

# Jon McCormack

Jon McCormack is an Australian-based artist, researcher, and educator whose wide-ranging background studying filmmaking, applied mathematics, and computer science has shaped an innovative creative practice at the crossroads of art, technology, and society. For over three decades, he has experimented with computational systems—encompassing generative art, evolutionary algorithms, and artificial intelligence—as ways to expand human creativity and shed new light on our ecological and philosophical dilemmas. A professor at Monash University and the founder/director of SensiLab, McCormack fosters transdisciplinary research that explores how digital processes can generate novel forms of beauty and meaning. He has showcased his work internationally at the Museum of Modern Art in New York, the Tate in Liverpool, and prestigious venues such as ACM SIGGRAPH and Ars Electronica, garnering over 18 awards for media art and computing research in the process.

Deeply influenced by the complexity of the natural world, McCormack envisions “electronic after natures” that may someday stand in for damaged or lost ecosystems. This core concern—how human development replaces natural landscapes—finds resonance in the work of 19th-century poet Gerard Manley Hopkins, particularly his sorrow for the destruction of trees in his poem ‘Binsey Poplars.’ Hopkins’s anguished line, “After-comers

cannot guess the beauty been", speaks to an irreversible loss of untouched nature, described by writer James Hamilton-Patterson as "the beginning of a sustained note of mourning" over our changing landscapes. For McCormack, Hopkins's concept of "inscape"—the unifying essence of any living thing—suggests that nature holds a deeper pattern worth protecting, yet also invites a question: might artificial systems one day replicate or reimagine that pattern? Inspired by Hopkins, Hamilton-Patterson, and biologist Jacques Monod, McCormack wove their perspectives directly into Turbulence, infusing the project with reflections on ecological fragility and existential inquiry. Embodying these reflections, McCormack frequently explores the paradox that while science offers profound discoveries, it can also bring bleak conclusions about our role in a purposeless universe. Drawing on the ideas of biologist Jacques Monod—who saw humanity as "products of chance and necessity"—McCormack believes that art offers critical solace in the face of existential uncertainty. Rather than merely modeling the world, his generative creations act as catalysts for philosophical inquiry, provoking us to wonder: can the simulated ever truly replace the real? These influences converge powerfully in Turbulence, an influential work that not only propelled McCormack's career but defines his artistic and intellectual trajectory.

# Turbulence

Originally conceived in 1990 and premiered at the 1994 ACM SIGGRAPH Art Show,

Turbulence is an immersive, interactive media installation that delves into the realm of

Artificial Life—that is, life as it could be if created from computer algorithms rather than

organic materials. In his catalog essay for the work, McCormack poses the central question:

“What would life be like if it were made from computer algorithms rather than flesh and

blood?”. Turbulence combines video, computer graphics, and user interactivity. The

installation invites viewers to reflect on “what is life?” by presenting lifelike behavior in a

form that is clearly artificial. The core of the work is an interactive program running on a

touch-screen kiosk, connected to a laserdisc (an early video storage medium) that plays back

pre-rendered computer animations on a large projection screen. When a viewer touches a

word or icon, Turbulence responds by projecting a corresponding sequence of lush

computer-generated imagery onto the big screen. Each sequence is a slice of an imaginary

“unnatural history,” showing a particular artificial life form or environment, and the user’s

choices navigate between different creatures and scenes. Importantly, all the depicted life

forms are fictitious; they exist only as data and imagery, highlighting the theme of Artificial

Life.

Turbulence was a defining moment in Jon’s professional career. After more than a

“painstaking” three years of coding and rendering, the work was completed and first

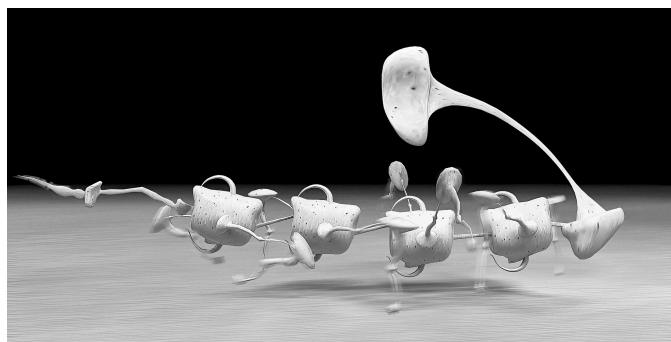
showcased in 1994. McCormack built custom software modeled on biological morphogenesis, allowing an evolutionary “DNA” of simple algorithms to generate complex 3D forms. McCormack created these graphics through genetic algorithms and procedural modeling to evolve 3D forms, resulting in intricate, otherworldly organisms.

