SLIDE 01

Time Moves Down The Stack

SPEAKER NOTES

Opening context for Florian Lohse’s talk. The core argument is that timekeeping has become easier for people to read while the systems that establish time and determine when actions occur have moved deeper into technical infrastructure. The talk connects histories of timekeeping to Micro Time, preemption, and temporal agency: the ability to influence when possibilities become fixed. It asks what human practices could preserve room for intervention as timing decisions increasingly happen before the visible interface.

SLIDE 02

Three Books on Time

SPEAKER NOTES

Florian speaks as part of the Contraptions Bookclub, the Protocol Institute's Special Interest Group for Psychohistory. Three books supply the talk's main lenses: David Landes' Revolution in Time on clocks, access, and discipline; Tony Jones' Splitting the Second on shared temporal reference; and Media Infrastructures and the Politics of Digital Time, edited by Axel Volmar and Kyle Stine, on temporal infrastructures. Florian combines them with his design work and the group's World Machines framework. The overall argument and cross-mappings are his synthesis, not a single theory jointly proposed by the books.

SLIDE 03

Designing Time

SPEAKER NOTES

In 2014, Florian’s Industrial Design master’s thesis explored timekeeping through research and personal time-management prototypes, including a device that made airplane-mode interventions easier. Its premise was that individuals and societies shape temporal structures and should design them deliberately. Hiding clocks, changing schedules, or changing device settings locate agency at a human-facing control surface. The talk retains that ambition but questions whether interfaces, tools, and habits are still the main places where time is shaped.

SLIDE 04

A Clock for Everyone

SPEAKER NOTES

Drawing on Landes, this slide contrasts the Palais de la Cité tower clock, built for Charles V in 1370, with a mass-produced talking quartz wristwatch from the early 1980s. The royal clock imposed a central reference even though it was inaccurate; the wristwatch made precise time cheap, personal, and widely accessible. Four shifts matter: clocks became cheaper, precision increased, access spread, and collective obedience became internalized personal discipline. This is the frontend story: receivers of time moved from civic architecture to individual wrists. The next question is what reference those receivers receive.

SLIDE 05

From Watching the Sky to Probing Atoms

SPEAKER NOTES

Drawing on Jones, this slide traces three changing practices for establishing a shared second. Observation ties time to celestial motion people can see. Calculation, exemplified by Ephemeris Time, infers a celestial reference through astronomical observations, models, and tables. Measurement uses atomic transitions to produce a stable reference signal. Nature remains the reference, but access moves into expert calculation and specialized apparatus. The key inversion is that time becomes easier to read at the frontend while the process that produces it becomes harder to see at the backend.

SLIDE 06

Keeping Time with a Wobbly Planet

SPEAKER NOTES

UTC combines stable atomic time with corrections that keep it close to irregular Earth rotation. Before 1972, UTC used small frequency adjustments; afterward, it used whole leap seconds. A positive leap second inserts 23:59:60 before midnight. The last leap second in the script occurred at the end of 2016; since 1 January 2017, UTC has been 37 seconds behind International Atomic Time. Humans barely notice, but distributed systems must preserve timestamp ordering and synchronization, prompting workarounds such as leap smearing. The point is that a tiny planetary irregularity becomes an infrastructure problem once systems require predictable time.

SLIDE 07

Hardwired Temporality

SPEAKER NOTES

Following Volmar and Stine, a shift change shows temporal coordination becoming embedded at increasing depth. As practice, crews greet and hand over. As object, a punch clock records the shift boundary. As structure, a roster coordinates recurring work. As infrastructure, plant operations systems incorporate those arrangements into continuous operation. Deeper embedding makes timing less visible as something people negotiate and harder to change locally. These are analytical layers, not four mandatory historical stages. This is the concrete meaning of time moving down the stack.

SLIDE 08

Four Ways of Organizing Time

SPEAKER NOTES

This table is Florian’s synthesis of four temporal regimes discussed by Volmar and Stine: Calendar Time, Clock Time, Capitalist Time, and Micro Time. It compares their coordination purpose, characteristic resolution, devices and infrastructures, time giver, human interaction, and depth of embedding. The scales are illustrative rather than hard boundaries. The separate World Machine row is Florian’s own cross-mapping, not a claim from Volmar and Stine; its Calendar Time entry remains unresolved. The historical clock story sits mainly in Clock Time, the 2014 thesis around Clock and Capitalist Time, and the rest of the talk focuses on Micro Time.

