

The Gift of Chaos: Rob Hordijk’s Open Design Philosophy and the Formation of Post-Digital Instrument Communities

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Figure 1: Rob Hordijk at EEME 2012. Photograph by the first author.

Abstract

This paper explores the legacy of electronic instrument designer Rob Hordijk (1958–2022) as a valid and meaningful alternative to proprietary paradigms in music technology. While certain designs like the Benjolin were explicitly offered as a “gift to the community”, Hordijk’s broader practice, rooted in the “Dutch West Coast” school of synthesis, relied on a nuanced intellectual property model based on personal prestige and the concept of “prior art”. This research investigates a central question: How does a deliberate reliance on community-validated authorship and hand-made quality facilitate the formation of resilient, non-hierarchical communities of practice?

Drawing on primary sources and personal communications, the study traces the formation of Hordijk’s community through two pivotal axes: the EEME 2007 in Belgium and the EEME 2012 in Mallorca. By examining the Blippulator (designed by Biyi Amez,

Hordijk’s designated successor) as a tool for “ethical reverse engineering”, this paper argues that Hordijk’s designs act as social catalysts. In alignment with the NIME 2026 theme of “Communities”, this research shows how trust-based design models foster resilient artistic ecosystems that challenge industrial hegemony through a collective “custodianship of knowledge”.

CCS Concepts

• Applied computing → Media arts; • Social and professional topics → Intellectual property; History of hardware.

Keywords

Rob Hordijk, Benjolin, Blippulator, Dutch West Coast, Well-tempered Chaos, Prior art, Community-based design, Open Hardware Ethics



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1 Introduction

The contemporary landscape of electronic instrument design is often characterized by a stark bifurcation. On one side lies the industrial paradigm: mass-produced, proprietary hardware and software protected by restrictive intellectual property (IP) frameworks. On the other, a burgeoning DIY and Open Source Hardware (OSHW) movement seeks to democratize access to musical technology. However, within this dichotomy exists a more nuanced territory, a “third way” exemplified by the work of Dutch designer Rob Hordijk (1958–2022). Hordijk did not merely build circuits; he cultivated a socio-technical ecosystem that challenges our understanding of authorship, community, and the life-cycle of musical interfaces.

Central to Hordijk’s practice was a radical philosophy of openness, characterized by his generous participation in online forums and mailing lists where he shared advanced synthesis techniques. This commitment to open knowledge was further manifested through his extensive output of tutorials, workshops, and recorded lectures (all made available online for free) and is best encapsulated in his stance regarding his most iconic circuit, viewing the Benjolin [10] as an open contribution to the DIY community, while the Blippoo Box [7] remained a site of artistic craftsmanship.

Hordijk is the foundational figure of the “Dutch West Coast” school of synthesis. Just as the American West Coast school (led by Don Buchla) emerged from the intersection of aerospace technology and San Francisco’s counterculture, the Dutch West Coast arose from the artistic vanguard of The Hague and Rotterdam. Influenced by his background in sculpture and jewelry, Hordijk approached electronics as a plastic medium capable of producing “objects of desire” (Hordijk, personal communication, 2021, private meeting at the first author’s residence with Biyi Amez). In his vision, a synthesizer is not just a tool to be “played” via traditional interfaces, but an autonomous entity with its own behaviour; a chaotic system that the musician must navigate through a “gesture of listening”.

Before proceeding, a brief clarification of the principal instruments referenced throughout this paper might be useful. The Benjolin is a semi-modular electronic instrument designed between 2008 and 2009, structured around recursive feedback relations in which two oscillators interact with a shift-register-based circuit, the Rungler, to produce dynamically evolving control and audio signals. Its open circuit design and Hordijk’s public release of its schematics make it the clearest embodiment of his “gift to the community” philosophy. The Blippoo Box is a fully self-contained, knob-driven instrument oriented toward autonomous operation, generating continuously shifting chaotic sonic textures; it remained exclusively a handcrafted, non-reproducible object during Hordijk’s lifetime. The Rungler is the core generative circuit common to both, a discrete-time feedback device yielding structured, non-repeating voltage patterns, which Hordijk further developed into a dedicated module within his broader modular system. The Blippulator (described in more detail below) is a contemporary instrument by Biyi Amez that merges both architectures into a modern, unified form with full CV connectivity. Together, these systems articulate a design language grounded in feedback, indeterminacy and emergent behaviour at the circuit level.

