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[extend, re-edit this bibliography]

I. WHAT IS SOFTWARE Viewing software in the long-term context of historical 'numerical artefacts' is an occasion to reflect on the conditions of its appearance, and allows us to take on current-day questions from a genealogical perspective. What is software? How did it appear as a concept, in what industrial and governmental circumstances? The selected texts explore the materiality of software, its relation to hardware, language, discourse and abstraction with each their own way of questioning and proposing agendas and assumptions.

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- * Henry Lowood: "The Hard-Work of Software History" <http://rbm.acrl.org/index.php/rbm/article/view/1000>

II. WHEN AND WHERE IS SOFTWARE How do layers of abstraction have an effect on the way software is produced and vice versa? What is the space-time dimension of IT development or where and when is software made today? The way computer programs and operating systems are manufactured changed tremendously through time, so its production times and places changed too. From military labs via the mega-corporation cubicles to the open-space freelancer utopia, the texts in this chapter trace the ruptures and continuities in software production. From time-sharing to user-space partitions and containerization, this chapter looks at the separations at work. What happens to the material conditions of software production (factory labor, hardware but also minerals) when it evaporates into a cloud?

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- Seda Gurses and Joris van Hoboken. “Privacy after the Agile Turn.” *Open Science Framework*, 2016. <https://osf.io/27x3q/>
- Christoph Neubert, “The Tail on the Hard-ware Dog”: Historical Articulations of Computing Machinery, Software, and Services in Irina Kaldrak and Martina Leeker, *There is not software, there are just services*. 2015 <http://meson.press/wp-content/uploads/2015/06/9783957960566-No-Software-just-Services.pdf>

III. OBSERVATION AND ITS CONSEQUENCES The development of software encompasses a series of practices whose evocative names are increasingly familiar: feedback, report, probe, audit, inspect, scan, diagnose, explore . . . What are the systems of knowledge and power within which these activities take place, and what other types of observation are possible? The material in this section is a compendium of probes such as learning by doing; exploring software through the analysis of its language and grammar; critical ethnography and self-testing as a user. In addition, we have included some conventional methods and tools for increasing the performance and security of software. Appropriating them for Technogalactic software observation first of all turns the gaze onto the process of observation itself, and eventually opens up possibilities to actively interfere with the functioning of software.

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- Alexander R. Galloway, *The Poverty of Philosophy: Realism and Post-Fordism*, *Critical Inquiry*. 2013, <http://cultureandcommunication.org/galloway/pdf/Galloway,%20Poverty%20of%20Philosophy.pdf>
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