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Julián García

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Education

2011 **Doctor (PhD)**, *Faculty of Economics, Vrije Universiteit*, Amsterdam.
Computational and mathematical models in evolutionary game theory.
Supervisors: Prof. Matthijs van Veelen & Prof. Jeroen van den Bergh

2004 **Computer and Systems Engineering – with Honours**, National University of Colombia, Bogotá.
"Tesis meritoria" – Distinguished dissertation – 5 year degree.

Professional appointments

Academic

2014 – Present **Lecturer - Level B**, *Faculty of Information Technology, Monash University*, Clayton, Australia.

2015 – Present **Profesor Adjunto**, *Faculty of Engineering, National University of Colombia*, Bogotá, Colombia.

2010 – 2013 **Postdoctoral fellow**, *Max Planck Institute for Evolutionary Biology*, Plön, Germany.
- Developing computational and mathematical models of social evolution.
- Lecturer for Evolutionary Dynamics (2011 – 2012).

2006 – 2010 **Research assistant**, *Vrije Universiteit*, Amsterdam.
- Doing research on game theory and computational modelling.
- Guest research position at the Center for Research in Experimental Economics and Political Decision Making, University of Amsterdam.

2004 **Auxiliary Lecturer**, *National University of Colombia*, Bogotá.
- Teaching numerical methods for engineering (undergraduate level).
- Teaching computer programming for computer science and engineering (undergraduate level).

Industry

2005 – 2006 **Software Engineer – Lead developer**, *Unión Soluciones*, Bogotá.
Designing and implementing large-scale Java Enterprise applications

2002 – 2004 **Computer Programmer**, *Computing Centre, National University of Colombia*, Bogotá.
Developing and maintaining web applications for the University administration.

Journal Publications

Citation metrics available via **google scholar** at: `http://bit.ly/garcia_scholar`.
Ranking information is taken from last available CORE and ERA indexes.

12. **García J** and van Veelen M. In and out of equilibrium: evolution of strategies in repeated games with discounting (2015). Journal of Economic Theory – Rejoinder submitted (A^*).

11. Pichugin Y, Gokhale C.S, **García J**, Traulsen A and Rainey P. Modes of migration and multilevel selection in evolutionary multiplayer games (2015). Journal of Theoretical Biology – In Press (A^*).

10. **García J**., van Veelen, M, and Traulsen, A. Evil Green Beards: Tag recognition can be used to withhold cooperation in structured populations (2014). Journal of Theoretical Biology 360 181–186.
    - JTB is ranked **A***.

9. Wu B, **García J**., Hauert, C, and Traulsen, A. Extrapolating weak selection in evolutionary games (2013). PLoS Computational Biology 9(12): e1003381. doi:10.1371/journal.pcbi.1003381.
    - PLoS Computational Biology is ranked **A***. Featured in *Complexity Digest* a well-known weekly digest of complexity science. Featured in the *IPython* gallery of reproducible computational science `http://j.mp/1okSSZM`.

8. van Veelen M., **García J**., [1] Rand D.G., and Nowak M.A. Direct reciprocity in structured populations (2012). PNAS 109 9929-9934.
    - PNAS is ranked **A***. Featured in *Science* (Sherrat and Roberts, 2012), and broadly covered across scientific news outlets such as Science Daily.

7. **García J** and Traulsen A. Leaving the loners alone: evolution of cooperation in the presence of antisocial punishment (2012) Journal of Theoretical Biology 307 168–173.
    - JTB is ranked **A***. Featured in *Complexity Digest* a well-known weekly digest of complexity science.

6. **García J** and Traulsen A. The structure of mutations and the evolution of cooperation (2012) PLoS ONE 7(4): e35287.
    - PLoS One is ranked **A**.

5. van Veelen M., **García J**., Egas M and Sabellis M. Group selection and inclusive fitness are not equivalent; the Price equation vs. models and statistics (2012). Journal of Theoretical Biology 299 64–80.
    - JTB is ranked **A***. Special issue on *Cooperation*, celebrating the Journal's 50th anniversary and featuring the lead scientist in the field.

4. Traulsen A and **García J**. Chromodynamics of accents? [Commentary on: Emma Cohen: The Evolution of Tag-Based Cooperation in Humans: The Case for Accent.](2012). Current Anthropology, 53(5), 608-609

3. **García J** and van den Bergh, J. Evolution of parochialism by multi-level selection (2011). Evolution and Human Behavior 32 (4) 277-87.

[1] Joint first authorship.

- E&HB is ranked **A**. This article introduces one of the first computational models to study in-group cooperation.

2. van Veelen M. **García J**. Egas M and Sabellis M. Call for a return to rigour in models (2010). Letter to the Editors. Nature 467, 661.
   - Nature is ranked **A***.

1. van Veelen M. **García J**, Avilés L. It takes grouping and cooperation to get sociality (2010). Journal of Theoretical Biology 264 1240–1253.
   - JTB is ranked **A***.

Conference Proceedings

5. Meyer B, Weidenmüller A, Chen R and **García J** (2015). Collective homeostasis and time-resolved models of self-organised task allocation. 9th EAI International Conference on Bio-inspired Information and Communications Technologies. Submitted.

4. **García J**, Hernandez, G, & Galeano, J (2006). Cooperation, Solution Concepts and Long-term Dynamics in the Iterated Prisoner's Dilemma. Congress on Evolutionary Computation 2006 (pp. 1618-1623). IEEE.

