Joshua Knowles

Professor of Natural Computation
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Research Interests

Evolutionary computing, multiobjective optimization, computational biology.

Employment

Reader, School of Computer Science, University of Manchester, UK, 2014–15.

Lecturer / Senior Lecturer, School of Computer Science, University of Manchester, UK, 2006–14.

BBSRC David Phillips Fellow, School of Chemistry, University of Manchester, UK, Oct. 2003–Oct. 2006.

Marie Curie Fellow, IRIDIA, Université Libre de Bruxelles, Belgium, Oct. 2001–Oct. 2003.

Education

2002   PhD, University of Reading, UK.

1996   MSc with Distinction, Information Systems Engineering, University of Reading, UK.

1993   BSc(Hons) Physics with subsid. Maths, University of Reading, UK.

Academic Recognition and Service

Investigator/co-Investigator on projects totaling $> £10m$ of funding.

Co-Organizer, Dagstuhl Seminar 12041, 2012 and 15031, 2015.

Member, EPSRC Peer Review College (national grant funding body in the UK), 2006–present.

Steering committee member, *EMO* International Conference, 2008–present.

Associate editor, *Swarm Intelligence Journal* 2007–14; editorial board member, *Evolutionary Computation Journal* 2008–present; program chair, EMO track at *GECCO* 2009, 2013, *WSC10* 2006.

Invited speaker, *IEEE MCDM* 2015, *OR50* 2008, *MOPGP* 2006, *EMO* 2005, Dagstuhl Seminars 09041, 06051, 04461.

Outstanding Paper Published in 2006 Prize (1,000 USD), *IEEE Transactions on Evolutionary Computation*; the same Prize (1,000 USD), 2003 (shared with co-author, David Corne).

Selected Publications

[1] S. Miller and J. Knowles. Population Fluctuation Promotes Cooperation in Networks. *Nature Scientific Reports*, 2015. (In Press)

[2] B.G. Small, . . . , J. Knowles et al., Efficient discovery of anti-inflammatory small-molecule combinations using evolutionary computing. *Nature Chemical Biology*, 7: 902–908, 2011.

[3] J. Handl, D. B. Kell and J. Knowles. Multiobjective optimization in bioinformatics and computational biology. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 4(2):279–292, 2007.

[4] J. Knowles. ParEGO: A hybrid algorithm with on-line landscape approximation for expensive multiobjective optimization problems. *IEEE Transactions on Evolutionary Computation*, 10 (1): 50–66, 2006.

[5] J. Knowles and D. Corne. Approximating the nondominated front using the Pareto archived evolution strategy. *Evolutionary Computation*, 8(2):149–172, 2000.