McCormack’s chosen title *Turbulence* references Peter S. Stevens’ book *Patterns in Nature*, which identifies turbulence as a “primordial pattern, the chaos that was in the beginning.” Evoking the elusive nature of swirling clouds or milk spiraling in water, turbulence for McCormack serves as a metaphor for how emergent phenomena defy precise definition yet reflect a deeper unity. In the spirit of poet Gerard Manley Hopkins’s concept of “inscape”—the inner essence or oneness defining life—*Turbulence* suggests that digital organisms might exhibit similarly intricate patterns, even if birthed from a purely computational “primordial soup.” There is a philosophical inquiry at play: if these digital organisms appear to grow, move, and evolve autonomously, do they challenge our understanding of life and creativity?

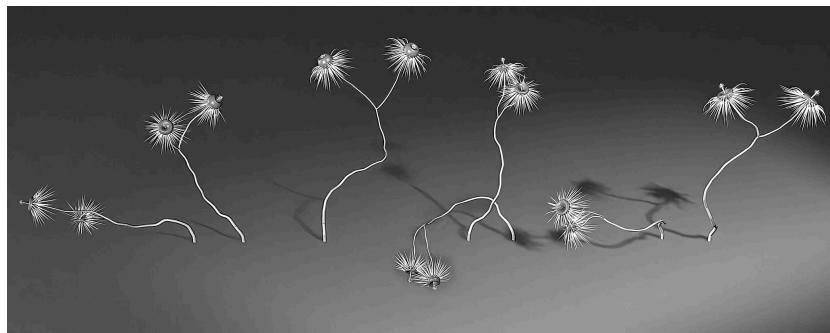
As McCormack highlights, *Turbulence* is “a compilation of dualisms, a celebration and a lament”—a celebration of humanity’s capacity to craft new forms, yet a lament for the destruction of the natural world that inspired them. In this sense, *Turbulence* offers a unique perspective on nature and our relationship to it: McCormack explicitly connects *Turbulence* to broader questions about defining life and about humanity’s environmental impact. Citing

the bleak conclusions of modern science—such as Jacques Monod’s view of human existence as accidental—he emphasizes that art can cushion us against the “incessant blows” of such revelations. Turbulence frames a central dilemma for our increasingly technological society: if we turn to virtual realms to “hide from the uncomfortable reality” we have created, can those synthetic worlds ever possess the same “inner oneness” as the living landscapes we have lost?

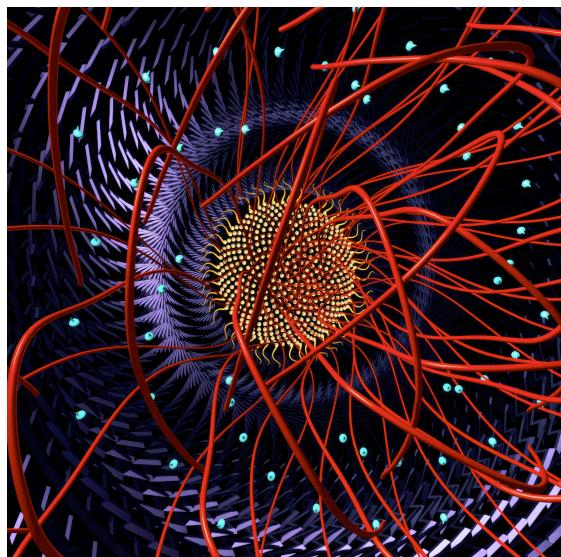
In his accompanying essay, McCormack describes Turbulence as “a type of futuristic natural history museum” powered by the synergy of mind and machine, documenting artificial life that might exist if built from code instead of cells. By posing questions such as “Will the beauty to be ever equal the beauty been?” McCormack calls into doubt the notion that any digital stand-in might fully replace authentic ecosystems. Yet, in its fusion of evolutionary theory, art, and philosophical reflection, Turbulence remains a landmark—exhibited more than 40 times globally, it became a defining moment in Jon’s professional career and still resonates decades later with McCormack’s enduring concern that “life is a process” we continually endanger.



A running form, evolved in the computer, from [TURBULENCE](#). © 1994 Jon McCormack



Instances of the "twin-headed boykinia" from [TURBULENCE](#). © 1994 Jon McCormack



The "Solitary Hydroid" sequence from [TURBULENCE](#).

