compumate

This forces me to confront the *writing* to removable media devices. What I'm most interested in is a machine's *ability* to write to removable media, making way for subsequent duplication and distribution. Devices such as the Atari 2600, paired with the Spectravision Compumate, allow for this *possibility* of writing to an external medium—distributing musical compositions, images, or programs and text written in BASIC. The ability to write to removable media marks a certain shift—when this step is possible, then duplication is possible—this sort of duplication paves the way for the emergence of very fascinating DIY communities. Certainly readable/writable media have existed in computing since early

on—but in particular, I'm interested in the more widespread adoption of this duplication that follows the proliferation of these computers in mainstream personal computing culture.



The Precursor to Codebending

So—to the NES: as I mentioned in my post earlier this week the NES console, on face, appears as something of a *blackboxed* consumer electronic device. It is literally a grey, white, and (partially) black box—upon inserting a grey square (cartridge) into a black internal cartridge slot, and connecting the proprietary controller(s) to the black port on the front of the system, and connecting it to a black-screened television, bright electrons are blasted into the users eyes—contents stored within the cartridge are transformed and symbolic messages and communications can be visually interpreted by the human user of the NES. Moreover, the hardware components are also ‘blackboxed’ from the consumer—specialty screws seal the cartridges and the NES console alike. Proprietary pin arrangements further conceal the contents of the cartridge’s onboard memory. Chips are soldered onto Nintendo branded circuit boards with many layers of copyright protection implemented. As Parikka notes in his *What is Media Archaeology*, “Even if at the risk of postmodern nostalgia... or celebrating exactly what has been lost in the midst of increasingly closed **black-box** consumer mediascapes, steam punk is branded by an active tinkerer spirit.” Parikka continues, “In a similar way to the steam punk DIY spirit, media archaeology has been keen to focus on the nineteenth century as a foundation stone of modernity in terms of science, technology and the birth of media capitalism.” For Parikka’s Media Archaeological approach, ‘excavating the past’ becomes an important means of understanding both the present and future (Parikka 2). Parikka sees a certain DIY spirit within Media Archaeology, and I’d like to look at this DIY spirit extended into homebrewed console modifications, and the external economy that emerges around DIY computing hobbyists.

At the very moment we unsealed the cases of our NES cartridges, we came to enter into the DIY hacking, modding, and ROM emulation scene surrounding the NES. We entered a

community—dedicated not towards maximizing profits, paying licensing fees, or observing the original creators' intents. Rather, the group values tinkering, duplication, access, not-for-profit models, community contribution, and sharing. As modders, we may have legally followed the correct laws (by owning as many legal copies of the game as we ran synchronous duplicate copies), but this was more out of coincidence than intention. We followed the steps of hobbyists who previously blazed the trail—with an eye to access and preservation. We preserved the original game while creating a duplicate copy, which we then modified. Upon duplicating this written code, which makes up Super Mario Bros., we then ran the modified games on the system—turned skies the color of fire, usurped the names of the characters (to “NERDS” or “MARTN”), and created deathtrap dungeon worlds—none for the faint of heart. These modifications are symbolic messages we can interpret, understand, and find meaning in (whether that be humor or horror), which elicit a response from us. Returning to Kirschenbaum, briefly, our work with the HEX editors allowed us to modify this *writing*. We've inserted our voice in the middle of this machine to machine language—we've interrupted the writing, read it with technical software tools and modified it, and then reinserted this writing for the receiving machine to then interpret. By changing the hex we were able to rewrite and transform the intended meaning distributed en-mass by the Nintendo Co., Ltd. We were able to modify this writing by tools aggregated and developed by a community of similarly minded individuals. Removable memory, (or in our case forcibly removed memory) lies at the heart of this—it's what allows us the technological access to writing/rewriting on this medium. Through writing and rewriting, we were able to contribute to shifting the gaming model, if only incrementally further, away from the model of planned obsolescence, conspicuous consumption, and our infatuation with the *new* in the advanced capitalist model. Our participation, I should hope, is not the end of our modding time, but our first step in interfering with these traditional

models of technological consumption.

– Consider this just a short addendum – Where do I see my project going from here? After I spoke, Patrick noted that the quote from Kirschenbaum he suggested was actually in another section—in particular his suggested section deals with the divide between *forensic* and *formal* materiality. Indeed, this is an area I would be keen to pursue further. The materiality of the object helps us to consider how each inscription (if identical in its code) is actually completely unique. No two media inscriptions can be identical since the materiality of the surface (the magnetism of the hard drive, or electric current in a solid state drive) will be perfectly similar to the previous form. There is certainly a lot of work I can do still with removable media—I could talk about the intervention in this machine to machine communication at a much more granular level, I could look further into the Forensic / Formal divide in removable memory (particularly in these vintage computers and consoles), or I could pursue another route, one that might engage in a more comparative platform studies reading of the entry of removable media slots into the average consumer's home. Of course, any approach I take will be informed by Media Archaeology—I could write further about my research on the devices at the residual media lab and I could extend this to computers at MITH. I would prefer to stick to computers, and 'writing machines' but would work on gaming devices as well, if balanced properly with my primary focus on computers.