

Pedro Alexandre da Costa Sousa
Researcher, Associate Professor
DEE - Departamento de Engenharia Electrotécnica e de Computadores
CTS - Centro de Tecnologia e Sistemas
Postal address:
Portugal
Email: pas@fct.unl.pt

Research interests

Knowledge Discovery, Complex systems, Education, Geopolitics and R&I dissemination results.

Researcher/coordinator of multiple European Union R&D projects and ESA - European Space Agency projects.

Qualifications

Electrical Engineering, Doctorate, Universidade NOVA de Lisboa
Award Date: 29 Nov 2004

Employment

Associate Professor

DEE - Departamento de Engenharia Electrotécnica e de Computadores
Universidade NOVA de Lisboa
Portugal
1 Feb 2021 → present

Assistant Professor

DEE2010-C1 Sistemas Digitais e Percepcionais
Universidade NOVA de Lisboa
Portugal
1 Jul 2004 → 31 Jan 2021

Researcher

CTS - Centro de Tecnologia e Sistemas
Universidade NOVA de Lisboa
Portugal
1 Jul 2004 → present

President of the management board

EPL - European Project Leaders' Network Society
Portugal
31 Mar 2015 → present

Research output

Indoor temperature prediction in an IoT scenario

Monteiro, P. L., Zanin, M., Ruiz, E. M., Pimentão, J. & Sousa, P. A. D. C., 1 Nov 2018, In: *Sensors (Switzerland)*. 18, 11, 3610.

Smart sensor data acquisition in trains

Pereira, A., Pimentão, J. P., Sousa, P. & Onofre, S., 15 Dec 2017, *Proceedings IECON 2017 - 43rd Annual Conference of the IEEE Industrial Electronics Society*. Institute of Electrical and Electronics Engineers Inc., Vol. 2017-January. p. 5598-5603 6 p.

Data Fusion of Georeferenced Events for Detection of Hazardous Areas

Onofre, S., Gomes, J., Pimentao, J. P. & Sousa, P. A., 2017, p. 81-89. 9 p.

Biometric access control systems: A review on technologies to improve their efficiency

Duarte, T., Pimentao, J. P., Sousa, P. & Onofre, S., 21 Nov 2016, *Proceedings - 2016 IEEE International Power Electronics and Motion Control Conference, PEMC 2016*. Institute of Electrical and Electronics Engineers Inc., p. 795-800 6 p. 7752095

Surpassing bluetooth low energy limitations on distance determination

Onofre, S., Silvestre, P. M., Pimentao, J. P. & Sousa, P., 21 Nov 2016, *Proceedings - 2016 IEEE International Power Electronics and Motion Control Conference, PEMC 2016*. Institute of Electrical and Electronics Engineers Inc., p. 843-847 5 p. 7752104

Combining complex networks and data mining: Why and how

Zanin, M., Papo, D., Sousa, P. A., Menasalvas, E., Nicchi, A., Kubik, E. & Boccaletti, S., 27 May 2016, In: *Physics Reports*. 635, p. 1-44 44 p.

From phenotype to genotype in complex brain networks

Zanin, M., Correia, M., Sousa, P. A. D. C. & Cruz, J., 22 Jan 2016, In: *Scientific Reports*. 6, 19790.

Context integration in reliability assessment for service robots

Ferreira, T. C., Sousa, P., Barata, J. & Pimentao, J. P., 5 Jan 2016, *ISMA 2015 - 10th International Symposium on Mechatronics and its Applications*. Institute of Electrical and Electronics Engineers Inc., 7373496

Using Fuzzy Logic to Improve BLE Indoor Positioning System

Onofre, S., Caseiro, B., Pimentão, J. P. & Sousa, P., 2016, *Technological Innovation for Cyber-Physical Systems: 7th IFIP WG 5.5/SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2016, Costa de Caparica, Portugal, April 11-13, 2016, Proceedings*. Camarinha-Matos, M. L., J. Falcão, A., Vafaei, N. & Najdi, S. (eds.). Cham: SPRINGER INTERNATIONAL PUBLISHING AG, p. 169-177 9 p.