SLIDE 09

Micro Time

SPEAKER NOTES

Micro Time is the condition in which machines sense, compare, synchronize, and act at resolutions humans cannot directly perceive or navigate. Eye tracking in VR makes this tangible: cameras turn gaze into a signal; foveated rendering reorganizes resources around it; gaze can trigger selection or magnification before a click; and continuous gaze patterns can reveal more than explicit actions. The examples illustrate related capabilities, not one end-to-end system. The political issue is not speed alone but action on precursor signals before explicit human input. Increasingly, the interface shows the result of a decision made beneath it.

SLIDE 10

Narrowing the Field

SPEAKER NOTES

The modified Futures Cone illustrates preemption: possibilities can be narrowed upstream before they become experienced choices. Prediction describes a future; preemption intervenes early enough that alternatives may never enter the visible field. Micro Time is the enabling condition, preemption is one possible operational logic, and reduced contingency is a possible consequence. Large language models offer a related example: suggested continuations and formulations make some paths cheap and salient while others remain less visible, without fully determining the outcome. Liveness means the degree to which multiple futures remain genuinely available to develop. The key question is when possibility becomes fixed.

SLIDE 11

Down The Stack

SPEAKER NOTES

A watch’s breathing prompt is the visible surface of a deeper temporal system. The conceptual stack has four layers: input and sensing; interpretation through baselines, patterns, and confidence; temporal control through cadence, thresholds, pacing, and intervention windows; and output and learning through prompts, haptics, logging, and synchronization. This is an explanatory model, not a verified description of a specific Apple Watch implementation. Temporal agency includes influence over when a possibility becomes fixed. The mismatch is that human practices still focus on the interface while more timing decisions happen in sensing, inference, and orchestration below it.

SLIDE 12

Dealing with Time

SPEAKER NOTES

Florian proposes that every time regime needs a human practice: Calendar Time has ritualization, Clock Time has punctuality, and Capitalist Time has Personal Time Management. A practice is how people learn to participate in a temporal order, coordinate with others, and shape it deliberately. These established practices remain useful, but they operate mainly at a human-facing control surface. Micro Time introduces a vacancy because its decisive operations can occur before human perception or intervention. The open design problem is to develop a practice that can reach the points where infrastructure closes possibilities.

SLIDE 13

Points of Intervention

SPEAKER NOTES

The task of a Micro Time practice is to preserve liveness by managing where and when possibilities close. Florian offers three tentative directions. Rewiring changes infrastructural rules; IEX's 350-microsecond options-market delay shows people negotiating protections that operate inside an interval they cannot personally react within. Conversion translates between temporal worlds; Paragonday's Horizon Time relates shared clock time to local daylight cycles. Attunement uses responsive interfaces to surface changed possibilities for human judgment, illustrated by Florian's delayed Eurotunnel journey and a bookclub reminder. Interfaces must preserve slack and refusal rather than automatically optimize every opening. These are seeds, not a finished practice.

SLIDE 14

The Vacancy

SPEAKER NOTES

The vacancy remains after the three intervention directions: Calendar Time has ritualization, Clock Time has punctuality, and Capitalist Time has Personal Time Management, but Micro Time has no established human practice yet. The three proposals do not fill the slot; they clarify its job. Such a practice would notice where possibilities are being closed inside infrastructure, move intervention toward those points, and preserve contingency where possible. In human terms, the question is: how do we keep futures open long enough to participate in them?

SLIDE 15

End

SPEAKER NOTES

The conclusion returns to Florian’s 2014 ambition to shape temporal structures deliberately, but relocates the work. Personal Time Management acts at the human-facing control surface. Micro Time increasingly shapes events before they reach that surface. The question therefore expands from ‘How do I manage my time?’ to: Where is temporal agency located? When are possibilities becoming fixed? Where can intervention still occur before contingency is consumed? Time-shaping has moved down the stack. Every time regime needs a practice, and developing the practice that responds to this shift is the task left open.

SLIDE 16

Contact and links

SPEAKER NOTES

Closing contact slide. Florian Lohse is part of the Contraptions Bookclub / Protocol Institute. Further work and contact context are available at florianlohse.com and notefields.substack.com. No additional argument is introduced here.