Curriculum Vitæ (as of July 25, 2017)

RODERICH GROSS

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The University of Sheffield
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***h*-index: 24 (GS), 15 (WoS); citations: 2300 (GS), 780 (WoS)**

Technical Expertise: Autonomous robots; evolutionary robotics; human-robot interaction; machine learning; self-reconfigurable robots; multi-robot coordination; swarm intelligence

Employment History

01/2014 –	*Senior Lecturer in Robotics and Computational Intelligence*, ACSE, The University of Sheffield
01/2010 – 12/2013	*Lecturer in Robotics & Comp. Int.*, ACSE, The University of Sheffield
01/2008 – 12/2009	*Marie Curie Intra-European Research Fellow* at EPFL
02/2007 – 12/2007	*Transfer-of-Knowledge Marie Curie Research Fellow* at Unilever
07/2006 – 12/2006	*Research Assistant*, School of Biological Sciences, Univ. of Bristol
10/2005 – 05/2006	*Researcher* at IRIDIA, Univ. Libre de Bruxelles (ULB)
06/2005 – 10/2005	*JSPS Post-doctoral Research Fellow*, Tokyo Inst. of Technology
02/2002 – 06/2005	*Researcher* at IRIDIA, Univ. Libre de Bruxelles (ULB)

Academic History

10/2007	Ph.D. Engineering Sciences (ULB)
12/2001	MSc Computer Science (*"Diplom"*, *summa cum laude*, TU Dortmund)
03/1999	BSc Computer Science (*"Vordiplom"*, TU Dortmund)

Track Record of Research Funding

Date	Source	Value	Type	Role
03/17–	Consultancy	-	Robotics	PI
10/16–03/17	EPSRC	£462.1k	Capital equipment grant	Co–I
07/13–12/14	EPSRC	£100.9k	First Grant	PI
07/13–10/14	EPSRC	£825.1k	Capital equipment grant	Co–I
11/11–07/12	Unilever	£62.4k	Industry sponsored research grant	PI
09/10–08/13	EU FP7	£37.1k	Marie Curie Reintegration grant	PI
01/08–12/09	EU FP6	£139.1k	Marie Curie Post-Doct. Fellowship	Fellow
06/05–10/05	JSPS	£13.6k	JSPS Post-Doctoral Fellowship	Fellow

Track Record of PhD Supervision (all as the main supervisor)

Date of award	Name	Current occupation
12/14	Melvin Gauci	*Postdoctoral Fellow*, Harvard University, USA
03/15	Jianing Chen	*Research Associate*, University of Manchester, UK
03/16	Wei Li	*Research Associate*, The University of York, UK
03/17	Yuri K Lopes	*Research Associate*, University of Sheffield, UK
03/17	F Perez-Diaz	*IT Expert*, University of Warwick, UK
03/17	Christopher Parrott	*Research Associate*, University of Sheffield, UK

09/17 (expect.)	Gabriel Kapellmann	*PhD student*
09/17 (expect.)	Stefan Trenkwalder	*PhD student*
09/18 (expect.)	Matthew Doyle	*PhD student*
09/19 (expect.)	João V. Marques	*PhD student*
09/19 (expect.)	Anil Ozdemir	*PhD student*
09/20 (expect.)	Yue Gu	*PhD student*
09/20 (expect.)	Isaac Vandermeulen	*PhD student*
09/21 (expect.)	Matthew Hall	*PhD student*

Current Editorial/Administrative Activities

General Chair, DARS 2016 (13th Int. Symp. Distributed Autonomous Robot. Systems)

Chair, IEEE CIS Task Force on Swarm Intelligence (from 2016)

Editor, IROS 2015–2017 (IEEE/RSJ Int. Conf. Intelligent Robot Systems)

Associate Editor, *Swarm Intelligence*; *IEEE Computational Intelligence Magazine*; *IEEE Robotics and Automation Letters*, ICRA 2012–2015 and IROS 2012–2014

Member of Editorial Board, Frontiers in Robotics & AI

Programme Co-Chair, Swarm Intelligence track, GECCO 2018 (Genetic and Evolutionary Computation Conference); Robotics track, AAMAS 2016 (International Conference on Autonomous Agents and Multiagent Systems); ANTS 2012 (International Conference on Swarm Intelligence); TAROS 2011 (British Towards Autonomous Robotics Systems conference)

Referee for 30 int. journals, Proceedings of the IEEE, J. Royal Society Interface, PLoS ONE, IEEE Trans. Robotics, The Int. J. Robotics Research, IEEE Trans. Evolutionary Computation, IEEE Trans. Cybernetics, IEEE Trans. Systems, Man, and Cybernetics—Part B, IEEE Robotics and Automation Magazine, Auton. Robots, Bioinspiration & Biomimetics, Robotica, Robotics and Autonomous Systems etc.

Member of 60 IPC, RSS 2017, IJCAI 2017, AAMAS 2017, GECCO 2017, MRMA 2017, ECMR 2017, SWARM 2017, AAAI 2017 (Video Compet.), PPSN 2016, ANTS 2016, SAB 2016 etc.

