# Marcin Wyrozębski

*Curriculum Vitae*

*mwyr.github.io*
*marcin-wyrozebski*
*mwyr*

## Experience

2018 – now **Software Engineer**, GMV Innovating Solutions.

Software Engineer (Sep 2018 – now)

- Architecture design, development and maintenance of software
- Testing and validation of implemented algorithms
- Preparation of documentation
- Participation in meeting with clients, including presentation of obtained results
- Technologies and tools used: C++, CMake, Boost.Test, OpenMP, Matlab, Git/GitLab/Subversion, Jenkins, Linux
- Projects: EarthCARE L0PF/OAPF, Swarm-DISC L1BOP, MetopSG SCA GPP, Biomass/Flex L0PF/OAPF

Acting Project Manager (Jul 2020 – Dec 2020)

- Activity planning and monitoring progress
- Leading the team of developers
- Reporting to supervisor and client

2013 – 2019 **PhD Candidate Researcher**, Division of Aerodynamics, Institute of Aeronautics and Applied Mechanics, Faculty of Power and Aeronautical Engineering, Warsaw University of Technology.

Research area: Use of second-order sensitivities for geometrical uncertainty quantification in aerodynamic design.

- Development of novel numerical uncertainty quantification methods
- Development of tools for modelling flow problems and optimization using the adjoint method
- Dissemination of results in scientific journals
- Presentation of results at international conferences
- Participation in european (7th Frame Programme – IDIHOM, UMRIDA) and national projects (INNOLOT)
- Technologies and tools used:
  - C, C++, Python, Matlab, Bash, OpenMP, MPI, HPC
  - Git/Subversion, Windows/Linux

09-12.2017 **Senior CFD Code Developer**, *QuickerSim Ltd.*.

Small gas turbine optimization project.

- perform simulations using Ansys CFX
- computational mesh generation with Gmsh
- periodic boundary conditions implementation in QuickerSim CFD Toolbox for MATLAB

09.2015 **Visiting PhD Researcher**, *Inria Sophia-Antipolis Mediterranee, Francja*.

- Application of an Automatic Differentiation tool Tapenade developed by Tropics group at Inria Sophia Antipolis Mediterranee for an in-house WUT solver based on Residual Distribution Method.

## Education

2013 – 2019 **PhD studies**, *Computational Fluid Dynamics*, Faculty of Power and Aeronautical Engineering, Warsaw University of Technology.

2008–2013 **Bachelor and Master studies**, *Mechanical Engineering*, Faculty of Power and Aeronautical Engineering, Warsaw University of Technology.

- Computer Aided Design
- M.Sc. diploma (with honours) – Unsteady simulations with Residual Distribution Scheme, dr inż. Jerzy Majewski
- B.Sc. diploma – Simulation of conductivity and convection problems with a novel discretization scheme, prof. dr hab. inż. Jacek Rokicki

## Publications

2018 **Majewski, J., Szałtys, P., Wyrozębski, M.**, *Residual distribution method for high Reynolds number simulations on complex geometries.*, Computers & Fluids 166 (April 2018) 104–116.

2017 **Wyrozębski, M., Łaniewski-Wołłk, Ł., Rokicki, J.**, *Second-Order Derivatives for Geometrical Uncertainties*, In: Uncertainty Management for Robust Industrial Design in Aeronautics : Findings and Best Practice Collected During UMRIDA, a Collaborative Research Project (2013-2016) Funded by the European Union, Eds.: Hirsch, C., Wunsch, D., Szumbarski, J., Łaniewski-Wołłk, Ł., Pons-Prats, J..

## Conference presentations

20-22.09.2016r **UMRIDA Workshop on Uncertainty Quantification and Robust Design Optimization**, *M. Wyrozębski, Ł. Łaniewski-Wołłk*, Efficient Usage of 2nd Order Sensitivity for Uncertainty Quantification, Vrije Universiteit Brussels, Belgium.

5-8.04.2016r **SIAM Conference on Uncertainty Quantification 2016**, *M. Wyrozębski, Ł. Łaniewski-Wołłk, J. Rokicki*, Efficient Usage of 2nd Order Sensitivity for Uncertainty Quantification, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland.

29.06-3.07.2015r **6th European Conference for Aeronautics and Space Sciences**, *M. Wyrozębski, J. Majewski*, Residual Distribution Scheme in Adaptive Simulation of 3D High-Reynolds Flow Past HLPW-1 Geometry, ICE Kraków.

## Others

2016 Member of Local Organising Commitee of the 8th European Postgraduate Fluid Dynamics Conference, Warsaw, 6-9.07.2016r.

2014 Award Winner in National Competition on Best Master Thesis for Computational Methods Application in Simulations of Thermal-Flow Processes, Edition 2013, Institue of Thermal Technology, under the auspices of ERCOFTAC.