This paper investigates how this unique approach to design acted as a social catalyst. While the formation of instrument-centered communities has been discussed within the framework

of Communities of Practice [15], and specifically within the NIME context by Marquez-Borbon and Stapleton [9], who examine how community identity forms around shared instrument practices, the Hordijk ecosystem presents a distinct alternative. Rather than emerging from institutional research or platform-based coordination, this model relies on prestige-based authorship and non-hierarchical mentorship. By tracing the community’s evolution from virtual forums to physical enclaves, the EEME 2007 (Chateau Sonore) in Belgium and the EEME 2012 in Mallorca, we analyse how Hordijk’s model fostered a resilient network of practice capable of outliving its founder. In alignment with the NIME 2026 theme of “Communities”, this research addresses a fundamental question: How does a deliberate rejection of traditional IP, in favor of trust-based design and prior art, facilitate the formation of artistic ecosystems capable of surviving the death of their founder?

2 The Ethics of Open Design: Beyond Public Domain

It is sometimes informally assumed within the DIY synthesizer community that Rob Hordijk’s work exists entirely within the public domain, as numerous copies of his circuits exist both in virtual and physical versions. However, while Hordijk was a staunch advocate for open knowledge, his approach to intellectual property was more sophisticated than simple “Open Source” categorization.

2.1 Prior Art as a Defensive Shield

Hordijk’s primary strategy for protecting his designs was the deliberate creation of prior art [8]. In patent law, prior art is any evidence that an invention is already known, rendering it ineligible for new patent claims. By publishing detailed schematics of the Benjolin and discussing the logic of the Rungler in public forums such as electro-music.com, Hordijk effectively “poisoned the well” for any commercial entity attempting to patent his innovations.

This move was not merely a tactical maneuver; it was an act of profound social engineering. By making the core concepts public, he entrusted the community with the collective stewardship of his work, opting for a trust-based social contract over a conventional legalistic defense. This strategy ensured the technology remained un-patentable and accessible to the DIY community, while grounding his status as “prime mover” in shared ethical norms and community-validated prestige rather than proprietary control.

2.2 Prestige vs. Proprietary Property

In the industrial paradigm, an instrument’s value is protected by law (patents) and brand (trademark). In Hordijk’s “Dutch West Coast” model, value is protected by craftsmanship and community validation: the author provides a technical “gift” to the community, and in return the community prioritizes original, handmade instruments over unethical or uncredited clones. As aligned with the NIME principles of Socio-Economic Fairness [11], this model promotes an equitable distribution of wealth by allowing independent artisans to survive through high-craft production while maintaining the ethical standards set by the founder.

What distinguishes the Hordijk’s model from comparable post-digital IP strategies is its deliberate informality. Emilie Gillet (Mutable Instruments) adopted a fully open-source model with

formal Creative Commons licensing, ensuring community-led hardware continuity after the company’s closure. Meng Qi employs GPL-3.0 on Github for firmware [13] while maintaining the physical exclusivity of handcrafted standalone interfaces; his succession model is also more decentralized, relying on public accessibility of code rather than a single designated successor. Both rely on codified legal networks and, in the case of Meng Qi, a distributed community of builders. Hordijk’s model, by contrast, operates entirely through community-validated social authority and a formalized personal succession, a more fragile but also more intimate form of stewardship, whose ethical weight rests on the community itself rather than on legal enforcement.

2.3 The “Aura” of the Design

Applying Walter Benjamin’s concept of the “aura”[1] to electronic instruments, we can argue that a Hordijk original possesses a unique quality derived from its artisanal origin. The community’s preference for “Hordijk-approved” hardware is not mere nostalgia; it is an acknowledgement of the pedagogical relationship between the creator and the user. To own a Hordijk instrument is to participate in a specific lineage of synthesis. The resilience of the Hordijk community stems from this shift: the instrument is no longer a commodity to be consumed, but a badge of belonging to a community that values technical transparency and artistic integrity over industrial convenience.