Part Editor, Springer Handbook of Computational Intelligence (Part F)

Guest Editor, 5 journal special issues (e.g. Autonomous Robots, Robot. Auton. Systems and Swarm Intell.)

Editor, 3 volumes of Lecture Notes in Computer Science (e.g. Gross et al., LNCS 6856) and 1 volume of Springer SPAR

External examiner MSc in Autonomous Robotics Engineering, University of York

Grant reviewing (ERC, Horizon 2020, EPSRC, BBSRC, Leverhulme Trust, SNF, NSERC, FWF, DFG, FNRS)

Theme Lead, Enabling Technologies, Sheffield Robotics; Member of Executive Committee, Sheffield Robotics; Departmental PGR Tutor; Course Director MSc Robotics

Miscellaneous

30+ invited talks at Royal Society UK/Russia Frontiers of Science meeting (Kazan, Russia), IEEE RAS Summer School on Multi-Robot Systems (Singapore), FRIAS workshop "Self-assembly on all scales" (Black Forest, Germany), Janelia Conference "Distributed, Collective Computation in Biological and Artificial Systems" (Ashburn, VA), "Learning, Inference and Control of Multi-Agent Systems" workshop (NIPS 2015), "Swarming Systems: Analysis, Modeling & Design" satellite (CCS 2016), MIT's Robotics Seminar, Thrilling Wonder Stories 3 (Architectural Association, London, UK/New York), Living Machines 2013 workshop (London, UK), Univ. of Cambridge (UK), Univ. of Michigan (USA), EPFL (Switzerland), Tohoku Univ. (Japan), Nagoya Univ. (Japan), Tokyo Institute of Technology (Japan), Technical Univ. of Munich (Germany), Univ. of Stuttgart (Germany), Univ. of Edinburgh (UK), Univ. of the West of England (UK), University of Bristol (UK), University of Liverpool (UK).

Media coverage since 2013: Discovery Channel, Reuters, BBC News at One, BBC 2 *Dara O Briain's Science Club*, BBC World Service *The Forum*, CNN, Guardian, Time Magazine, The Telegraph, The Wall Street J., Channel 5, Der Spiegel, News Week

IEEE Senior Member (2012–), Member of ACM (2008–)

Selection of publications (60+ papers: `http://naturalrobotics.group.shef.ac.uk`)

F. Perez-Diaz, R. Zillmer, and R. Gross. "Robustness of synchronization regimes in networks of mobile pulse-coupled oscillators," ***Physical Review Applied***, **7**:054002, 2017 (`https://doi.org/10.1103/PhysRevApplied.7.054002`)

W. Li, M. Gauci, and R. Gross. "Turing learning: a metric-free approach to inferring behavior and its application to swarms," ***Swarm Intelligence***, **10**:211–243, 2016 (`http://dx.doi.org/10.1007/s11721-016-0126-1`)

Y. Kaszubowski Lopes, S. M. Trenkwalder, A. Bittencourt Leal, T. J. Dodd, and R. Gross. "Supervisory Control Theory Applied to Swarm Robotics," ***Swarm Intelligence***, **10**:65–97, 2016 (`http://dx.doi.org/10.1007/s11721-016-0119-0`)

M. Doyle, X. Xu, Y. Gu, F. Perez-Diaz, C. Parrott, and R. Gross. "Modular hydraulic propulsion: a robot that moves by routing fluid through itself," ***ICRA 2016***, pp. 5189-5196, 2016 (`http://dx.doi.org/10.1109/ICRA.2016.7487725`)

S. M. Trenkwalder, Y. Kaszubowski Lopes, A. Kolling, A. L. Christensen, R. Prodan, and R. Gross. "OpenSwarm: An event-driven embedded operating system for miniature robots," ***IROS 2016*** *(IEEE/RSJ Int. Conf. on Intelligent Robots and Systems)*, IEEE, Los Alamitos, CA (2016) 4483–4490

J. A. Escalera, and M. J. Doyle, F. Mondada, and R. Gross. "Evo-bots: A simple, stochastic approach to self-assembling artificial organisms," ***DARS 2016*** *(13th Int. Symposium on Distributed Autonomous Robotic Systems)*, ***Springer Tracts in Advanced Robotics***, Springer, Berlin, Germany (in press)

C. Parrott, T. J. Dodd, and R. Gross. "HyMod: A 3-DOF hybrid mobile and self-reconfigurable modular robot and its extensions," ***DARS 2016*** *(13th Int. Symposium on Distributed Autonomous Robotic Systems)*, ***Springer Tracts in Advanced Robotics***, Springer, Berlin, Germany (in press)

G. Kapellmann, N. Salomons, A. Kolling, and R. Gross. "Human-robot swarm interaction with limited situational awareness," ***ANTS 2016*** *(10th Int. Conf. on Swarm Intelligence)*, ***LNCS***, **9882**, Springer, Berlin, Germany (2016) 125–136