Multi-sensor geo-referenced surveillance system

Onofre, S., Sousa, P. & Pimentão, J. P., 1 Dec 2015, *Mechatronics and its Applications (ISMA), 2015 10th International Symposium on*. IEEE. (ed.). Sharjah, p. 1-6 6 p.

Context Classifier for Service Robots

Ferreira, T., Miranda, F., Sousa, P., Barata, J. & Pimentao, J., 2015, *DoCEIS 2015: Technological Innovation for Cloud-Based Engineering Systems*. CamarinhaMatos, LM., Baldissera, TA., DiOrio, G. & Marques, F. (eds.). Cham: SPRINGER-VERLAG BERLIN, p. 196-203 8 p. (IFIP Advances in Information and Communication Technology; vol. 450).

Georeferenced Dynamic Event Handling

Onofre, S., Pimentão, J. P. & Sousa, P., 2015, *Technological Innovation for Cloud-Based Engineering Systems: 6th IFIP WG 5.5/SOCOLNET Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2015, Costa de Caparica, Portugal, April 13-15, 2015, Proceedings*. Camarinha-Matos, M. L., Baldissera, A. T., Di Orio, G. & Marques, F. (eds.). Cham: SPRINGER INTERNATIONAL PUBLISHING AG, p. 251-258 8 p.

Probabilistic constraint programming for parameters optimisation of generative models

Zanin, M., Correia, M., Cruz, J. & Sousa, P. A. D. C., 2015, *Progress in Artificial Intelligence - 17th Portuguese Conference on Artificial Intelligence, EPIA 2015, Proceedings*. Springer-Verlag, Vol. 9273. p. 376-387 12 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 9273).

Probabilistic constraints for robot localization

Correia, M., Meshcheryakova, O., Sousa, P. A. D. C. & Cruz, J., 2015, *Progress in Artificial Intelligence - 17th Portuguese Conference on Artificial Intelligence, EPIA 2015, Proceedings*. Springer-Verlag, Vol. 9273. p. 480-486 7 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 9273).

Autonomous robot integration in surveillance system: Architecture and communication protocol for systems cooperation
Claro, J., Dias, B., Rodrigues, B., Pimentao, J. P., Sousa, P. & Onofre, S., 9 Dec 2014, *Power Electronics and Motion Control Conference and Exposition (PEMC), 2014 16th International*. p. 713-719 7 p. 6980581

Parentclitic networks: Uncovering new functions in biological data

Zanin, M., Alcazar, J. M., Carbajosa, J. V., Paez, M. G., Papo, D., Sousa, P., Menasalvas, E. & Boccaletti, S., 29 May 2014, In: *Scientific Reports*. 4, 05112.

Information content: Assessing meso-scale structures in complex networks

Zanin, M., Sousa, P. A. & Menasalvas, E., May 2014, In: *Epl*. 106, 3, 30001.

Mining Recurring Concepts in a Dynamic Feature Space

Bártolo Gomes, J., Gaber, M. M., Sousa, P. A. D. C. & Menasalvas, E., Jan 2014, In: *IEEE Transactions on Neural Networks and Learning Systems*. 25, 1, p. 95 - 110 6572821.

Analysis of complex data by means of complex networks

Zanin, M., Menasalvas, E., Boccaletti, S. & Sousa, P. A., 2014, *Technological Innovation for Collective Awareness Systems: 5th IFIP WG 5.5/SOCOLNET Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2014, Costa de Caparica, Portugal, April 7-9, 2014. Proceedings*. Camarinha-Matos, L. M., Barrento, N. S. & Mendonça, R. (eds.). Heidelberg: Springer Berlin Heidelberg, Vol. Part 3. p. 39-46 8 p. (IFIP Advances in Information and Communication Technology; vol. 423).

Architecture and Message Protocol Proposal for Robot's Integration in Multi-Agent Surveillance System

Dias, B., Rodrigues, B., Claro, J., Pimentão, J., Sousa, P. & Onofre, S., 2014, *Rough Sets and Current Trends in Computing: 9th International Conference, RSCTC 2014, Granada and Madrid, Spain, July 9-13, 2014. Proceedings*. Cornelis, C., Kryszkiewicz, M., Ślzak, D., Ruiz, E., Bello, R. & Shang, L. (eds.). Springer International Publishing, Vol. 8536. p. 366-373 8 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 8536 LNAI).