3 Historical Enclaves: The Physicality of the Community

The transition from a virtual community of interest to a resilient community of practice required physical manifestation. For the Hordijk ecosystem, this was achieved through “enclaves”, peer-to-peer gatherings where knowledge was transmitted through direct interaction.

3.1 EEME 2007: Chateau Sonore (Belgium)

The European Electro-Music Event (EEME) 2007 [4], held at the “Chateau Sonore” in Belgium, marked the first significant physical gathering of the electro-music.com forum members in Europe. This event was the “moment zero” for the Hordijk physical post-digital community. It was here that Hordijk presented his first major integrated design, the 24/7 system.

The 24/7 was not merely his first significant electronic instrument; it was a manifesto of his synthesis philosophy. By witnessing the designer interact with his creation, the community began to understand that his instruments required a shift in performative mindset. The EEME 2007 established the foundations of mutual trust: Hordijk shared his technical insights openly, and in return, the community granted him the “prestige” of original authorship.

3.2 The Global Workshop Circuit (2008–2019)

Following the success of the early enclaves, the Hordijk community expanded through a nomadic circuit of workshops that spanned Europe and North America. These sessions were crucial for the viral yet controlled spread of the Benjolin. Table 1 contextualizes this expansion, showing how Hordijk balanced academic institutionalization (NOVARS, STEIM) with underground, self-managed spaces (NK Projekt, Islington Mill).

Table 1: Key Hordijk Workshops and Community Enclaves (2008–2019)

Year	Location	Institution / Event	Context
2008	Los Angeles, USA	Independent BENT08 Festival	Initial focus on “bending” philosophy.
2009	NYC, USA	Harvestworks Technical Session	Technical session in media arts center.
2010	Amsterdam, NL	STEIM / Research Workshop	Research in electronic instruments.
2010	Berlin, DE	N.K. Projekt / Experimental Scene	Focus on the experimental scene.
2011	Rotterdam, NL	WORM Workshop	Highly documented, massive attendance.
2011	Valencia, ES	Independent Spanish Community	Key for the Spanish synth community.
2014	Manchester, UK	Islington Mill Sines & Squares	Modular synthesis festival.
2017	Manchester, UK	Univ. of Manchester / NOVARS Centre	Academic workshop at Univ. of Manchester.
2019	The Hague, NL	Personal Intimate Session	Final intimate session in his hometown.

3.3 EEME 2012: Mallorca and the Benjolin Workshop

The EEME 2012 held in Mallorca [5] represents the maturation of this community. This enclave was characterized by a dual pedagogical approach: the high-level presentation of Hordijk’s fully developed modular system and the ground-level Benjolin building workshop.

From an auto-ethnographic perspective, the Mallorca workshop served as a site of intensive knowledge transmission. Participants were not just soldering components; they were being initiated into a specific aesthetic of sound. The act of building the Benjolin under Hordijk’s supervision allowed for the transfer of tacit knowledge, the “unwritten” rules of building and calibration as well as the subtle nuances of how to control the oscillators so that they should interact to achieve the desired chaotic “bubbly” textures. This dimension of the enclave, knowledge transmitted through supervised making rather than documentation, is central to understanding why physical gatherings were irreplaceable for this community, and why their ethnographic study remains essential for capturing the full scope of Hordijk’s pedagogical legacy.

The presentation of the modular system during the event further reinforced the model of prestige. While the Benjolin was being “gifted” to the workshop participants, the complex modular system remained an exclusive, artisan-crafted object.

Beyond its pedagogical functions, the Mallorca enclave served as a foundational key moment for the intergenerational survival of the Dutch West Coast lineage: it was specifically within the context of this Benjolin workshop that the first author introduced Hordijk to Biyi Amez. This encounter catalyzed the mentorship and professional partnership that would eventually secure the stewardship of Hordijk’s technical legacy. Without this physical enclave, the human link required for the transition of tacit knowledge—from the founder to his designated successor—might never have materialized. This event bridged international designers

with the local scene, creating a “transient academy” that solidified the Hordijk legacy in the Mediterranean region, a location that would eventually become deeply personal to the designer, as it was where he would choose to spend his final days.

