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Publications

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Squeezer - A Mixed-Initiative Tool for Designing Juice Effects

Dealing with Adversarial Player Strategies in the Neural Network Game iNNk through Ensemble Learning

Growing 3D Artefacts and Functional Machines with Neural Cellular Automata

Safer Reinforcement Learning through Transferable Instinct Networks

Evolving and Merging Hebbian Learning Rules: Increasing Generalization by Decreasing the Number of Rule
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Growing Simulated Robots with Environmental Feedback: an Eco-Evo-Devo Approach
Helmut Hauser, Walker, K. E. & Risi, S., 10 Jul 2021, In: GECCO.

Utopian or Dystopian?: Using a ML-Assisted image generation game to empower the general public to envision the future

Regenerating Soft Robots through Neural Cellular Automata

Player-AI Interaction: What Neural Network Games Reveal About AI as Play

EvoCraft: A New Challenge for Open-Endedness
Deep Innovation Protection: Confronting the Credit Assignment Problem in Training Heterogeneous Neural Architectures

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Fast Game Content Adaptation Through Bayesian-based Player Modelling

Improving Object Detection in Art Images Using Only Style Transfer

Rapid Risk Minimization with Bayesian Models Through Deep Learning Approximation

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Safe Reinforcement Learning through Meta-learned Instincts

Evolving HyperNetworks for Game-Playing Agents

Safer reinforcement learning through evolved instincts

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Bootstrapping Conditional GANs for Video Game Level Generation

CPPN2GAN: Combining Compositional Pattern Producing Networks and GANs for Large-Scale Pattern Generation

Crea.Blender: A Neural Network-Based Image Generation Game to Assess Creativity

Deep learning for procedural content generation

Finding Game Levels with the Right Difficulty in a Few Trials through Intelligent Trial-and-Error

From Chess and Atari to StarCraft and Beyond: How Game AI is Driving the World of AI

Increasing generality in machine learning through procedural content generation

Interactive Evolution and Exploration within Latent Level-Design Space of Generative Adversarial Networks

Learning a Behavioral Repertoire from Demonstrations

Video Game Description Language Environment for Unity Machine Learning Agents

Towards Continual Reinforcement Learning through Evolutionary Meta-Learning

Learning Abstract Forward Models

An artificial life approach to studying niche differentiation in soundscape ecology
Blood bowl: A new board game challenge and competition for AI

Deep learning for video game playing

Deep Neuroevolution of Recurrent and Discrete World Models

MAP-Elites for noisy domains by adaptive sampling

When Are We Done with Games?

Evolution of Fin Undulation on a Physical Knifefish-inspired Soft Robot

Towards a Plant Bio-Machine

A Robot to Shape your Natural Plant: The Machine Learning Approach to Model and Control Bio-Hybrid Systems

Automated Curriculum Learning by Rewarding Temporally Rare Events
Justesen, N. & Risi, S., 2018, 2018 IEEE Conference on Computational Intelligence and Games. IEEE, p. 293-300 8 p.

Blood Bowl: The Next Board Game Challenge for AI

Born to learn: The inspiration, progress, and future of evolved plastic artificial neural networks

Collaborative interactive evolution in minecraft

Deep interactive evolution

EuroGP 2018 panel debate: genetic programming in the era of deep neural networks
Evolutionary computation and games tutorial

Evolving in-game mood-expressive music with MetaCompose

Evolving Mario Levels in the Latent Space of a Deep Convolutional Generative Adversarial Network

Explainable AI for designers: A human-centered perspective on mixed-initiative co-creation

HyperNTM: Evolving Scalable Neural Turing Machines Through HyperNEAT

Illuminating Generalization in Deep Reinforcement Learning through Procedural Level Generation

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Towards an experiment on perception of affective music generation using MetaCompose

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Continual Online Evolutionary Planning for In-Game Build Order Adaptation in StarCraft

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Affective evolutionary music composition with MetaCompose

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A deep learning / neuroevolution hybrid for visual control  

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CA-NEAT: Evolved Compositional Pattern Producing Networks for Cellular Automata Morphogenesis and Replication  

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Artefacts: Minecraft meets Collaborative Interactive Evolution

Automatic Evolution of Multimodal Behavior with Multi-Brain HyperNEAT

Breeding a Diversity of Super Mario Behaviors Through Interactive Evolution

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Evolving Neural Turing Machines for Reward-based Learning

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Darwin's Avatars: a Novel Combination of Gameplay and Procedural Content Generation

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Interactive evolution of levels for a competitive multiplayer FPS

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Evolving self-organizing simulated plant-inspired robots

Flora Robotica – Mixed Societies of Symbiotic Robot-Plant Bio-Hybrids

Interactively Evolving Compositional Sound Synthesis Networks

Investigating MCTS Modifications in General Video Game Playing

Monte-Carlo Tree Search for Simulated Car Racing

Neuroevolution in Games: State of the Art and Open Challenges

Petalz: Search-based Procedural Content Generation for the Casual Gamer


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Automatically Categorizing Procedurally Generated Content for Collecting Games

Guided Self-organization in Indirectly Encoded and Evolving Topographic Maps

Script-and Cluster-based UCT for StarCraft

The Case for a Mixed-Initiative Collaborative Neuroevolution Approach
Single-unit pattern generators for quadruped locomotion

Generating Flower Images and Shapes with Compositional Pattern Producing Networks
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A Compiler for CPPNs: Transforming Phenotypic Descriptions Into Genotypic Representations

Confronting the challenge of learning a flexible neural controller for a diversity of morphologies

Encouraging reactivity to create robust machines

Ribosomal robots: Evolved designs inspired by protein folding

An enhanced hypercube-based encoding for evolving the placement, density, and connectivity of neurons

A unified approach to evolving plasticity and neural geometry

Combining Search-Based Procedural Content Generation and Social Gaming in the Petalz Video Game.

Multirobot behavior synchronization through direct neural network communication

On the Benefits of Divergent Search for Evolved Representations

Enhancing es-hyperneat to evolve more complex regular neural networks

Task switching in multirobot learning through indirect encoding

Evolving plastic neural networks with novelty search

Evolving policy geometry for scalable multiagent learning
Evolving the placement and density of neurons in the hyperneat substrate

Indirectly encoding neural plasticity as a pattern of local rules

How novelty search escapes the deceptive trap of learning to learn

Visualization and clustering of tagged music data

Visual mining in music collections with emergent SOM