

Cesar CELIS

BScEng MSc PhD

EDUCATION & QUALIFICATIONS

- 2007-2010 **Cranfield University**, United Kingdom
PhD, School of Engineering, Department of Power & Propulsion, Gas Turbine Engineering Group (Research area: Gas Turbine Engineering)
- 2004-2006 **Pontifical Catholic University of Rio de Janeiro**, Brazil
MSc, Science and Technology Center, Department of Mechanical Engineering (Research area: Computational Fluid Dynamics and Applied Aerodynamics)
- 1998-2002 **National University of Engineering**, Peru
BSc, School of Mechanical Engineering, Department of Mechanical Engineering

WORK EXPERIENCE

- 2011-
Present Mechanical Engineering Dept., Pontifical Catholic University of Rio de Janeiro, Brazil
Research Project Coordinator
- Research work carried out in several areas including Turbulent Combustion, Turbulent Reacting Flow Modelling, Computational Fluid Dynamics, Large Eddy Simulation, Probability Density Function (PDF) Methods and Parallel Computing
- 2013-2014 GT2 Energia (GT2 Engenheiros Associados Ltda., CNPJ: 10.806.113/0001-32)
Consultant in Research and Development Projects
- Projects: (i) Development of Software (Computational Tool) for Thermomechanical Diagnostics of Gas Turbines, Company: Petrobras SA; (ii) Development of System for Online Dynamic Simulation of Power Plants Operating Conditions, Company: UTE Norte Fluminense SA (EDF Group)
- 2010-2010 Department of Power & Propulsion, Cranfield University, United Kingdom
Visiting Researcher
- 2007-2010 Department of Power & Propulsion, Cranfield University, United Kingdom
Doctoral Researcher
- Projects: (i) Clean Sky Joint Technology Initiative (JTI), Systems for Green Operations (SGO) Integrated Technology Demonstrator (ITD), Company: European Commission; (ii) Development of a 130-seat Airliner: Aircraft and Jet Engine Design, Company: China Aviation Industry Corporation I (AVIC I)
- 2006-2007 Institute of Energy, Pontifical Catholic University of Rio de Janeiro, Brazil
Project Engineer
- Projects: (i) Development of Tool for Monitoring and Diagnostics of Performance of Gas Turbines, Company: UTE Norte Fluminense SA (EDF Group); (ii) Power Augmentation Technologies for Gas Turbines, Company: UTE Norte Fluminense SA (EDF Group)
- 2004-2006 Mechanical Engineering Dept., Pontifical Catholic University of Rio de Janeiro, Brazil
Research Student
- Project: CFD/FAPESP: Analysis of Submerged Air Intakes using CFD techniques, Company: EMBRAER
- 2003-2004 Alfa Plus S.A, Peru
Consulting Engineer
- Projects: (i) Feasibility Study of the Gas Pipeline Camisea-Cusco (Company: Yura S.A.), (ii) Study of the Positioning and Installation Alternatives of a Combined Cycle Power Plant using Natural Gas (Company: Enersur)

COMPUTING SKILLS

General: FLUENT (Flow Modeling Software), ANSYS CFX (Fluid flow analysis and design optimization software), ANSYS ICEM CFD (Mesh generation tool), CFD++ (Computational Fluid Dynamics software), SolidWorks (3D CAD Design Software), AutoCAD (CAD software). **Programming:** FORTRAN, C, C++, Java, MatLab

SELECTED PUBLICATIONS

Scientific Journals

Celis, C. and Figueira da Silva, L. F., 2015, "Study of Mass Consistency LES/FDF Techniques for Chemically Reacting Flows", *Combustion Theory and Modelling (Article under revision)*.

Celis, C., Sethi, V., Singh, R., Pilidis, P., 2015, "On Optimisation of Environmentally Friendly Aircraft Engine Cycles", *Journal of Aerospace Technology and Management (Article accepted for publication)*.