4 Technical Catalyst: The Rungler

The technical and aesthetic core of Hordijk’s instruments is the Rungler, a circuit that epitomizes his philosophy of “well-tempered chaos.” Unlike standard random voltage generators, the Rungler is a deterministic system that produces complex, stepped patterns through the interaction of two oscillators. It is the engine that transforms a collection of modules into a singular, autonomous system. Understanding its logic is essential not only to understand Hordijk’s aesthetic, but also the logic of his instruments and the philosophy behind them.

4.1 Functional Logic and Circuit Topology

The Rungler’s architecture is based on an 8-bit CMOS shift register (typically a 4015 or 4021 chip) that acts as a FIFO queue. Its operation involves four coupled stages. First, Oscillator A provides the digital data: its waveform is compared against a threshold to determine a high (1) or low (0) state for the first bit of the register. Second, Oscillator B acts as the system clock: each of its pulses triggers a shift, moving the existing bits one position through the register. Third, the last three bits at the front of the queue are read and converted into an analog voltage, creating a “stepped” wave with $2^3 = 8$ possible discrete levels. Fourth, crucially, this resulting voltage is fed back into the frequency control inputs of both oscillators, creating a structural coupling where the system’s future state is non-linearly dependent on its past output.

4.1.1 Feedback, Bifurcation and Chaotic Behaviour. The Rungler’s chaotic behaviour arises from this nonlinear feedback loop: the stepped output voltage modulates the driving frequencies of both A and B oscillators, which alter the bit patterns entering the register, which modify the output voltage, and so on recursively. The feedback coefficients, $\beta_{A,B}$ function as the primary bifurcation parameters. As β increases, the system transitions from stable quasi-periodic cycles into the “bubbly” chaotic attractors that define the Dutch West Coast aesthetic, a phenomenon well-characterized in the analysis of chaotic hybrid dynamical systems [6].

While the shift register has a finite number of discrete states ($2^8 = 256$), the continuous phase variables $\phi_{A,B}$ of the oscillators create an infinite, dense state space. This interaction allows for the emergence of positive Lyapunov exponents ($\lambda > 0$), a standard measure in nonlinear dynamics [14] of how rapidly two initially closed trajectories diverge over time. A positive Lyapunov exponent confirms that the Rungler is genuinely a deterministic chaotic system with sensitive dependence on initial conditions, rather than a pseudo-random generator.

4.2 The Gesture of Listening

This technical configuration forces a shift in the performer’s role. Because the Rungler creates a feedback loop that “wants to play itself,” the musician cannot exercise total command over the output. Instead, the performer engages in what Hordijk termed the “gesture of listening.” By adjusting the frequencies of the oscillators and the depth of the Rungler feedback, the musician navigates a landscape of “strange attractors,” seeking a balance between order and collapse. This interaction model is central to

the Dutch West Coast aesthetic, prioritizing the exploration of systemic relationships over gestural trigger-and-response.

5 Ethical Continuity: The Blippulator Case Study

The death of a visionary designer often leads to the stagnation of his technical legacy or, conversely, its exploitation by unauthorized commercial interests. This challenge is a central concern within NIME research, as documented by Morreale and McPherson [12], who highlight the high “mortality rate” of new musical interfaces once they leave the initial research or performance lifecycle, while Calegario et al. [3] argue that the lack of comprehensive documentation is a primary barrier to long-term survival of instruments and peer-validation. The Hordijk ecosystem has avoided this fate by decoupling the instrument from proprietary legal structures and embedding it instead in a living human succession.

5.1 The Designated Successor

Hordijk’s model required a human bridge to transition from the founder’s personal workshop to the future. Biyi Amez was explicitly entrusted by Hordijk with the continuation of his work. This transition is not merely a transfer of schematics, but a transfer of the *philosophical intent* behind the circuits. The Blippulator (see figure 2) is the first major outcome of this trust-based mandate, merging the architectures of the Blippoo Box and the Benjolin into a modern, unified instrument.