Geo-referenced multi-agent architecture for surveillance

Onofre, S., Sousa, P. & Pimentao, J. P., 2014, *Power Electronics and Motion Control Conference and Exposition (PEMC), 2014 16th International*. p. 455-460 6 p.

Information content: beyond modularity in complex networks

Zanin, M., Sousa, P. A. & Ruiz, E. M., 2014, In: *Epl*. 106, 3, 30001.

Review on Context Classification in Robotics

Miranda, F., Cabral Ferreira, T., Pimentão, J. P. & Sousa, P., 2014, *Rough Sets and Intelligent Systems Paradigms: Second International Conference, RSEISP 2014, Held as Part of JRS 2014, Granada and Madrid, Spain, July 9-13, 2014. Proceedings*. Kryszkiewicz, M., Cornelis, C., Ciucci, D., Medina-Moreno, J., Motoda, H. & Ra, Z. W. (eds.). Cham: Springer International Publishing, p. 269-276 8 p. (Lecture Notes in Computer Science; vol. 8537).

Collaborative data stream mining in ubiquitous environment using dynamic classifier selection

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2013, In: *International Journal Of Information Technology & Decision Making*. 12, 6, p. 1287-1308

Knowledge Discovery in Spectral Data by Means of Complex Networks

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2013, In: *Metabolites*. 3, 1, p. 155-167

Feature selection in the reconstruction of complex network representations of spectral data

Zanin, M., Menasalvas, E., Boccaletti, S. & Sousa, P., 2013, In: *PlosOne*. 8, 8, e72045.

Parentclitic networks: a multilayer description of heterogeneous and static data-sets

Zanin, M., Alcazar, J. M., Carbajosa, J. V., Papo, D., Paez, M. G., Sousa, P., Menasalvas, E. & Boccaletti, S., 2013, In: *arXiv preprint arXiv:1304.1896*.

Optimizing FunctionalNetworkRepresentation of Multivariate Time Series

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2012, In: Scientific Reports. 2, NA, p. 630-635

Preprocessing and Analyzing Genetic Data with Complex Networks: an Application to Obstructive Nephropathy

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2012, In: Networks And Heterogeneous Media. 7, SI3, p. 473-481

Tracking Recurring Concepts using Context

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2012, In: Intelligent Data Analysis Journal. 16, 5, p. -

Context-aware Collaborative Data Stream Mining in Ubiquitous Devices

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2011, *Analyzing and Understanding Complex Systems*. p. 22-33

Learning Recurring Concepts from Data Streams with a Context-aware Ensemble

Sousa, P. A. D. C., 1 Jan 2011, *ACM Symposium on Applied Computing (SAC2011)*. p. 994-999

Soft system modeling in transportation planning: Modeling trip flows based on the fuzzy inference system approach

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2011, In: African Journal of Business Management. 5, 2, p. 505-514

Terrain assessment for service robots

Barata Oliveira, J. A., Pimentão, J. P. B., DEE Group Author & Sousa, P. A. D. C., 1 Jan 2011, *IEEE Industrial Electronics Society*. Vol. -. p. 301-306

CALDS: Context-aware Learning from Data Streams

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2010, *Proceedings of the First International Workshop on Novel Data Stream Pattern Mining Techniques*. p. 16-24

Context-Aware Stream Ensemble for Ubiquitous Environments

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2010, *Workshop on Ubiquitous Data Mining*. p. 7-12

Improving the learning of recurring concepts through high-level fuzzy contexts

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2010, *Proceedings of the 5th international conference on Rough set and knowledge technology*. p. 234-239

Situation-Aware Data Stream Mining Service for Ubiquitous Applications

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2010, *Proceedings of the International Conference on Mobile Data Management*. p. 360 - 365

Tracking recurrent concepts using context

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2010, *Lecture Notes in Artificial Intelligence*. p. 168-177

