Kevin Godin-Dubois

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R⁶ ResearchGate

Synopsis

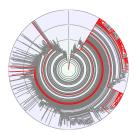
A-Life Researcher on the Emergence of Cognition

After a PhD thesis focused on artificial plant-like lifeforms and their dynamics at the evolutionary scale, I am returning to my core interest: artificial cognition. More specifically, I am investigating the mechanisms by which high-level forms of interaction (e.g. vocal communication) can be built upon low-level inputs/outputs thanks to (a)biotic constraints.

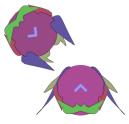




Morphogenetic Engineering [9]



Species Dynamics [7, 5]



Artificial Cognition [1]

Education

PhD

Toulouse I University, France

2016 - 2020

Thesis title: "Environment-driven speciation: long term interactions in artificial plant communities"

Investigated how complexification of artificial creatures could be further enhanced through the indirect control provided by a co-evolved, highly dynamical environment.

Contact: Pr. Y. Duthen (Yves.Duthen@irit.fr)

 \mathbf{Master}

Toulouse III University, France

2014 - 2016

Artificial Intelligence: mathematical & symbolic models, training methods

Bachelor

Toulouse III University

2011 - 2014

Computer Science: networks, programming, systems, mathematics

Experience

Teachings

Toulouse III University

2021

• L1 C & Python programmation, Information theory

• L2 Data structures in C, Projects monitoring

Teachings

Toulouse I University

- 2017 2019 • L2 Excel and VBA, Algorithmic
 - L3 Database Modeling

Teachings

Toulouse III University

2016 - 2017

• L2 Projects monitoring

Internship

2016 (6 months)

Toulouse Research Institute on Computer Science (IRIT), France "Rule-based artificial embryogenesis in a complex 3D environment" Deployed rule-based genomes on the MecaCell platform to study artificial plant growth and cell specialization.

Contact: Pr. Y. Duthen (Yves.Duthen@irit.fr)

Internship 2015 (3 months)

IRIT, "Comparison of different evolutionary approaches, an application to the GECCO 2015 challenge"

Performed a performance comparison (accuracy, efficiency) between Artificial Neural and Genetic Regulatory Networks on the 2015 GECCO temperature prediction challenge data.

Contact: Pr. H. Luga (Herve.Luga@irit.fr)

Internship 2014 (2 months)

IRIT, "An architecture for automated bird discrimination"

Applied Hidden Markov Models to the BirdClef2014 challenge on the identification of specific bird species in a corpus of thousands of recordings.

Contact: Pr. J. Farnias (Jerome.Farinas@irit.fr)

Skills

Programming	○ C++	C, Java	Python

Processing ● Bash (sed, awk ...) ● Gnuplot Octave/Matlab

Redaction ● LAT_EX/TikZ Office Software

Systems Linux Windows, Android

Languages French English

Scholarships and Fellowships

2016 PhD Fellowship from the French Minister of Higher Education and

70K € Research (MESR) - over 3 years

2015 Master Scholarship from the International Mathematics and Com-

10K € puter Science Center (LabEx CIMI, Toulouse)

2014 Merit Scholarship from the Regional Student Welfare Office (CROUS,

3K6 € Toulouse) - over 2 years

Research Output

Pending publication

[1] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "A life/dinner paradox: emergence of a proto-amygdala in response to virtual agents' fears on an artificial neural substrate". Under review.

Peer-reviewed publications

- [3] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "Beneficial Catastrophes: Leveraging Abiotic Constraints through Environment-Driven Evolutionary Selection". In: 2020 IEEE Symposium Series on Computational Intelligence (SSCI). 2020, pp. 94–101. DOI: 10.1109/SSCI47803.2020.9308411.
- [5] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "APOGeT: Automated Phylogeny Over Geological Timescales". In: *MethAL workshop at ALife 2019*. 2019, in press. DOI: 10.13140/RG.2.2.33781.93921.
- [6] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "Self-sustainability Challenges of Plants Colonization Strategies in Virtual 3D Environments". In: *Applications of Evolutionary Computation*. Ed. by Paul Kaufmann and Pedro A Castillo. Cham: Springer International Publishing, 2019, pp. 377–392. ISBN: 978-3-030-16692-2. DOI: 10.1007/978-3-030-16692-2_25.
- [7] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "Speciation under Changing Environments". In: ALIFE 19. Vol. 31. Cambridge, MA: MIT Press, 2019, pp. 349-356. ISBN: 978-0-262-35844-6. DOI: 10.1162/isal_a_00186.
- [9] Kevin Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "Towards an Artificial Polytrophic Ecosystem". In: Morphogenetic Engineering Workshop, at the European Conference on Artificial Life (ECAL) 2017 September 4. 2017.

Oral presentations

- [4] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. Splinoids: first steps out of EDEnS. Lightning talk. Montreal (Virtual), 2020. DOI: 10.13140/RG.2.2. 11048.19200.
- [8] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. Studying long term interactions between plants and their environment. Poster presentation. Tokyo, 2018. DOI: 10.13140/RG.2.2.27553.97125.

Thesis

[2] Kevin Godin-Dubois. "Environment-Driven Speciation: Long-Term Interactions in Artificial Plant Communities". PhD thesis. Doctoral school of Mathematics, Computer Science and Telecommunications (Toulouse, France), July 2020. URL: http://www.theses.fr/2020T0U10026/document.