This succession rests on a crucial distinction between codified and tacit knowledge. While the core circuit logic, the Rungler, was published as prior art to ensure technical accessibility and prevent proprietary enclosure, the material mastery of the instruments remained a protected tacit resource. This mastery was realized through years of intensive production: Amez’s expertise was forged by building many of the Blippoo Boxes currently in circulation, as well as several modular systems, under Hordijk’s supervision. Through this direct labor, Amez acquired the specialized techniques for panel design, mechanical construction, and the critical component selection and calibration required to build the circuits. This intergenerational transfer ensures that the community maintains a “prime mover” (Amez) who holds the authority to validate new iterations, thereby preventing the “black-boxing” of the technology while preserving its artisanal value.

5.2 Ethical Reverse Engineering

In this context, we define “ethical reverse engineering” as the deep technical analysis of a master’s work by a designated protégé to ensure its survival. Amez’s work was characterized by intensive mentorship, the systematic exchange of design notes, and a period of joint prototype development. From 2014 to 2019 Amez worked alongside Hordijk in The Hague, assisting in Benjolin workshops and jointly building Blippoo Boxes and modular systems. This partnership continued during the last years of Hordijk’s life, including the collaborative development of the *I am Gibber* voice synthesizer. This long process of co-creation served to translate Hordijk’s principles into contemporary manufacturing standards without losing the idiosyncratic “soul” of the original analog chaos.

The Blippulator, as shown in figure 2, integrates the core Rungler logic, but enhances its stability and connectivity. By providing CV (Control Voltage) inputs for all chaotic parameters, Amez