Tracking Recurrent Concepts Using Context in Memory-constrained Devices

DEE Group Author & Sousa, P. A. D. C., 1 Jan 2010, *Fourth International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies*. p. 446-451

An algorithm for management of automotive buffers with drawers

Barata Oliveira, J. A., DEE Group Author & Sousa, P. A. D. C., 1 Jan 2009, *IEEE International Symposium on Assembly and Manufacturing*. p. 71 - 76

A New Open-Loop Control Method for Stepping Motor Driving

Neves, M. F. D. S. V., Valtchev, S. S., DEE Group Author & Sousa, P. A. D. C., 1 Jan 2009, -. p. 605-610

The role of new technologies in supporting children' access to the arts, either directly or via the education of teachers
DEE Group Author & Sousa, P. A. D. C., 1 Jan 2009, In: Children in Europe. 14, NA, p. -

Agent-based communication security

Pimentão, J. P., Sousa, P. A. C., Amaral, P. & Steiger-Garção, A., 1 Dec 2004, In: Lecture Notes in Artificial Intelligence (Subseries of Lecture Notes in Computer Science). 3187, p. 73-84 12 p.

Agent based web content categorization

Sousa, P. A. C., Pimentão, J. P., Santos, B. R. D. & Garção, A. S., 1 Jan 2003, *Proceedings of the 10th ISPE International Conference on Concurrent Engineering Research and Application, Enhanced Interoperable Systems*. Cha, J., Jardim-Goncalves, R. & Steiger-Garcao, A. (eds.). A.A.Balkema Publishers, p. 143-150 8 p.

Seeking intelligent product development - an integrator environment based on STEP

Sousa, P., Jardim-Gonçalves, R., Pimentão, J. P., Pamiés-Teixeira, J. & Steiger-Garção, A., 1 Jan 1999, In: Journal of Intelligent Manufacturing. 10, 3, p. 313-321 9 p.

Integration of planning and control activities for building and construction: Experiencing standards

Jardim-Gonçalves, R., Sousa, P., Pimentão, J. P., Steiger-Garção, A., Grilo, A. & Tadeu, L., 1999, *Durability of Building Materials and Components 8, Vols 1-4, Proceedings*. Lacasse, M. A. & Vainer, D. J. (eds.). p. 2180-2188

Seeking compatibility between product data libraries for the furniture industry

Jardim-Goncalves, R., Sousa, P., Pimentao, J. & Steiger-Garção, A., 1999, *LARGE SCALE SYSTEMS: THEORY AND APPLICATIONS 1998 (LSS'98)*. Koussoulas, N. T. & Groumpos, P. P. (eds.). Pergamon Press Ltd., Vol. 1. p. 511-515

Integrating manufacturing systems using ISO 10303 (STEP): An overview of UNINOVA projects

Jardim-Gonçalves, R., Sousa, P. C., Pimentão, J. B. & Steiger-Garção, A., 1998, In: International Journal of Computer Applications in Technology (IJCAT). 12, 1, p. 39-45 7 p.

Implementation of computer integrated manufacturing systems using SIP: CIM case studies using a STEP approach

Jardim-Gonçalves, R., Silva, H., Vital, M., Sousa, P., Seiger-Garção, A. & Pamiés-Teixeira, J., 1 Jan 1997, In: International Journal Of Computer Integrated Manufacturing. 10, 1, p. 172-180 9 p.

The RoadRobot project: From theory to practice in systems in integration

Pimentão, J. P., Jardim-Gonçalves, R., Gonçalves, T., Silva, H., Vital, M., Sousa, P. & Garção, A., 1996, *Balanced Automation Systems ii: Implementation Challenges for Anthropocentric Manufacturing*. Camarinha-Matos, L. M. & Afsarmanesh, H. (eds.). Springer US, p. 126-133 (IFIP Advances in Information and Communication Technology).

Awards

COSMOS: Cost Adaptative Factory based on Modular Self-contained Factory Units

Pimentão, J. & Sousa, P. A. D. C.
Fundação para a Ciência e a Tecnologia
31/05/10 → 29/09/13