Kevin Godin-Dubois

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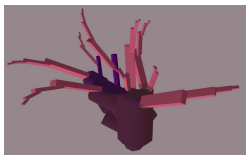
ResearchGate

Synopsis

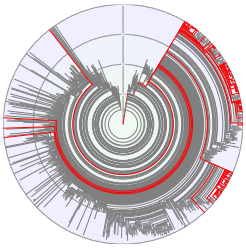
A-Life Researcher on the Emergence of Cognition

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.

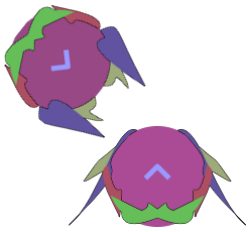
Interests



Morphogenetic Engineering[9]



Species Dynamics[7, 5]



Artificial Cognition[1]

Education

PhD
2016 - July 2020

Toulouse University, France
Thesis title: *"Environment-driven speciation: long term interactions in artificial plant communities"*
Investigated how complexification of artificial creatures could be further enhanced by moving the control apparatus around the abiotic component of an ecosystem.
Contact: Pr. Y. Duthen (Yves.Duthen@irit.fr)

Master
2014 - 2016

Toulouse University, France
Artificial Intelligence: mathematical & symbolic models, training methods

Bachelor
2011 - 2014

Toulouse University, France
Computer Science: networks, programming, systems, mathematics

Experience

Teachings
2021

Paul Sabatier University, Toulouse, France
- L1 C & Python programmation, Information theory
- L2 Data structures in C, Projects monitoring

Teachings
2017 - 2019

Capitole University, Toulouse, France
- L2 Excel and VBA, Algorithms
- L3 Database Modeling

Teachings
2016 - 2017

Paul Sabatier University, Toulouse, France
- 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.

Internship
2015 (3 months)

"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)

"Conception of 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	LaTeX/TikZ	Office Software	
Systems	Linux	Windows, Android	
Languages	French	English	

Scholarships and Fellowships

2016
70K €

PhD Fellowship from the French Minister of Higher Education and Research (MESR) - over 3 years

2015
10K €

Master Scholarship from the International Mathematics and Computer Science Center (LabEx CIMI, Toulouse)

2014
3K6 €

Merit Scholarship from the Regional Student Welfare Office (CROUS, 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/2020TOU10026/document.