

Curriculum formativo, didattico, scientifico e professionale del candidato**Dichiarazione sostitutiva di certificazioni**

(Art. 46, D.P.R. 28 dicembre 2000 n. 445)

Dichiarazione sostitutiva dell'atto di notorietà

(da sottoscrivere davanti all'impiegato addetto o da presentare o spedire con la fotocopia di un documento di identità)

(Art. 47, D.P.R. 28 dicembre 2000 n. 445)

Estremi del bando di selezione	07/2022 Repertorio 462/2022 del 25/11/2022
Informazioni aggiornate al	03/04/2023
Nome e Cognome	SIMONE ARENA

Si raccomanda di indicare con precisione tutti gli elementi valutabili ai sensi del bando di selezione (aggiungere o togliere righe secondo necessità).

Esperienza professionale

Periodo	Ente	Principali attività e responsabilità
04/2020 – 04/2023	Università degli Studi di Cagliari	Titolare del Corso della Laurea Magistrale in Ingegneria Meccanica dal titolo “Manutenzione degli Impianti Industriali” (6 CFU)
04/2020 – 04/2023	Università degli Studi di Cagliari	Titolare del Corso di Dottorato per gli studenti della Scuola di Dottorato in Ingegneria Industriale dal titolo “Smart Maintenance Management” (4 CFU)
04/2020 – 04/2023	Università degli Studi di Cagliari	Ricercatore t.d. art.24 c.3 lett. A L. 240/10 (t. pieno) in ING-IND/17 – Impianti industriali meccanici
07/2019 – 04/2020	Università degli Studi di Cagliari	Assegnista di ricerca Research project: "Development, modelling and testing of energy storage systems for ancillary services dedicated to balancing renewable power generation plants."
07/2018 – 07/2019	Università degli Studi di Cagliari	Assegnista di ricerca Research project: "Study of thermal energy storage systems integrated with innovative processes of energy storage by methanol production from recycled CO2 and H2 from renewable sources."
06/2016 – 06/2018	Università degli Studi di Cagliari	Assegnista di ricerca Research project: “Experimental investigation and numerical modeling of Thermal Energy Storage (TES) systems using Phase Change Materials (PCM).”

Istruzione, formazione (es. titoli di studio, certificazioni professionali/linguistiche/informatiche)

Data	Titolo / Principali tematiche	Ente
07/10/2022 – 07/10/2032	Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Seconda Fascia nel Settore Concorsuale 09/B2 – IMPIANTI INDUSTRIALI	Miur – Ministero dell’Università e della Ricerca

	MECCANICI.	
13/04/2026	Dottorato di Ricerca conseguito presso la Scuola di Dottorato in Progettazione Meccanica. PhD Thesis: "Modelling, Design and Analysis of Innovative Thermal Energy Storage Systems using PCM for Industrial Processes, Heat and Power Generation."	Università degli Studi di Cagliari
25/07/2012	Laurea Specialistica in Ingegneria Meccanica (36/S) con voto 108/110 Titolo della tesi: "Modellazione di impianti a vapore USC integrati con sistemi innovativi di rimozione degli inquinanti e di separazione della CO2"	Università degli Studi di Cagliari
26/11/2019	Certificato lingua Inglese livello B2 QREL	Centro Linguistico di Ateneo - Università degli Studi di Cagliari

Publicazioni / Convegni

Sgarbossa, F., Arena, S., Tang, O., Peron, M., Renewable hydrogen supply chains: A planning matrix and an agenda for future research, International Journal of Production Economics, 2023, 255, 108674.
Arena, S., Fumagalli, L., Peron, M., Editorial Special Issue "Advanced Digital Technologies for the Integration of Production and Maintenance", Applied Sciences (Switzerland), 2022, 12(23), 12417
Arena, S., Manca, G., Murru, S., Perna, R., Orrù, P.F., Reforgiato Recupero, D., Data Science Application for Failure Data Management and Failure Prediction in the Oil and Gas Industry: A Case Study, Applied Sciences, 2022, 12(20), 10617
Peron, M., Arena, S., Paltrinieri, N., Sgarbossa, F., Boustras, G., Risk assessment for handling hazardous substances within the European industry: Available methodologies and research streams, Risk Analysis, 2022
Peron, M., Arena, S., Micheli, G.J.L., Sgarbossa, F., A decision support system for designing win-win interventions impacting occupational safety and operational performance in ageing workforce contexts, Safety Science, 2022, 147, 105598
Arena, S., Florian, E., Zennaro, I., Orrù, P.F., Sgarbossa, F., A novel decision support system for managing predictive maintenance strategies based on machine learning approaches, Safety Science, 2022, 146, 105529
Simonetto, M., Arena, S., Peron, M., A methodological framework to integrate motion capture system and virtual reality for assembly system 4.0 workplace design, Safety Science, 2022, 146, 105561
Arena, S., Perna, R., Piloni, M.T., A quantitative risk-based approach for assessing optimal inspection intervals of a caustic soda recovery plant: a case study. XXVII Proceedings of the Summer School "Francesco Turco"- Industrial Systems Engineering, Sanremo (Italy), 07-09 September 2022.
Roda, I., Arena, S., Macchi, M., Orrù, P.F., Application of Total Cost of Ownership Driven Methodology for Predictive Maintenance Implementation in the Food Industry, IFIP Advances in Information and Communication Technology, 2022, 664 IFIP, pp. 34-40
Arena S., Orrù P.F., Perra F., Piloni M.T., Optimization of drugs delivery routes through location routing problem (Lrp): A case study, International Journal of Mechanics and Control, 2021, 22(1), pp. 31-43.
Arena S., Roda I., Chiacchio F., Integrating modelling of maintenance policies within a stochastic

