

NIKOLAOS KYRIAZIS

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EDUCATION

Embry-Riddle Aeronautical University, Daytona Beach, Florida *December 2014*

Master of Science in Aerospace Engineering

Thesis Topic: A continuous/discontinuous FE method for the 3D incompressible flow equations.

Overall GPA: 3.71/4.0

University of Patras, Greece *December 2011*

Five year curriculum MS equivalent degree in Mechanical & Aerospace Engineering

Thesis Topic: Numerical solution of the linear convection-diffusion equations using discontinuous Galerkin method.

Overall GPA: 8.02/10.0

Relevant Coursework: Advanced Compressible and Incompressible Flow, Aerodynamics, Turbulent Flow, Computational Fluid Dynamics, Finite Element Analysis, Structural Mechanics.

RESEARCH AND WORK EXPERIENCE

International Institute for Cavitation Research, City University London *October 2015 - present*

Research Fellow

London, UK

- Develop software for accurately predicting the cavitation phenomena in injector nozzles using Homogeneous Equilibrium Methods.

Wind tunnel lab, Embry-Riddle Aeronautical University *January 2013 - December 2014*

Teaching Assistant

Daytona Beach, FL

- Supervised wind tunnel experiments and taught sections of 8 students in the Experimental Aerodynamics Lab.

National Technical University of Athens (NTUA) *December 2012 - December 2013*

First Stage Researcher

Athens, Attica, GR

- Worked as part of a team in the Research Funding Program THALES: Expertise development for the aeroelastic analysis and the design-optimization of wind turbines. Created a viscous incompressible flow solver using Finite Element Method.

Foundation for Research and Technology Hellas (FORTH) *March 2011 - November 2012*

First Stage Researcher

Heraklion, Crete, GR

- Constructed a parallel, high order scheme for the compressible Reynolds-averaged Navier-Stokes equations in the modal basis discontinuous Galerkin framework. The Spalart-Allmaras turbulence model was used and a three dimensional shock tube simulation was made.
- Developed a parallel algorithm for the unsteady, three dimensional linear elasticity equations using Finite Element discretization in the continuous Galerkin framework. The code was validated for several steady and unsteady cases.

PROJECT EXPERIENCE

Wind Turbine Simulation: The mesh was created and numerical investigation of the flow around a wind turbine was made, either using moving reference frame or moving mesh approximation in Ansys Fluent 14.

Finite Difference and Finite Volume Codes: Algorithms for the two dimensional, compressible Euler equations were implemented, using the van Leer flux and Riemann non reflecting boundary conditions. The codes were validated for an oblique shock among others.

Aerodynamic Evaluation of a 3D Orbiter: Simulation during supersonic flight was conducted in order to determine the angle of attack for maximum glide slope. The mesh was created using Pointwise 17 and the simulation was made using Ansys Fluent 14.

SKILLS

Programming	C, C++, Fortran, MPI
Operating Systems	MS Windows, Unix
Tools	Pointwise, Gambit, Ansys Fluent, OpenFOAM, Patran, Nastran, Tecplot, ParaView, SolidWorks, LaTeX, MS Office
Languages	English, Greek (fluent), German (basic)

JOURNALS AND CONFERENCES

Kyriazis, N., Papoutsakis, A., Panourgias, K. and Ekaterinaris, J., “Numerical investigation of the effect of turbulence modeling for flows with shocks and vortical structures,” AIAA Paper 2013-0406, 51st AIAA Aerospace Science Meeting, 2013.

Kyriazis, N. and Ekaterinaris, J., “A mixed continuous/discontinuous finite element discretization of the incompressible NS equations,” AIAA Paper 2015-0821, 53rd AIAA Aerospace Science Meeting, 2015.