NESL

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NESL is a 6 minute short film by the Design Futures Lab. The film arose from a broad speculative design research project in the Lab entitled *Synthetic Ecologies: Autonomous Botanists. The project* explores the poetic potentials of a new robotic species, entitled NESL. NESL (Nurturing Emergent Synthetic Life) are a series of crystal gardening robots situated within a dynamic digitally modelled and fabricated synthetic terrain. These robot gardeners have machine vision capabilities and are programmed with simple algorithms governing their behavior within the landscape. This involves choice in what color crystal "seeds" they plant as well as density of crystals within a given area. These decisions result in a series of aesthetic compositions of synthetic crystals throughout the landscape. The landscape itself is a dynamic synthetic machine which further influences the habitat through the introduction of fluids and movement to facilitate crystal growth. One particular focus of the project involves NESL's vision and a narrative surrounding their burgeoning aesthetic awareness and participation within the synthetic ecology. This project can be read on another level as a glimpse into our naïve synthetic past. The robots, crystals and terrain evoke the biological through relatively basic computational methods. The world they influence and inhabit is simple, beautiful and yet incredibly hermetic. The robots present as empathetic figures striving to achieve a biological legitimacy. As research into robotics and AI explodes, there remains a vast potential of unexplored territory exploring our relationships to these systems and the narratives we weave surrounding their adoption into our lives. This project proposes a species of robots, an artificial environment and a set of interactions to provoke questions surrounding the role of newly emergent synthetic species, with a particular focus on non-human aesthetics.

In this work, we allow the viewer to assume the robots' point of view in key scenes. In our development of the storyboard for the film we wanted to particularly highlight the life cycle of crystals in the landscape and the changes they undergo in tandem with the robot's awareness and interactions within this world. Speculations on non-human aesthetics form the foundation of this research and are particularly foregrounded in the film. Robot vision is explored and the film uses both human and robot point of views in contrast. In the design and development of the robots we considered, how might they make themselves? Their skin is a carefully developed 3d printed flexible textile. Their internal components are fairly simple electronic and robotic systems. Their skin, pinchers and vision systems were carefully developed to perform within their synthetic landscape. The landscape they inhabit embodies its own set of algorithmic behavioral logics which influence crystal growth and landscape development.

The aesthetics of the project evoke the natural through highly synthetic means and are highly calibrated, with an extremely pristine white world and white robots meeting a highly colorful set of crystals. These stark contrasts are utilized to call into question issues of subject and object, and the imprecise location of agency in a series of interrelations. Both the white robots and the white environment are dynamic computational systems. The wild colorful crystals can be understood as the “most” biological element and least controlled aspect of the piece, yet their growth, color and form are carefully calibrated as well. The crystals have been developed to behave within the landscape in very particular ways. The landscape itself is mechanically actuated, machine controlled and has the capability to expand with a series of air bladders as well as seep water. Each of the three components, robot, landscape and crystals embody a range of prescribed behaviors while also harboring potentials for disruption and change through interactions with the other systems. The robots engage with one another, the landscape and the crystals. They have limited intelligence and that intelligence is deliberately geared towards aesthetic recognition, deliberation and action. While creative robots are not a new phenomenon they usually retain their industrial appearance and operate in more direct ways. In this project something else is going on. The robots are creative but in a more subtle mediated way. Rather than performing a specific set of actions, they are situated within a nested series of relationships and their influence is less obvious. The pursuit of the film project was not meant to simply portray the physical components of this piece, but rather to deepen our provocations through a more sustained glimpse of the relational potentials embedded within. This synthetic ecology operates outside of language and is centered on sensation, affect, movement, color and form allowing us to immerse viewers deeply within the habitat and occupy multiple points of view both internal and external to NESL.