hybrid automaton framework of dynamic reliability, Applied Sciences, 2021, 11(5), pp. 1-18, 2300
Polenghi, A., Cattaneo, L., Arena, S., Orrù, P.F., Macchi, M., Experiential learning of Prognostics and Health Management and its implementation in MATLAB, Proceedings of the Summer School "Francesco Turco"- Industrial Systems Engineering, Bergamo (Italy), 08-10 September 2021.
Arena, S., Puddu, L., Orrù, P.F., Pilloni, M.T., Ageing management and monitoring of critical equipment in petrochemical applications: an Italian case study, Proceedings of the Summer School "Francesco Turco"- Industrial Systems Engineering, Bergamo (Italy), 08-10 September 2021.
Palacín I., Gibert D., Planes J., Arena S., Orrù P.F., Melis M., Annis M., Anomaly Detection for Diagnosing Failures in a Centrifugal Compressor Train, CCIA2021, 23rd International Conference of the Catalan Association for Artificial Intelligence, 20-22 October 2021, Lleida, Spain.
Orrù, P.F., Zoccheddu, A., Sassu, L., Cozza, R., Arena, S., Machine learning approach using MLP and SVM algorithms for the fault prediction of a centrifugal pump in the oil and gas industry, Sustainability (Switzerland), 2020, 12(11), 4776
Porta M., Arena S., Fiori V. L., Pau M., Orrù P. F., Assessment of ergonomic risk in industrial field: analysis of the operators' body postures through wearable sensors, XXV Summer School "Francesco Turco"- Industrial Systems Engineering, 9-12 September 2020, Bergamo, Italy.
Arena S., Surraco M., Tilocca M. C., Pilloni M. T., Assessment of Overall Equipment Effectiveness (OEE) for marble manufacturing process: a case study, XXV Summer School "Francesco Turco"- Industrial Systems Engineering, 9-11 September 2020, Bergamo, Italy.
Arena S., Doneddu F., Pilloni M. T., Optimization of brewing and beverage packaging process using V-Graph analysis, XXIV Summer School "Francesco Turco"- Industrial Systems Engineering, 11-13 September 2019, Brescia, Italy.
Orrù P. F., Arena S., Loi C., Giussani V., Natalini M., Production line optimization in an Engineering to Order Business (petrochemical industry) using Value-stream mapping method, XXIV Summer School "Francesco Turco"-Industrial Systems Engineering, 11-13 September 2019, Brescia, Italy.
Roda I., Arena S., Macchi M., Orrù P. F., Total Cost Of Ownership-Driven Methodology For Predictive Maintenance Implementation In Industrial Plants. Advances in Production Management Systems. Production Management for the Factory of the Future, APMS 2019, IFIP AICT 566, pp. 315-322, 2019. DOI: 10.1007/978-3-030-30000-5_40
Lonis F., Tola V., Cascetta M., Arena S., Cau G., Performance evaluation of an integrated energy system for the production and use of renewable methanol via water electrolysis and CO ₂ hydrogenation, 11-13 September 2019, Modena, Italy.
Petrollese M., Arena S., Cascetta M., Casti E., Cau G., Techno-economic comparison of different thermal energy storage technologies for medium-scale CSP plants, 74° Congresso Nazionale ATI, 11-13 September 2019, Modena, Italy.
Tola V., Arena S., Cascetta M., Frau C., Serra F., Cau G., Integration of a PV powered air-conditioning system with sensible and latent heat TES systems, 32° ECOS - International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, 23-28 June 2019, Wroclaw, Poland.
Arena S., Cascetta M., Tola V., Cau G., Numerical investigation on a packed-bed LHTES system integrated into a smart electrical and thermal grid, Eurotherm Seminar n°112 - Advances in Thermal Energy Storage, 15-17 May 2019 Lleida, Spain.
S. Arena, E. Casti, J. Gasia, L. F. Cabeza, G. Cau, Numerical analysis of a latent heat thermal energy storage system under partial load operating conditions, Renewable Energy 128, (2018), 350-361.
Gasia J., de Gracia A., Peiró G., Arena S., Cau G., Cabeza L.F., Use of partial load operating conditions for latent thermal energy storage management, Applied Energy 216, (2018), 234-242.
Arena S., Casti E., Gasia J., Cabeza L.F., Cau G., Numerical simulation of a finned-tube LHTES system: influence of the mushy zone constant on the phase change behaviour, Energy Procedia 126,