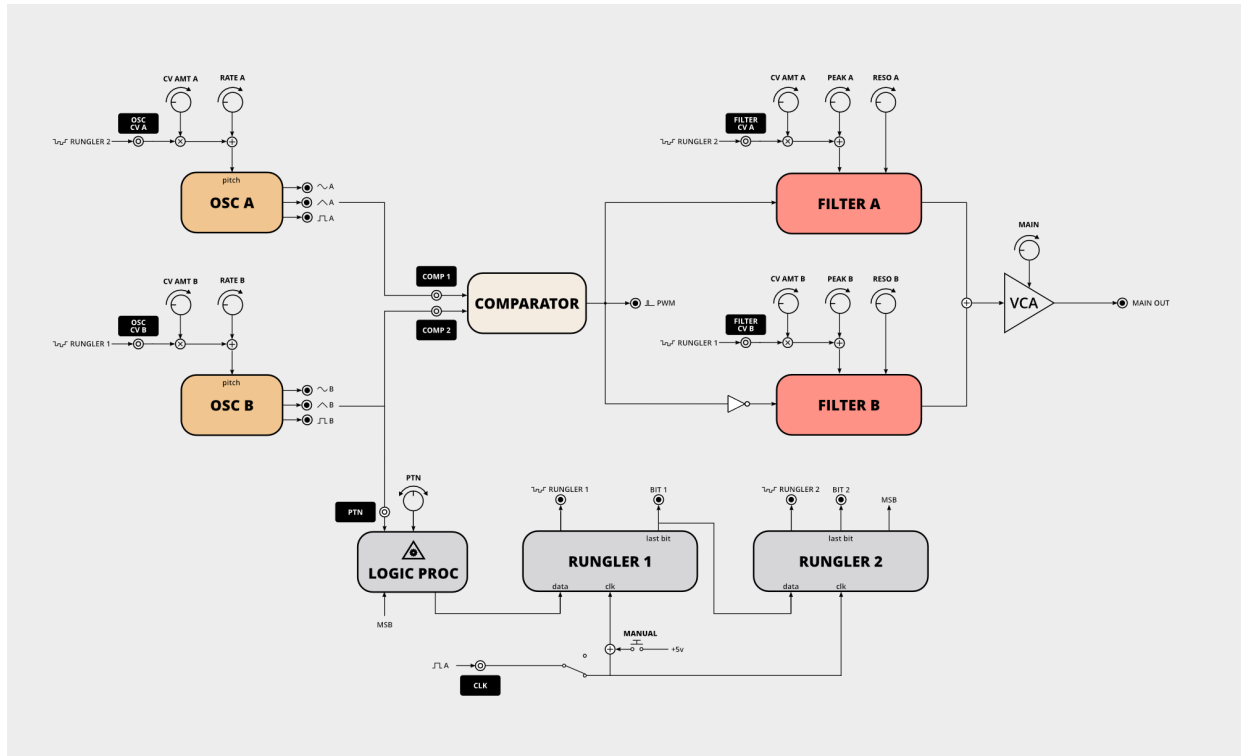


Figure 2: Functional block diagram of the Blippulator. Original diagram by the first author for the official Blippulator manual [2].

allows the Hordijk aesthetic to interface with modern modular environments, thus expanding the community without diluting the author's original vision.

5.3 The Manual as an Artifact of Preservation

The documentation accompanying the Blippulator [2] serves a dual purpose. Beyond being a technical guide, the manual acts as a formal artifact of preservation and a manifesto for the custodianship of knowledge. Directly addressing the replicability concerns raised by Calegario et al. [3], it explicitly details the function of the “Twin Peak” filters and the recursive feedback loops, transforming “ethical reverse engineering” into a transparent pedagogical tool. This ensures that Hordijk's discoveries remain a common resource for the community, preventing the “black-boxing” of the technology while reinforcing the socio-economic fairness of the artisanal model: the technical logic is free and replicable, but the prestige of the master builder remains protected.

6 Discussion: Scalability of the Trust-Based Model

The survival of Hordijk's legacy raises a fundamental question for the NIME community: Can a model based on prestige and informal custodianship withstand the pressures of modern industrial scaling and the rise of low-cost mass cloning?

6.1 The Threat of Industrial Appropriation

The recent trend of large-scale manufacturers replicating boutique designs at a fraction of the cost poses a direct threat to the “prestige-based IP” model. When a circuit is public and lacks legal protection, it is vulnerable to being decoupled from its ethical

and pedagogical context. In this industrial logic, the Benjolin becomes a commodity rather than a gift, and the Runabler is reduced to a mere technical feature stripped of its conceptual and philosophical potential.

6.2 The Defense of Hand-Made Quality

The Hordijk community demonstrates a unique form of resistance rooted in the material realities of production. The artisanal value of these instruments does not just reside in its abstract “aura,” but in the iterative, low-volume nature of the workshop process. Unlike industrial mass production, which requires static, “frozen” designs to achieve economies of scale, the Hordijk-Amez process is characterized by continuous evolution: every small batch, often just a few units, serves as a site for incremental refinement through specific component selection and precision calibration. This iterative process, impossible to replicate at scale, produces instruments whose sonic character is subtly but meaningfully distinct from batch to batch. A mass produced clone may replicate a single snapshot of the circuit topology at any given point in time, but it can not mirror this fluid process of micro-refinement. Consequently, the community acts as a self-policing body that recognizes “handmade quality” not as a nostalgic preference, but as a commitment to technical agility and artisanal integrity that an industrial paradigm simply cannot implement.

6.3 Scalability vs. Intimacy

Perhaps the greatest lesson of Hordijk's model is that true sustainability may not be scalable. By remaining a high-prestige, low-volume ecosystem, the community maintains the intimacy required for genuine mentorship. This suggests that the future

of resilient instrument communities may lie in “small-scale excellence” rather than global ubiquity, prioritizing the livelihood of independent creators over corporate expansion, and aligning with the broader NIME discourse on design for longevity [12]. It also suggests that the communities most worth studying are precisely those that resist the metrics by which mainstream academic impact is measured: not the widest reach but the deepest roots.

7 Conclusions

The legacy of Rob Hordijk provides a profound counter-model to the increasingly proprietary and black-boxed nature of contemporary music technology. Through this investigation, we have shown how Hordijk’s “Gift to the Community” was not merely an act of technical generosity, but a sophisticated socio-technical strategy. By rejecting traditional patents in favour of a model based on prestige, personal trust, and the deliberate establishment of prior art, Hordijk fostered a resilient ecosystem that survives beyond his physical absence.

