# Giulio Valentino Dalla Riva

Biomathematician; mountain lover, metal head, with a taste for complexity.  
I’m fascinated by the interaction between evolution and ecology.  
[gvd16@uclive.ac.nz](mailto:gvd16@uclive.ac.nz)  
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## Education

2013-2015

**PhD, Biomathematics**; University of Canterbury (Christchurch, NZ)  
 Planned submission: December 2015.  
 Thesis title: *The Evolving Web of Life: exploring the interplay of ecological and evolutionary processes*  
 Supervisors: *Mike Steel*, *Daniel B. Stouffer* and *Charles Semple*  
 Grant: Allan Wilson Centre for Molecular Ecology and Evolution

2010-2012

**Laurea specialistica (MSc.), Mathematics**; Università di Trento (Trento, IT);  
Thesis title: *Information Spreading in Complex Networks*; Magna cum Laude

2008-2009

**Erasmus Program, Mathematics**; Université Pierre et Marie Curie (Paris VI, FR)

2004-2009

**Laurea (BSc.), Mathematics**; Università di Trento (Trento, IT)   
Grant: INdAM (Italian National Institute for Advanced Mathematics)

## Research Interests:

*EcoEvo*

**Food webs**; Food webs assembly and dynamics; their response to anthropic pressure; the role of species interactions in ecosystems and their drivers.

**Phylogenetics**; Evolutionary models and their possible extension to handle the effects of species interaction: ecology-aware phylogenetics analysis.

**Network evolution** The origin, evolution and dismantling of ecological networks; the effect of speciation/extinction events on ecosystems.

*Networks*

**Local/Global properties**; The connection between local and global network properties, such as centralities, motifs, dynamical stability.

*Maths*

Phylogenetic Comparative Methods; Dynamical processes on and of Complex Networks; Networks statistical modelling and analysis; Random Matrices.

## Skills

Maths and Stats

Modelling and investigation of **random networks** models;  
 Nonlinear **Dynamical Systems**;  
 **Data Analysis** for biology;  
 Evolutionary **Game Theory**;  
 **Probability**; Stochastic **Differential Equations**.

Programming

**Julia**, **Python**, **R**: Major research activity, advanced skills.  
 **C**, **C++**, **Java**, **Fortran**, **Pascal**: Minor research or study experience, basic skills.  
 **Matlab**: Three years as tutor for a course in mathematical modelling.  
 **HTML**, **CSS**, **LaTeX**, **markdown**, etc. .

Outreach

5+ years working experience as science communicator, journalist, and event organizer; two years as marketing and project manager.

Languages

Italian, native; English, full working proficiency; French, working proficiency.

Teaching

Tutor and teaching assistant for the undergraduate courses in *Engineering Mathematics*, *Mathematical Modelling and Computation*, *Regression Modelling* (UC, 3 years). Mentor for first year students (Dept. of Mathematics, UniTrento, 2 years).

## Publications

* Published:
  + (2015, accepted) - **gvdr**, Daniel B. Stouffer, *Exploring the evolutionary signature of food webs’ backbones using functional traits* - Oikos.
* In Preparation/Submitted:
  + (2015, expected) - **gvdr**, Arne Mooers, Mike Steel, *Assessing network connectivity through random walks* - target journal: Journal of Complex Networks
  + (2015, expected) - **gvdr**, *Evolutionary distinctiviness and network stress centrality* - target journal: Evolution
  + (working) - Alyssa R. Cirtwill, Nick J. Baker, **gvdr**, Josh Thia, Christie Webber, Daniel B. Stouffer, *Phylogenetic conservation of species roles in bipartite ecological networks: the case of mutualistic and antagonistic food webs*

## Selected Presentations

* 2015
  + *The (evolving) web of life*   
    New Zealand Phylogenomics Meeting (Portobello, NZ).
* 2014
  + *The Web and the Tree*   
    Greifswald Phylogenetics Meeting (Greifswald, DE).
  + *Some ideas for including ecology in phylogenetic comparative methods*   
    Theoretical Biology group, ETH Zürich (Zürich, CH).
  + *The Web Traits and the Tree*  
    Mathematical and Computational Evolutionary Biology (Hameau de l’Etoile, FR).
  + *The Web Traits and the Tree*  
    New Zealand Phylogenomics Meeting (Waiheke, NZ).
  + *To Build a Web You Need a Tree, and Vice Versa*  
    Primer series, University of Canterbury (Christchurch, NZ).
* 2012
  + *Infograph: toward the modelling of communication dependent ecological networks*  
    Intl. Workshop on Network Models in Statistics, Economics and Social Sciences (Trento, IT).

## References

Mike Steel (supervisor)

Professor of Mathematics and Statistics  
 Director for Biomathematics Research Centre  
 Department of Mathematics and Statistics  
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 Christchurch, NZ  
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Daniel Stouffer (supervisor)

Senior Lecturer, Complex Systems Ecology  
 Rutherford Discovery Fellow  
 School of Biological Sciences  
 University of Canterbury  
 Christchurch, NZ  
 Phone: +64-3-364-2729 ext 6729  
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Jason Tylianakis

Professor in Terrestrial ecology  
 School of Biological Sciences  
 University of Canterbury  
 Christchurch, NZ  
 and  
 Chair in Ecology and Biodiversity  
 Department of Life Sciences  
 Imperial College London  
 Ascot, Berkshire, UK  
 Phone: International +64-364-2735 ext. 6735  
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 (Tylianakis’s group meets jointly with Daniel Stouffer’s lab group)

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