Celis, C. and Figueira da Silva, L. F., 2015, "Lagrangian Mixing Models for Turbulent Combustion: Review and Prospects", *Flow, Turbulence and Combustion*, Vol. 94, No. 3, pp. 643-689.

Celis, C., Sethi, V., Zammit-Mangion, D., Singh, R., Pilidis, P., 2014, "Theoretical Optimal Trajectories for Reducing the Environmental Impact of Commercial Aircraft Operations", *Journal of Aerospace Technology and Management*, Vol. 6, No. 1, pp. 29-42.

Celis, C., Ferreira, S. B., Figueira da Silva, L. F., Jesus, A. B., and Oliveira, G. L., 2007, "Computational Study of Submerged Air Inlets Performance Improvement Using Vortex Generators", *Journal of Aircraft*, Vol. 44, No. 5, pp. 1574-1587.

Symposiums, Conferences and Proceedings

Celis, C., Xavier, E., Teixeira, T., and Pinto, G. R. S., 2014, "Steady State Detection in Industrial Gas Turbines for Condition Monitoring and Diagnostics Applications", GT2014-25007, Proceedings of GT2014, ASME Turbo Expo 2014, Turbine Technical Conference and Exposition, Dusseldorf, Germany.

Celis, C. and Figueira da Silva, L. F., 2013, "On Mass Consistency Techniques used in LES/PDF Simulations of Turbulent Reacting Flows", Eighth Mediterranean Combustion Symposium, Çesme, Turkey.

Ogaji, S., Sethi, V., Pilidis, P., Singh, R., Celis, C., Di Lorenzo, G., and Zammit-Mangion, D., 2010, "Power Plant Selection and Deployment: The TERA (Technoeconomic Environmental Risk Analysis)", 5th ETN (European Turbine Network) Intl. Gas Turbine Conference, The Future of Gas Turbine Technology, Brussels, Belgium.

Goulos, I., Pachidis, V., Celis, C., D'Ippolito, R., Stevens, J., 2010, "Simulation Framework Development for Aircraft Mission Analysis", GT2010-23379, Proceedings of GT2010, ASME Turbo Expo 2010, Glasgow, UK.

Celis, C., Long, R., Sethi, V., and Zammit-Mangion, D., 2009, "On Trajectory Optimisation for Reducing the Impact of Commercial Aircraft Operations on the Environment", 19th Conference of the International Society for Air Breathing Engines, ISABE-2009, Montréal, Canada.

Celis, C., Moss, B., and Pilidis, P., 2009, "Emissions Modelling for the Optimisation of Greener Aircraft Operations", GT2009-59211, Proceedings of GT2009, ASME Turbo Expo 2009, Power for Land, Sea and Air, Orlando, Florida, US.

Celis, C., Mohseni, M., Kyprianidis, K., Sethi, V., Ogaji, S., Haslam, A., and Pilidis, P., 2008, "Multidisciplinary Design Optimization of Aero Engines: Environmental Performance-based Methodology", International Symposium on Compressor & Turbine Flow Systems – Theory & Application Areas, SYMKOM'08, Lodz, Poland.

Celis, C., Pinto, P. M. R., Barbosa, R. S., and Ferreira, S. B., 2008, "Modeling of Variable Inlet Guide Vanes Affects on a One Shaft Industrial Gas Turbine Used in a Combined Cycle Application", GT2008-50076, Proceedings of GT2008, ASME Turbo Expo 2008, Power for Land, Sea and Air, Berlin, Germany.

Celis, C., Ferreira, S. B., and Braga, S. L., 2007, "Evaluation of Different Alternatives of Power Augmentation for a Combined Cycle Power Plant in Brazil", GT2007-27172, Proceedings of GT2007, ASME Turbo Expo 2007, Power for Land, Sea and Air, Montreal, Canada.

Celis, C., Ferreira, S. B., Figueira da Silva, L. F., Jesus, A. B., and Oliveira, G. L., 2006, "Numerical Study of the Performance Improvement of Submerged Air Intakes Using Vortex Generators", 25th Congress of the International Council of the Aeronautical Sciences, Hamburg, Germany.