



Image: Edouard Cabay "Saudi Winds"

## It doesn't take much –

Subtle traces of gentle robots

848181 SE Neue Technologien / SE New Technologies: Charlotte Thorn, Workshop lead by Jonas Thorn

Semester:	Sommersemester 2026
Institut:	Experimentelle Architektur, AB Hochbau (84800)
LV-Nummer:	848181
Titel:	SE Neue Technologien
Titel (englisch):	SE New Technologies
LV-Typ:	Wahlmodul 2: Wahlfächer der Architektur / Elective topics in Architecture
Stunden:	2
ECTS-AP:	2,5
Beginn der LV:	3.3.2026 – 13:00
Rhythmus:	block / blocked
Wiederholungsturnus:	jährlich/yearly
Unterrichtssprache:	Deutsch/English
Gruppenarbeit:	Gruppenarbeit in Paaren, Einzelarbeitsphasen für bestimmte aufgaben

**Objective/Zielsetzung**

Students design and build ambient sensing robots small, slightly odd machines actuating environmental signals into movement, leaving traces behind.

**Introduction/Einleitung**

“I can’t help myself thinking about my vacuum robot, quietly roaming amongst us, gently brushing – stroke by stroke, crumb by crumb – patient in a way I rarely am. It takes all day, yet by nightfall its task is complete, ideally without complaint or distraction, leaving no trace of its labour when put away. And yet I wonder what it would mean if it did leave something behind, some evidence of its quiet persistence.

As we coinhabit spaces with our creations, we begin to observe that not all machines are highly intelligent; some are simple but efficient, not complex but consistent, not fast but enduring, and in their quiet repetition they reveal that impact does not always arise from brilliance or speed, but from steady devotion to small acts performed again and again – gathering the small messes of living, shaping order from chaos, and proving that even the simplest motion, repeated with care, can profoundly affect the spaces we share.”

**Brief/Kursbeschreibung**

Good things take time. Drawing from geological processes, minimal biological organizations, hybrid environments and post-human ecologies, the seminar investigates how the habitual presence of simple machine agents may operate as active spatial producer. By leveraging minimal robotic architectures, environmental feedback loops, and ambient computational infrastructures, the seminar investigates how slow, continuous machine behaviors can construct ecologies that challenge conventional distinctions between “natural” and “artificial” environments. Building on material experimentation and prototyping, students will explore the relationships between materiality, geometry, environmental conditions, ambient sensing and robotic behavior. The seminar centers on developing small, sensor-equipped machines – or “little critters” – that perceive aspects of their surroundings, such as movement, light, or climate, and translate this data into physical action. Through continuous operation, each machine will inevitably alter its environment, leaving traces informed directly by its context. Presence leads to transformation; repetition leads to persistence. In front of this background, we ask ourselves: How do simple machines perceive their environment? How do they interact with the spaces they inhabit? And what traces do they possibly leave behind?

**Outcome/ Ergebnis**

Students will design and build small, sensor-equipped robotic systems – or “critters” – that perceive and respond to their environment, leaving traces through slow, continuous action. By the end of the seminar, students will have gained practical skills in experimental robotics including an understanding of potential materiality, geometry, and behavior, while developing a conceptual framework for autonomous machines as persistent, ecological agents within shared environments.

**Workshops and tools/ Workshops und Tools**

The workshop series is a core component of the studio and operates as a platform for experimental, hands-on architectural research. Through intensive collaborative sessions, students develop, prototype, and test ideas at the intersection of architecture, technology, and interaction design. The program introduces fundamental skills in physical computing and responsive systems. In the opening workshop, led by Jonas Thorn, students design and construct small interactive prototypes called “*Light Buddies*.” These minimal architectural objects are capable of sensing and emitting infrared signals, responding to one another through light and movement. When two units detect each other, they illuminate, interact



briefly, and continue searching — demonstrating principles of communication, behavior, and spatial intelligence. Within two focused sessions, students build and program Arduino-based systems from scratch. They learn to work with sensors and actuators, transmit and process signals, and translate digital information into spatial and kinetic responses.

The workshops emphasize prototyping as a design method and position technology not as an add-on, but as an integrated architectural tool. Students gain practical experience in interactive design, computational thinking, and embodied experimentation — skills increasingly essential to contemporary architectural practice.