

Daniel P. Martins
Walton Institute for Information and Communications Systems Science
Department of Computing and Mathematics
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Biography

Dr Daniel P. Martins is currently a Postdoctoral Researcher at Walton Institute, Waterford Institute of Technology. He received his PhD from the Waterford Institute of Technology, Ireland (2019), his MSc in Electrical Engineering, from the Federal University of Campina Grande, Brazil (2014), Postgraduate Diploma in University Teaching, from UNIJORGE, Brazil (2010) and BSc in Telecommunications Engineering, from UNIJORGE, Brazil (2008). He has worked as Lecturer at Maurício de Nassau College (2015); as Research Manager of a research group in Brazil (2014-2015); as the Course Co-ordinator of two Further Education courses, Telecommunications and Informatics, at the Redemptorist Technical School (2013-2014); and as Assistant Lecturer at UNIJORGE (2010-2011). He has published research papers in high-impact journals and conferences in the area of molecular and nanoscale communications. He is also a reviewer for many well reputed journals. Currently, he is investigating the design of micro and nanoscale biocompatible devices that are capable to process molecular signals using engineered cells to create novel communications networks that sense and monitor the environment, human's health, and soil quality.

Qualifications

PhD

Aug 2015 → Nov 2019

Award Date: 16 Jun 2020

Masters Degree, Universidade Federal de Campina Grande

Sep 2011 → Dec 2013

Award Date: 27 Feb 2014

Bachelors Degree, UNIJORGE

Feb 2004 → Dec 2008

Award Date: 23 Jan 2009

Employment

Postdoctoral Researcher

Walton Institute for Information and Communications Systems Science

SETU: Waterford Campus

25 Aug 2015 → present

Department of Computing and Mathematics

SETU: Waterford Campus

25 Aug 2015 → present

Area Co-Chair for Ireland

IEEE UK and Ireland Young Professionals

United Kingdom

01 Oct 2020 → present

Lecturer

UNINASSAU

Brazil

01 Feb 2015 → 01 Jul 2015

Research Manager

UFCEG/IFPB Technological Innovation Research Group

Brazil

01 Jul 2014 → 01 Nov 2015

Course Co-ordinator (Telecommunications and Informatics)

Escola Técnica Redentorista
Brazil
01 Feb 2013 → 01 Jun 2014

Research Engineer

Iecom
Brazil
01 Jun 2012 → 01 Dec 2013

Assistant Lecturer

UNIJORGE
Brazil
01 Mar 2010 → 01 Sep 2011

General Assistant

Banco do Nordeste
Brazil
01 Apr 2009 → 01 Mar 2010

Intern

CORREIOS
Brazil
01 Jun 2008 → 01 Dec 2008

Research outputs**A Graph-based Molecular Communications Model Analysis of the Human Gut Bacteriome**

Somathilaka, S. S., Martins, D. P., Barton, W., O'Sullivan, O., Cotter, P. D. & Balasubramaniam, S., 04 Feb 2022, In: IEEE Journal of Biomedical and Health Informatics.

Information Flow of Cascading Bacterial Molecular Communication Systems with Cooperative Amplification

Somathilaka, S. S., Martins, D. P. & Balasubramaniam, S., 19 Jan 2022, (Accepted/In press) *IEEE ICC 2022*. IEEE

Modulated Molecular Channel Coding Scheme for Multi-Bacterial Transmitters

Martins, D. P., Drohan, J., Foley, S., Coffey, L. & Balasubramaniam, S., 15 Nov 2021, *SenSys 2021 - Proceedings of the 2021 19th ACM Conference on Embedded Networked Sensor Systems*. Association for Computing Machinery (ACM), p. 610-615 6 p. (SenSys 2021 - Proceedings of the 2021 19th ACM Conference on Embedded Networked Sensor Systems).

Towards the mitigation of distributed denial-of-service cyberbioattacks in bacteria-based biosensing systems

López Bernal, S., Perez Martins, D. & Huertas Celdrán, A., Nov 2021, In: *Digital Signal Processing: A Review Journal*. 118, 103241.