3. Hernandez, G., Wilder, K., Nino, F., & **Garcia, J**. (2005). Towards a self-stopping evolutionary algorithm using coupling from the past. Conference on Genetic and evolutionary computation 2005 (pp. 615-620). ACM.

2. Hernandez, G., Nino, F., **Garcia, J**., & Dasgupta, D. (2004). On geometric and statistical properties of the attractors of a generic evolutionary algorithm. Congress on Evolutionary Computation 2004 (Vol. 2, pp. 1240-1247). IEEE.

1. **Garcia, J.**, & Nino, F. (2003). Coevolutionary Learning in the Tragedy of the Commons. Congress on Evolutionary Computation 2003 (Vol. 3, pp. 2202-2209). IEEE.

Grants and Awards

2015 **Dean's Award for Excellence in Research by an Early Career Researcher**, Faculty of Information Technology, Monash University.
5K for research

2015 **Early Career Research Seed Grant**, Faculty of Information Technology, Monash University.
5K for research

2014 **DAAD Australia – Germany joint research cooperation scheme**, German Academic Exchange Service – Group of 8.
17K for research

2014 **OLT Better Teaching Better Learning Innovation Grant**, Office of the Vice-Provost Learning and Teaching, Monash University.
2K for teaching development and innovation

2014 **Early Career Research Seed Grant**, Faculty of Information Technology, Monash University.
5K for research mobility

Recent Inivited Talks / Guest researcher

- **Guest researcher** at the Program for Evolutionary Dynamics, Harvard Univeristy. July, 2015.
- **Talk:** How to choose the strategy space, Yale University (2015). Visiting Prof. David G Rand.
- **Talk:** Evolution of cooperation: A computational model of reciprocity and population Structure. Biological Sciences Seminar, Monash University (2014).
- **Guest researcher** at the Program for Evolutionary Dynamics, Harvard Univeristy. February, 2013.
- **Talk:** Cooperation in multi-partner settings: biological markets and social dilemmas. Lorentz Center, The Netherlands (2012).
- **Talk:** NIMBioS-NESCent Investigative Workshop: Modeling Social Complexity. Knoxville, USA (2012).
- **Talk:** Evolution of cooperation in socio-ecological systems. Bremen, Germany (2011).
- **Talk:** A primer on evolutionary dynamics, game theory and the problem of cooperation. National University of Colombia. Bogotá, Colombia (2011).

Teaching

- **FIT4012 – Advanced Computational Science**. Faculty of Information Technology, Monash University, 2015 S2.
- **FIT1008 – Introduction to Computer Science**. Faculty of Information Technology, Monash University, 2015 S1.
- **FIT1029 – Algorithmic Problem Solving**. Faculty of Information Technology, Monash University, 2015 S1.
- **FIT4012 – Advanced Computational Science**. Faculty of Information Technology, Monash University, 2014 S2.
- **FIT1029 – Algorithmic Problem Solving**. Faculty of Information Technology, Monash University, 2014 S1.
- **Evolutionary Dynamics**. MSc Mathematics in the Life Sciences, University of Lubeck, 2011.
- **Numerical methods**. Engineering, National University of Colombia, 2004.
- **Computer Programming**. Computer Science and Engineering, National University of Colombia, 2004.

Research supervision

- **Models for the adaptation of task allocation in Social Insects**. Rui Chen, PhD student. Co-supervised with Prof. Bernd Meyer. 2014 – Present
- **Evolutionary simulations of non-regular strategies in repeated games**. Bradon Hall, Honours Thesis, Monash University. 2014.
- **Models of Multilevel Selection**. Yuriy Pichugin, Research Intern at the MPI for Evolutionary Biology. Paper in preparation. 2013. Co-supervised with Arne Traulsen.

- **Evolution of assymetric mutation rates**. Sonja Matthias, Research Intern at the MPI for Evolutionary Biology. Paper in preparation. 2013.

Service

- Independent panel member for 6 PhD confirmations between 2014 and 2015.
- PLoS Computational Biology – Invited Guest Editor (2015)
- I coordinate Advanced Undergraduate Projects at the Faculty of Information Technology, Monash University.
- I review or referee for: Journal of Theoretical Biology, Games, Games and Economic Behavior, Journal of Artificial Societies and Social Simulation, Journal of Economic Behavior and Organization, Proceedings of the Royal Society B, Scientific Reports, Evolution and Human Behavior, BMC Evolutionary Biology, PLoS ONE, Adaptive Behavior.

Media Coverage

- *Does cooperation require both reciprocity and alike neighbors?*. The Science Daily (June 8th, 2012). `http://j.mp/sci_daily_report`
- *Reconciling evolutionary theory with cooperation*. Science Omega (June 11th, 2012). `http://j.mp/11cIEgn`
- *When Paths to Cooperation Converge*. Science (September 14th, 2012). `http://j.mp/science_perspective`
- *Can computers teach us about evolution of cooperation?*. I, Science. (July 11th, 2012). `http://j.mp/i_science_interview`

References

- **Prof. Arne Traulsen**
  Research Group for Evolutionary Theory.
  Max Planck Institute for Evolutionary Biology, 24306 Plön, DE
  Tel: +49 4522 763 239. Email: `traulsen@evolbio.mpg.de`
- **Prof. Fabio A Gonzalez**
  MindLab. Systems and Computer Engineering Department.
  National University of Colombia, Bogotá, COL
  Tel: +57 1 3165000 ext 14077. Email: `fagonzalezo@unal.edu.co`