

Thomas (Tom) Bochynek, Ph.D., Dipl.-Biol.

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Education

Ph.D., Information Technology <i>Monash University</i> Thesis on self-organised infrastructure construction in leafcutter ants Combination of experimental and theoretical work, involving behavioural and evolutionary simulation	09/2013 - 03/2017 Melbourne, Australia
Dipl.Biol. (= B.Sc. + M.Sc.), Behavioural Ecology <i>Ruhr-Universität Bochum - highest grade "sehr gut"</i> Thesis on collective nest-construction in weaver ants Statistical analysis of experiments and visualisation of ant clustering	07/2004 - 10/2011 Bochum, Germany

Work Experience

Research Assistant, SensiLab, Monash University Design of models and AI of palaeontological lifeforms for Augmented Reality teaching app	06/2015 - 03/2017
Research Assistant, Machine Learning Group, Monash University Annotation of medical records for automated data extraction	06/2015 - 09/2016
Teaching Associate, School of Biological Sciences, Monash University Teaching and grading second year biology course	07/2014 - 10/2014
Research Assistant, Behavioural Ecology Group, James Cook University Collection and statistical analysis of behavioural data on weaver ant nest construction	03/2011 - 11/2011
Teaching Associate, Behavioural Biology Group, Ruhr-Universität Bochum Design and teaching of undergraduate course "Behavioural Ecology"	08/2009 - 02/2010

Relevant Publications

Visit [Google Scholar](#) for full list.

Bochynek, T., Tanner, J., Meyer, B., and Burd, M. (in press) - Parallel foraging cycles for different resources in leaf-cutting ants: a clue to the mechanisms of rhythmic activity. *Ecological Entomology*

Bochynek, T., Meyer, B., and Burd, M. (2017) - Energetics of trail clearing in the leaf-cutter ant *Atta*. [Behavioral Ecology and Sociobiology](#)

Bochynek, T. and Robson, S. K. A. (2014) - Physical and Biological Determinants of Collective Behavioural Dynamics in Complex Systems: Pulling Chain Formation in the Nest-Weaving Ant *Oecophylla smaragdina*. [PLOS ONE](#)

Relevant Presentations

Mechanism and regulation of self-organised infrastructure construction	ECCS 2016
(Invited) Regulatory mechanism in leaf-cutter ant foraging	ECCS 2016
Concurrent foraging patterns in leaf-cutter ants <i>Atta</i>	ASSAB 2016
Costs and benefits of clearing physical trails in leaf-cutter ants <i>Atta</i>	Behaviour 2015
Dynamics of collective worksite selection in weaver ants, <i>Oecophylla smaragdina</i>	IUSSI 2014

Acronyms: ECCS = European Conference on Complexity Systems, ASSAB = Australian Society for the Study of Animal Behaviour, IUSSI = International Union for the Study of Social Insects

Awards & Scholarships

Monash University Postgraduate Publication Award (~AUD 4500)	2016
Faculty of IT Supplementary Funding Award, used for research visit (AUD 5000)	2016
Best Student Presentation award at ASSAB 2016 conference (signed textbook)	2016
Three Minute Thesis competition faculty round winner (AUD 500)	2015
“Highly commended” poster at Monash IT Innovation Showcase	2015
Two national and one state price at GovHack Hackathon (Team effort, AUD 1500)	2015
Monash International Postgrad Research Scholarship (~AUD 27,000 p.a., for 3.5 years)	2013
CSIRO Data61 / NICTA Top-up Scholarship (~AUD 7000 p.a., for 3.5 years)	2013
Monash University Faculty Scholarship (covers fees of ~AUD 37,000 p.a., for 3.5 years)	2013

Skills

Programming languages: Python, Mathematica, \LaTeX

Computational skills: Agent-based and system modeling in Python and Mathematica; computer vision using OpenCV; evolutionary computing using Artificial Neural Networks; Evolutionary Game Theory simulation

Experimental skills: laboratory and field experiment design and execution; field work experience on 4 continents

Other proficiencies: Git, Linux, Adobe Acrobat Suite, OpenOffice & MS Office Suite, GIS

Visited Institutions

James Cook University, Australia	2017
Exeter University, UK	2016
Konstanz University, Germany	2014
Smithsonian Tropical Research Institute, Panama	2013
James Cook University, Australia	2010-2011
Danum Valley, Ant Course, Sabah, Malaysia	2010
Panay Eco-Social Conservation Project, Philippines	2009

Other Engagements

Initiator, organiser, and moderator of 2-day [Monash IT Research Retreat](#). Event received ~AUD 70,000 in faculty funds. Led a team of 10 PhD students for 8 months, organising guest-speakers and research workshops. Event brought together PhD students from 3 Monash campuses (including from Malaysia)

Student Representative to the IT Graduate Research Committee. Aided in shaping faculty policies

Supervisor of ~15 biology undergraduate student volunteers aiding in data extraction, over duration of 1.5 years

Four-time speaker at Monash PhD Student Induction Day; Presenter at Monash University Open Days and Innovation Showcases; Presenter at NICTA Tech Showcase

Student Representative on Monash University academic conduct committees

Other Passions

Fishing, camping, hiking, diving, travelling, drawing & painting; ebook aficionado, avid tea sampler