Binding Process Analysis of Bacterial-based and Logic Gates

Martins, D. P., Balasubramaniam, S., Cotter, P. D. & O'Sullivan, O., 07 Sep 2021, *Proceedings of the 8th ACM International Conference on Nanoscale Computing and Communication, NANOCOM 2021*. Association for Computing Machinery (ACM), 31. (Proceedings of the 8th ACM International Conference on Nanoscale Computing and Communication, NANOCOM 2021).

Evolving Intelligent Reflector Surface Toward 6G for Public Health: Application in Airborne Virus Detection

Siljak, H., Ashraf, N., Barros, M. T., Martins, D. P., Butler, B., Farhang, A., Marchetti, N. & Balasubramaniam, S., 01 Sep 2021, In: *IEEE Network*. 35, 5, p. 306-312 7 p.

Hydrogel-based Bio-nanomachine Transmitters for Bacterial Molecular Communications

Martins, D. P., O'Reilly, H. Q., Coffey, L., Cotter, P. D. & Balasubramaniam, S., 16 Nov 2020, *NanoCoCoA 2020 - Proceedings of the 1st ACM International Workshop on Nanoscale Computing, Communication, and Applications, Part of the 18th ACM Conference on Embedded Networked Sensor Systems, SenSys 2020*. Association for Computing Machinery (ACM), p. 14-19 6 p. (NanoCoCoA 2020 - Proceedings of the 1st ACM International Workshop on Nanoscale Computing, Communication, and Applications, Part of the 18th ACM Conference on Embedded Networked Sensor Systems, SenSys 2020).

Distributed Denial of Service Cyberbioattack Affecting Bacteria-based Biosensing Systems

Bernal, S. L., Martins, D. P. & Celdran, A. H., Jun 2020, *17th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, ECTI-CON 2020*. Institute of Electrical and Electronics Engineers Inc., p. 279-282 4 p. 9158303. (17th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, ECTI-CON 2020).

Quality and Capacity Analysis of Molecular Communications in Bacterial Synthetic Logic Circuits

Martins, D. P., Barros, M. T. & Balasubramaniam, S., Oct 2019, In: *IEEE Transactions on Nanobioscience*. 18, 4, p. 628-639 12 p., 8772080.

Computational Synthetic Biology for Molecular Communications

Martins, D., 2019, (Unpublished) 174 p.

Computational Models for Trapping Ebola Virus Using Engineered Bacteria

Martins, D. P., Barros, M. T., Pierobon, M., Kandhavelu, M., Lio, P. & Balasubramaniam, S., 01 Nov 2018, In: *IEEE/ACM Transactions on Computational Biology and Bioinformatics*. 15, 6, p. 2017-2027 11 p., 8359015.

Molecular Communications Pulse-Based Jamming Model for Bacterial Biofilm Suppression

Martins, D. P., Leetanasaksakul, K., Barros, M. T., Thamchaipenet, A., Donnelly, W. & Balasubramaniam, S., Oct 2018, In: *IEEE Transactions on Nanobioscience*. 17, 4, p. 533-542 10 p., 8468188.

Using competing bacterial communication to disassemble biofilms

Martins, D. P., Barros, M. T. & Balasubramaniam, S., 28 Sep 2016, *Proceedings of the 3rd ACM International Conference on Nanoscale Computing and Communication, ACM NANOCOM 2016*. Association for Computing Machinery (ACM), a18. (Proceedings of the 3rd ACM International Conference on Nanoscale Computing and Communication, ACM NANOCOM 2016).

Comunicações Moleculares: Um Novo Paradigma de Comunicações para Aplicações em Nanomedicina

Barros, M. T. & Martins, D., 01 Jul 2014, In: *Revista de Tecnologia da Informação e Comunicação*.

A new approach to noise measurement and analysis in an industrial facility

Martins, D. P. & Alencar, M. S., 2014, *2014 IEEE International Instrumentation and Measurement Technology Conference: Instrumentation and Measurement for Sustainable Development, I2MTC 2014 - Proceedings*. Institute of Electrical and Electronics Engineers Inc., p. 964-967 4 p. 6860886. (Conference Record - IEEE Instrumentation and Measurement Technology Conference).

Análise e Caracterização Matemática do Ruído Gerado por Ventiladores Industriais

Martins, D. P. & Alencar, M. S., 2013, In: *Revista de Tecnologia da Informação e Comunicação*.

