Kevin Godin-Dubois

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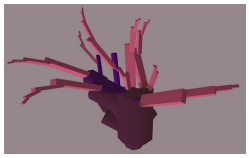
Synopsis

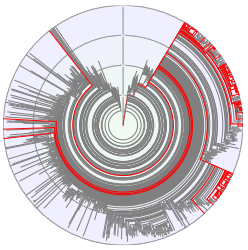
A-Life Researcher on the Emergence of Cognition

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.

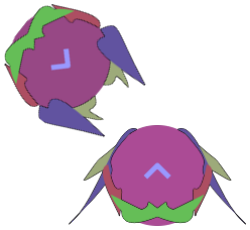
Interests



Morphogenetic Engineering [10]



Species Dynamics [8, 6]



Artificial Cognition [2]

Education

PhD
2016 - 2020

Toulouse I University, France
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)

Master
2014 - 2016

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

Bachelor
2011 - 2014

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

Experience

Teachings
2021-2022

Toulouse I University
- L3 Projects monitoring, Server and contents
- M1 R programming, Python

Teachings 2021	Toulouse III University • L1 C & Python programmation, Information theory • L2 Data structures in C, Projects monitoring
Teachings 2017 - 2019	Toulouse I University • L2 Excel and VBA, Algorithmic • L3 Database Modeling
Teachings 2016 - 2017	Toulouse III University • 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	LaTeX/Ti*k*Z	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

International conferences

[2] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "Spontaneous modular NeuroEvolution arising from a life/dinner paradox". In: *The 2021 Conference on Artificial Life*. Cambridge, MA: MIT Press, 2021, p. 95. DOI: 10.1162/isal_a_00431.

[4] 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.

[7] 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.

[8] 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 Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "Studying long term interactions between plants and their environment". In: *Alife 2018*. Tokyo, 2018. DOI: 10.13140/RG.2.2.27553.97125.

International workshops

[1] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "On the benefits of emergent communication for threat appraisal". In: *3rd International Workshop on Agent-Based Modelling of Human Behaviour*. Online, 2021. URL: http://abmhub.cs.ucl.ac.uk/2021/camera_ready/Godin-Dubois_etal.pdf.

[6] Kevin Godin-Dubois, Sylvain Cussat-Blanc, and Yves Duthen. "APOGeT: Automated Phylogeny Over Geological Timescales". In: *MethAL workshop at ALife 2019*. 2019. DOI: 10.13140/RG.2.2.33781.93921.

[10] 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. URL: http://doursat.free.fr/mew2017.html.

Other (talks)

[5] 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.

Thesis

[3] 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), 2020. URL: http://www.theses.fr/2020TOU10026/document.