The transition of this legacy, from the informal forums of *electro-music.com* and physical enclaves like EEME 2007 and 2012, to its current state of academic and technical custodianship, reveals a unique form of community resilience. The work of Biyi Amez in evolving the Blippulator and the systematic archival efforts represented by ongoing doctoral research represent two sides of the same coin: one preserving the “living” instrument through ethical evolution, and the other protecting its “memory” through rigorous documentation. These two axes are mutually reinforcing: the archive gives the instrument legitimacy, and the living practice gives the archive relevance.

In the context of NIME 2026, the Hordijk community offers a roadmap for the future of new interfaces. It proves that the value of an instrument lies not only in its commercial exclusivity, but also in its ability to act as a social catalyst. Hordijk’s designs do more than produce sound; they produce communities of practice.

The contrast with the fate of other instrument legacies, where tacit knowledge is lost at the death of a designer, designs are “black-boxed” by corporate acquisition, or replicability fails for lack of documentation [3], underscores the resilience that a trust-based succession model, when faithfully enacted, can achieve. What this paper has traced is not simply the story of one designer’s generosity, but the anatomy of a deliberate strategy: the construction of a socio-technical ecosystem robust enough to sustain itself through the transfer of authority from one custodian to another, and through the transformation of physical enclaves into documented archives. The ongoing doctoral research behind this paper represents precisely the latter half of this equation.

Ultimately, this model suggests that the most effective way to protect creative heritage is to entrust it to the very people who use it, ensuring that the “chaos” remains an open, living, and inspiring resource for future generations.

8 Future Work

The research presented in this paper serves as the foundational cornerstone of an ongoing doctoral thesis dedicated to the life and legacy of Rob Hordijk. While this article has focused on the socio-technical dynamics of his community and the prestige-based IP model, future stages of this research will involve a comprehensive systematization of the Hordijk Archive. This forthcoming work will expand in two primary directions. The first is a Technical Taxonomy and Design Evolution: a deep-dive into unreleased

schematics, design notebooks, and early prototypes, including a formal analysis of the transition from the early 24/7 systems to the contemporary Benjolin and Blippulator architectures. The second is a Social Impact and Oral History study: a systematic ethnographic investigation of Hordijk’s influence on the global boutique synthesizer industry. By conducting interviews with key figures, successors, and performers, including those who attended the enclaves documented here, the research will map how his philosophical concepts such as the “gesture of listening” have been assimilated into contemporary NIME practice. This oral dimension is particularly urgent: the community of practitioners who participated directly in Hordijk’s workshops is finite, and their first-hand accounts represent an irreplaceable resource for understanding the social dynamics of this model of instrument transmission.

9 Ethical Standards

This research is the result of a long-term engagement with Rob Hordijk’s work, beginning with the first author’s participation in the early Nord Modular/G2 mailing lists and the EEME 2007 (Chateau Sonore, Belgium). It was at this event that Hordijk presented the 24/7 instrument, later cited in his Leonardo Music Journal article [7] as the precursor to the Blippoo Box. A sustained personal friendship led to the first author organizing the EEME 2012 in Mallorca at his studio (Ubik), where he introduced Hordijk to Biyi Amez. The first author worked in close collaboration under Hordijk’s mentorship during the designer’s residencies at the author’s home in Mallorca until 2022.

As the author of the official *Blippulator User Manual and Design Philosophy* (2024), the lead researcher relies on primary archival materials, including electronic schematics provided by Biyi Amez (operating under BiyiBlip) specifically for academic purposes. Having been present alongside Hordijk during his final days, the author witnessed firsthand that Hordijk entrusted the future dissemination of his circuits entirely to Amez’s discretion. Consequently, the lead researcher has secured express permission from Amez, as the sole designated custodian, to publish the general principles of Hordijk’s design philosophy and technical legacy. In strict accordance with Hordijk’s trust-based model and Amez’s explicit wishes, this paper deliberately omits specific, replicable component values and sensitive technical details to protect the integrity and socio-economic fairness of this artisanal ecosystem.

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