Activities

Telecommunications and the Future of the Telecare Systems

Daniel P. Martins (Speaker)
07 Apr 2022

2022 International Global Communication Conference

Daniel P. Martins (Member of programme committee)
2022 → ...

Deep Learning for Autonomic SLA Management of NFV Resources towards Next Generation Networks

Daniel P. Martins (Examiner)
07 Dec 2021

Synthetic Digital Circuits Using Neuronal Molecular Communications

Daniel P. Martins (Examiner)
02 Nov 2021

19th ACM Conference on Embedded Networked Sensor Systems, SenSys 2021

Daniel P. Martins (Participant)
Nov 2021

8th ACM International Conference on Nanoscale Computing and Communication, NANOCOM 2021

Daniel P. Martins (Participant)
Sep 2021

16th International Symposium on Medical Information and Communication Technology

Daniel P. Martins (Chair)
2021 → 2022

3rd IEEE UK & Ireland Young Professionals Postgrad STEM Research Symposium

Daniel P. Martins (Chair) & Ferheen Ayaz (Chair)
2021 → ...

9th ACM International Conference on Nanoscale Computing and Communication, ACM NANOCOM 2022

Daniel P. Martins (Chair), Lin Lin (Chair) & Bige Unluturk (Chair)
2021 → 2022

1st ACM International Workshop on Nanoscale Computing, Communication, and Applications, NanoCoCoA 2020, held in conjunction with the 18th ACM Conference on Embedded Networked Sensor Systems, SenSys 2020

Daniel P. Martins (Participant)
Nov 2020

5th Workshop on Molecular Communications

Daniel P. Martins (Member of programme committee)
2020 → 2021

8th ACM International Conference on Nanoscale Computing and Communication, NANOCOM 2021

Murat Kuscu (Chair) & Daniel P. Martins (Chair)
2020 → 2021

Engineering Computing Devices Using Bacteria Natural Signalling Systems

Daniel P. Martins (Speaker)
2020

Telecommunications and the Future of the Telecare Systems

Daniel P. Martins (Speaker)
2020

X Conferência Nacional em Comunicações, Redes e Segurança da Informação (in Portuguese)

Daniel P. Martins (Member of programme committee)

2020 → ...

4th Workshop on Molecular Communications

Daniel P. Martins (Member of programme committee)

2019 → ...

7th ACM International Conference on Nanoscale Computing and Communication, NanoCom 2020

Daniel P. Martins (Chair), Mladen Veletic (Chair) & Bhuvana Krishnaswamy (Chair)

2019 → 2020

3rd Workshop on Molecular Communications

Daniel P. Martins (Member of programme committee)

2018 → ...

How to test your idea?

Daniel P. Martins (Speaker)

2017

3rd ACM International Conference on Nanoscale Computing and Communication, ACM NANOCOM 2016

Daniel P. Martins (Participant)

Sep 2016

Internet of Bio-Nano Things: Oportunidades e Perspectivas para Nanomedicina (in Portuguese)

Daniel P. Martins (Speaker)

2016

IEEE (External organisation)

Daniel P. Martins (Member)

Oct 2005 → ...

Prizes

ACM NanoCoCoA 2020 Best Paper Award:

Martins, Daniel P. (Recipient), Quach O'Reilly, H. (Recipient), Coffey, Lee V. (Recipient), Cotter, P. (Recipient) & Balasubramaniam, S. (Recipient), 16 Nov 2020

Best Postdoc 3 minute Talk

Martins, Daniel P. (Recipient), 10 May 2022

ECTI-CON 2020 Best Paper Award

Martins, Daniel P. (Recipient), Bernal, S. L. (Recipient) & Huertas Celdran, A. (Recipient), 25 Jun 2020

Summa cum laude

Martins, Daniel P. (Recipient), 23 Jan 2009

Courses

Construindo Soluções de Telecomunicações baseadas em Bactérias (in Portuguese)

Daniel P. Martins

05/12/2020 → 05/12/2020

Research Planning and Project Management

Muhammad Zeeshan & Daniel P. Martins
22/02/2022 → 29/03/2022

Statistical Analysis for Engineers

Daniel P. Martins
16/09/2021 → 10/01/2022