(2017), 517-524.
Gasia J., Martin M., Solé A., de Gracia A., Arena S., Cabeza L.F., Partial loads as thermal energy storage enhancement strategy, 10° Congreso Nacional de Ingeniería Termodinámica (CNIT), 28-30 Junio 2017, Lleida, Spain.
Migliari L., Arena S., Puddu P., Cocco D., Thermo-fluid Dynamic Analysis of a CSP Solar Field Line during Transient Operation, Energy Procedia 101, 1, (2016), 1167-1174.
Cascetta M., Serra F., Arena S., Casti E., Cau G., Puddu P., Experimental and numerical research activity on a packed bed TES system, Energies 2016, 9, 758.
Migliari L., Arena S., Thermal Energy Losses During Night, Warm-Up and Full-Operation Periods of a CSP Solar Field Using Thermal Oil, Energy Procedia 82 (1002-1008), 2015, doi:10.1016/j.egypro.2015.11.858
Arena S., Cau G., Palomba C., CFD Simulation of Melting and Solidification of PCM in Thermal Energy Storage Systems of Different Geometry, Journal of Physics: Conference Series 655, 1, (2015).
Arena S., Casti E., Cascetta M., Serra F., Cau G., Performance Analysis of Thermal Energy Storage (TES) Systems based on Sensible and Latent Heat for Concentrated Solar Power (CSP) Applications, Ricerca in Vetrina, Porto Conte (Alghero) 9-10 October 2015, Italy.
S. Arena, G. Cau, C. Palomba, Development and implementation of a 3D numerical code for designing and predicting performances of PCM thermal energy storage systems, Eurotherm Seminar 99 - Advances in Thermal Energy Storage, 28-30 May 2014, Lleida, Spagna.

Altre attività scientifiche

Ottobre 2021 – Marzo 2022. Visiting researcher presso il Department of Mechanical and Industrial Engineering of the Norwegian University of Science and Technology (NTNU), Trondheim (Norvegia). Research field: Prognostic and Health Management (PHM), and Asset Maintenance and Reliability Maintenance Docente del seminario "A strategy development process for Smart Maintenance implementation" (8h)
Novembre 2020 – Marzo 2021. Visiting researcher presso il Department of Mechanical and Industrial Engineering of the Norwegian University of Science and Technology (NTNU), Trondheim (Norvegia). Research field: Prognostic and Health Management (PHM), and Asset Maintenance and Reliability Maintenance Docente del seminario " Prognostics and Health Management (PHM) of Industrial Assets" (8h)
2 Dicembre 2019 – 5 Dicembre 2019. Visiting researcher presso il Polytechnic Institute of Research and Innovation in Sustainability (INSPIRES) - Universitat de Lleida, Lleida, Spain. Docente del seminario " Use of machine learning in industrial plant maintenance" (3h)
Gennaio 2019 – Marzo 2019. Visiting researcher presso il Politecnico di Milano, Department of Management, Economics and Industrial Engineering, Italy. Research field: Industrial Asset Lifecycle Management and Industrial Maintenance Management.
Settembre 2015 – Dicembre 2015. PhD student Visiting presso il Grea Innovació Concurrent - Universitat de Lleida, Lleida, Spain. Research field: Experimental analysis and simulation of the high temperature pilot plant from University of Lleida.
Giugno 2014 – Dicembre 2014. PhD student Visiting presso la Plataforma Solar de Almeria, CIEMAT (Centro di Investigaciones Energéticas, Medioambientales y Tecnológicas) - Almeria, Spain. Research field: Test facility for PCM thermal energy storage systems: set-up, modelling and simulation - REELCOOP project.

Ulteriori informazioni pertinenti

Vincitore del John Burbidge Best Paper Award for "Total Cost Of Ownership-Driven Methodology
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For Predictive Maintenance Implementation In Industrial Plants", APMS 2019 - Towards Smart Production Management Systems, 1-5 Settembre 2019, Austin Texas, USA
<p>Guest-editor per le seguenti Special Issues:</p> <ul style="list-style-type: none"> • Applied Sciences, Titolo della Special Issue: "Advanced Digital Technologies for the Integration of Production and Maintenance" • Sustainability, Titolo della Special Issue: "Frontier of Sustainable Manufacturing: Production Systems, Supply Chain Network Design and Maintenance"
Organizzatore della special session per IFAC WC 2023 conference dal titolo: "Maintenance and Asset Life Cycle Management for Sustainable and Resilient Manufacturing Systems"
Organizzatore della special session per APMS 2023 conference dal titolo: "Product and Asset Life Cycle Management for Sustainable and Resilient Manufacturing Systems"
Organizzatore della special session per APMS 2022 conference dal titolo: "Product and Asset Life Cycle Management in Smart and Sustainable Manufacturing Systems"
Membro dell'International Program Committee per AMEST 2022 conference.

Luogo e data

Cagliari, 04/04/2023