

Claudio Cairoli

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EDUCATION

Massachusetts Institute of Technology (MIT), Cambridge, MA

Doctor of Philosophy in Naval Architecture and Marine Engineering

February 2007

Developed a theoretical and numerical procedure for predicting sailing yacht complete hydrodynamic forces and wave pattern, using a new coupled inviscid/viscous method. Validated results using experimental data from towing tank tests. Research supervisor: Prof. Jerome Milgram.

GPA: 5.0/5.0

Master of Science in Naval Architecture and Marine Engineering

February 2002

Analyzed the hydrodynamic force model of the IMS velocity prediction program. Compared numerical drag predictions with experimental forces. Proposed new and improved model for upright resistance and resistance due to heel. Developed 14m cruiser/racer yacht, including hull and appendage design, rig design and dimensioning, structural analysis using ABS scantling rule, performance analysis using IMS style VPP.

GPA: 5.0/5.0

University of Virginia (UVA), Charlottesville, VA

Master of Science in Mechanical and Aerospace Engineering

June 2000

Analyzed the performance of an outward opening fuel injector for automotive gasoline engines under different operating conditions using commercial CFD software modified to fit the problem. Developed software for the thermal analysis of a sensor casing to be installed on a suborbital rocket.

GPA: 4.0/4.0

Politecnico di Milano, Milan, Italy

Completed four years of Aerospace Engineering Degree

June 1998

Coursework included: Advanced Calculus, Advanced Numerical Methods, Structural Analysis, Fluidynamics, Aerodynamics.

GPA: 28.5/30.0

Course on "Design and Construction of High-Technology Sailing Yacht Design"

May 1997

Series of seminars and lectures in yacht design and technology given by leading figures in the industry, organized in collaboration with the Italian association of yacht designers and builders (ASPRONADI).

EXPERIENCE

Massachusetts Institute of Technology (MIT), Cambridge, MA

January – May 2007

Lecturer for "Sailing Vessel Design" course.

- In charge of organizing and leading design lab sessions; responsible for writing and grading projects and quizzes.
- Taught topics include: hull and appendage design, rig design and dimensioning; structural calculations using ABS scantling rules, stability analysis, and performance evaluation using IMS style VPP.

Kiwi Magic LLC, West Palm Beach, FL

September 2005 – June 2007

Member of the design team.

- Participated in the refitting and updating of the 12 Meter class yacht KZ-7 "Kiwi Magic".
- Developed digital model of original keel and designed two new candidate keels for tank testing.
- Participated and supervised tank testing sessions at facilities in Canada and the UK.
- Updated in-house VPP for performance analysis; analyzed experimental data from towing tank and wind tunnel.

Applied Fluid Technologies, Annapolis, MD

November 2007 – April 2010

Computational Fluid Dynamics Specialist.

- Member of the Computational Fluid Dynamics team for the development of the aerodynamic package for the BMW Oracle Racing team, winner of the 33rd America's Cup.
- Setup and run RANS computer simulations for soft sails, rigid wing with and without foresails, for a range of wind conditions; post-processed and analyzed the results of the RANS simulation and advised on development ideas.
- Helped with the development of the RANS software used for the simulations.
- Participated in many other projects, including: wind tunnel session, reconnaissance, development, installation and testing of the polymer injection hydrodynamic drag reduction system.

Applied Fluid Technologies, Annapolis, MD

June 2010 – present

Computational Fluid Dynamics Specialist, Naval Architect.

- Member of the design team to develop a high-performance kiteboat.
- Developed a computational model of the vessel to predict performance improvements with design changes.
- Designed a new low-drag keel foil for the boat.

LEADERSHIP

- **Teaching Assistant, MIT.** Formulated the problems sets and helped develop the course content for a graduate design course and a computational course. Organized and taught the design lab lectures and graded the problem sets and final projects.
- **Sailing Instructor, Como, Italy.** Organized and led sailing courses for several years for all skill levels.
- **Sailing Team Skipper, Marblehead, MA.** Organized boat and crew for three racing seasons, earning qualifications to several interfleet regattas including IOD World Championship in 2005.

AWARDS, SKILLS, and INTERESTS

- *Carlos A. and Esther H. Farrar Endowed Fellowship* (competitive), 1999-2000 academic year, research or teaching assistantship for every academic year.
- Proficient in MS Office suite, MaxSurf suite, Fortran and Matlab, Rhinoceros and knowledge of AutoCAD.
- US Sailing member since 2001, and FIV (Italian Sailing Federation) since 1987.
- Sailing and racing (inshore and offshore), skiing, snowboarding, designing and building anything.