J. P. Glancy, R. Gross, J. V. Stone, S. P. Wilson. "A self-organising model of thermoregulatory huddling," ***PLOS Computational Biology***, **11**:e1004283, 2015 (http://dx.doi.org/10.1371/journal.pcbi.1004283)

J. Chen, M. Gauci, W. Li, A. Kolling, and R. Gross. "Occlusion-based cooperative transport with a swarm of miniature mobile robots," ***IEEE Transactions on Robotics***, **31**:307–321, 2015 (http://dx.doi.org/10.1109/TRO.2015.2400731)

M. Gauci, J. Chen, W. Li, T. J. Dodd, and R. Gross. "Self-organized aggregation without computation," ***Int. Journal of Robotics Research***, **33**:1145–1161, 2014 (http://dx.doi.org/10.1177/0278364914525244)

C. Parrott, T. J. Dodd, and R. Gross. "HiGen: A high-speed genderless mechanical connection mechanism, with single-sided disconnect, for self-reconfigurable modular robots," ***IROS 2014*** *(IEEE/RSJ Int. Conf. on Intelligent Robots and Systems)*, IEEE, Los Alamitos, CA (2014) 3926–3932

M. Gauci, T.J. Dodd and R. Gross. "Why 'GSA: a gravitational search algorithm' is not genuinely based on the law of gravity," ***Natural Computing***, **11**:719–720, 2012 (http://dx.doi.org/10.1007/s11047-012-9322-0)

J. Chen, M. Gauci, M. J. Price, and R. Gross. "Segregation in Swarms of e-puck Robots Based On the Brazil Nut Effect," ***AAMAS 2012*** *(11th Int. Conf. on Autonomous Agents and Multiagent Systems)*, IFAAMAS, Richland, SC (2012) 163–170

R. O'Grady, R. Gross, A. L. Christensen, F. Mondada, M. Bonani, and M. Dorigo. "Self-assembly strategies in a group of autonomous mobile robots," ***Autonomous Robots***, **28**:439–455, 2010 (http://dx.doi.org/10.1007/s10514-010-9177-0)

R. Gross and M. Dorigo. "Towards group transport by swarms of robots," ***Int. J. Bio-Inspired Computation***, **1**:1–13, 2009 (http://dx.doi.org/10.1504/IJBIC.2009.022770)

S. Nouyan, R. Gross, M. Bonani, F. Mondada, M. Dorigo. "Teamwork in self-organized robot colonies," ***IEEE Transactions on Evolutionary Computation***, **13**:695–711, 2009 (http://dx.doi.org/10.1109/TEVC.2008.2011746)

R. Gross and M. Dorigo. "Self-assembly at the macroscopic scale," ***Proceedings of the IEEE***, **96**:1490–1508, 2008 (http://dx.doi.org/10.1109/JPROC.2008.927352) **[cover story]**

R. Gross, A. I. Houston, E. J. Collins, J. M. McNamara, F.–X. Dechaume–Moncharmont, N. R. Franks. "Simple learning rules to cope with changing environments," ***Journal of the Royal Society Interface***, **5**:1193–1202, 2008 (http://dx.doi.org/10.1098/rsif.2007.1348)

R. Gross and M. Dorigo. "Evolution of solitary and group transport behaviors for autonomous robots capable of self-assembling," ***Adaptive Behavior***, **16**:285–305, 2008 (http://dx.doi.org/10.1177/1059712308090537)

R. Gross. "Self-assembling robots," ***Künstliche Intelligenz***, Nov **4/08**: 61–63, 2008

N. R. Franks, J. W. Hooper, M. Gumn, T. H. Bridger, J. A. R. Marshall, R. Gross, and A. Dornhaus. "Moving targets: Collective decisions and flexible choices in house-hunting ants," ***Swarm Intelligence***, **1**:81–94, 2007 (http://dx.doi.org/10.1007/s11721-007-0007-8)

E. Tuci, R. Gross, V. Trianni, F. Mondada, M. Bonani, and M. Dorigo. "Cooperation through self-assembly in multi-robot systems," ***ACM Transactions on Autonomous and Adaptive Systems***, **1**:115–150, 2006 (http://doi.acm.org/10.1145/1186778.1186779)

R. Gross, M. Bonani, F. Mondada, and M. Dorigo. "Autonomous self-assembly in swarm-bots," ***IEEE Transactions on Robotics***, **22**:1115–1130, 2006 (http://dx.doi.org/10.1109/TRO.2006.882919)

M. Dorigo, V. Trianni, E. Şahin, R. Gross, T.H. Labella, G. Baldassarre, S. Nolfi, J.-L. Deneubourg, F. Mondada, D. Floreano, and L.M. Gambardella. "Evolving self-organizing behaviors for a swarm-bot," ***Autonomous Robots***, **17**:223–245, 2004 (http://dx.doi.org/10.1023/B:AURO.0000033973.24945.f3)