

Curriculum Vitae Brevis: Dr. Valentina Zaccaria

Name:	Valentina Zaccaria (female)	
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Professional Preparation

- 2017 PhD. (Tekn.Dr.) in Mechanical Engineering, Energy Systems for Environment and Transportation. University of Genoa, Italy. Thesis title: “*SOFC degradation model for cyber-physical simulations and control of fuel cell gas turbine hybrid systems*”. Advisor: Prof. Alberto Traverso.
- 2013 MSc. in Mechanical Engineering. University of Genoa, Italy.
- 2011 BSc. in Mechanical Engineering. University of Genoa, Italy.

Positions & Selected Appointments

- 2021 – Program director for Energy Engineering, Mälardalen University, Västerås, Sweden.
- 2019 – Assistant Professor in Energy Engineering, Mälardalen University, Västerås, Sweden.
- 2017 – 2019 Postdoctoral Fellow at Mälardalen University, Västerås, Sweden.
- 2014 – 2017 Research Associate at the US Department of Energy, National Energy Technology Laboratory, Morgantown, West Virginia (USA).
- 2013 – 2014 Research Assistant, Rolls Royce UTC, University of Genoa, Italy.

Thesis Supervision

Co-supervisor of 2 PhD students at MDH.

Mentor of 2 PhD students at MDH and 1 PhD student at University of Genoa.

Notable Achievements and Professional Services (incl. Selected Commissions of Trust)

- Researcher in national funded projects on energy systems diagnostics and control and bi-lateral collaboration with University of Genoa on control of biogas-fueled fuel cell gas turbine hybrid systems.
- Teaching experience in “Control of energy systems” course and “Heat and power technology” course, part of a national project and an EU-funded project for digital education, course responsible for the web-based course “Implementation of industrial control” and “Process modelling” at MDH. Invited lecture at University of Genoa, 2018-2020.
- Member of grading committee for Licentiate thesis disputations at Mälardalen University.
- Participated as reviewer for the internal evaluation board at MDH for funding visiting professors.
- Researcher within the EU funded project “BioHyPP” under Horizon2020 on the development of a pilot scale, biogas-fueled fuel cell gas turbine hybrid plant.
- Session Organizer and Session Chair for ASME Turbo Expo from 2015 to 2021, for IGTC 2020, and for ICAE 2017 and 2021. Reviewer for ASME, Applied Energy, Journal of Power Sources, and many others.
- Assisted in establishing the Cooperative Research and Development Agreement between NETL and University of Genova and an international collaboration between NETL and German Aerospace Center.
- 30 publications to peer reviewed journals or conferences, 11 presentations to peer reviewed conferences, best paper award from GPPF 2017 and ASME Turbo Expo 2018.
- Reviewed proposals for U.S. DOE funded initiatives.

Research Profile

I have worked for more than 6 years in research, with particular focus on energy and automation domains. My academic and industrial expertise is in gas turbine and fuel cells hybrid systems, automated control, energy system modelling, diagnostics, and artificial intelligence. I have worked in multi-disciplinary environments on both theoretical studies and industrial applications. I have experience in academia, industry, and governmental institutions, and I cover leadership roles at MDH.

Publications

1. V. Zaccaria, A.D. Desalegn, M. Stenfelt, K. Kyprianidis. Probabilistic model for aero-engine fleet condition monitoring. *Aerospace* 2020, 7, 66. doi:10.3390/aerospace7060066.
2. L. Mantelli, V. Zaccaria, K. Kyprianidis, M. Ferrari. A degradation diagnosis method for gas turbine – fuel cell hybrid systems using Bayesian networks. In Proceedings of the ASME TURBO EXPO 2020.
3. Zaccaria, V., Ferrari, M. L., and Kyprianidis, K. Adaptive Control of Microgas Turbine for Engine Degradation Compensation. *ASME. J. Eng. Gas Turbines Power* 2020, 142(4): 041012. <https://doi.org/10.1115/1.4044948>.
4. Zaccaria, V.; Stenfelt, M.; Sjunnesson, A.; Hansson, A.; Kyprianidis, K. A model-based solution for gas turbine diagnostics: Simulations and experimental verification. In Proceedings of the ASME TURBO EXPO 2019: Power for Land, Sea and Air, Phoenix, AZ, USA, 11–15 June 2019; GT2019-90858.
5. M. Rahman, V. Zaccaria, X. Zhao, K. Kyprianidis, “Diagnostics-Oriented Modelling of Micro Gas Turbines for Fleet Monitoring and Maintenance Optimization,” *Processes*, Volume 6, Issue 11 (2018) 216, doi:10.3390/pr6110216.
6. Zaccaria V., Tucker D., Traverso A., “Advanced gas turbine hybrid power systems to improve SOFC economic viability”, *Journal of the Global Power and Propulsion Society* 1 (2017) 28-40, doi:10.22261/U96IED.
7. Zaccaria V., Branum Z., Tucker D., “Fuel Cell Temperature Control with a Pre-Combustor in SOFC Gas Turbine Hybrids during Load Changes”, *Journal of Electrochemical Energy Conversion and Storage* 14 (2017) 031006 (8 pages), doi: 10.1115/1.4036809.
8. I. Rossi, V. Zaccaria, A. Traverso, “Advanced control for clusters of SOFC/GT hybrid systems”, *Journal of Engineering for Gas Turbine and Power* 140(5) (2018) 051703 (8 pages), doi: 10.1115/1.4038321.
9. Zaccaria V., Tucker D., Traverso A., “Cold-air Bypass Characterization for Fuel Cell Thermal Management in Fuel Cell Turbine Hybrids”, *Journal of Engineering for Gas Turbine and Power* 139(6) (2017) 062701 (8 pages), doi: 10.1115/1.4035396.
10. Zaccaria V. Tucker D., Traverso A., “Operating strategies to minimize degradation in fuel cell gas turbine hybrids”, *Applied Energy* 192 (2017) 437-445, doi:10.1016/j.apenergy.2016.10.098.