

**FORMATO EUROPEO  
PER IL CURRICULUM  
VITAE**



**INFORMAZIONI PERSONALI**

Nome **DIEZ, Matteo**  
Indirizzo **Consiglio Nazionale Delle Ricerche - CNR  
Istituto Nazionale per Studi ed Esperienze di Architettura Navale - INSEAN  
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**ESPERIENZA LAVORATIVA**

- Date (da – a) Da 30 Dicembre 2016 a oggi
- Nome e indirizzo del datore di lavoro **Consiglio Nazionale delle Ricerche, Istituto Nazionale per Studi ed Esperienze di Architettura Navale INSEAN**  
Via di Vallerano 139, 00128 Roma, Italia  
Ente pubblico di ricerca  
**Ricercatore III livello (con contratto a tempo indeterminato)**  
Ricerca nel campo delle metodologie di ottimizzazione deterministiche e stocastiche per l'ingegneria marina e marittima, mediante simulazioni idrodinamiche ed accoppiate fluido-struttura; responsabilità di progetti di ricerca finanziati dall'US Navy Office of Naval Research; partecipazione a progetti finanziati dalla Commissione Europea nell'ambito del programma Horizon 2020 e da partner industriali e altri enti pubblici
- Tipo di azienda o settore Ente pubblico di ricerca
- Tipo di impiego **Ricercatore III livello (con contratto a tempo determinato)**
- Principali mansioni e responsabilità Ricerca nel campo delle metodologie di ottimizzazione deterministiche e stocastiche per l'ingegneria marina e marittima, mediante simulazioni idrodinamiche ed accoppiate fluido-struttura; responsabilità di progetti di ricerca finanziati dall'US Navy Office of Naval Research
- Date (da – a) Da 2 Novembre 2012 a 29 Dicembre 2016
- Nome e indirizzo del datore di lavoro **Consiglio Nazionale delle Ricerche, Istituto Nazionale per Studi ed Esperienze di Architettura Navale INSEAN**  
Via di Vallerano 139, 00128 Roma, Italia  
Ente pubblico di ricerca  
**Ricercatore III livello (con contratto a tempo determinato)**  
Ricerca nel campo delle metodologie di ottimizzazione deterministiche e stocastiche per l'ingegneria marina e marittima, mediante simulazioni idrodinamiche ed accoppiate fluido-struttura; responsabilità di progetti di ricerca finanziati dall'US Navy Office of Naval Research
- Tipo di azienda o settore Ente pubblico di ricerca
- Tipo di impiego **Ricercatore III livello (con contratto a tempo determinato)**
- Principali mansioni e responsabilità Ricerca nel campo delle metodologie di ottimizzazione deterministiche e stocastiche per l'ingegneria marina e marittima, mediante simulazioni idrodinamiche ed accoppiate fluido-struttura; con enfasi su analisi ad alta fedeltà e loro validazione sperimentale; partecipazione a progetti di ricerca finanziati dall'US Navy Office of Naval Research
- Date (da – a) Da 3 Aprile 2011 a oggi (non continuativo)
- Nome e indirizzo del datore di lavoro **The University of Iowa, IHR—Hydroscience & Engineering**  
100 C. Maxwell Stanley Hydraulics Laboratory, Iowa City, Iowa 52242-1585, USA  
Università  
**Visiting Researcher** (ricercatore in visita)
- Tipo di azienda o settore Università
- Tipo di impiego **Visiting Researcher** (ricercatore in visita)
- Principali mansioni e responsabilità Ricerca nel campo delle metodologie di ottimizzazione deterministiche e stocastiche per l'ingegneria marina e marittima, mediante simulazioni idrodinamiche ed accoppiate fluido-struttura, con enfasi su analisi ad alta fedeltà e loro validazione sperimentale; partecipazione a progetti di ricerca finanziati dall'US Navy Office of Naval Research

- Date (da – a)
- Nome e indirizzo del datore di lavoro

- Tipo di azienda o settore
  - Tipo di impiego
- Principali mansioni e responsabilità

- Date (da – a)
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  - Tipo di impiego
- Principali mansioni e responsabilità

## ISTRUZIONE E FORMAZIONE

- Date (da – a)
- Nome e tipo di istituto di istruzione o formazione

- Principali materie / abilità professionali oggetto dello studio

- Qualifica conseguita

- Date (da – a)
- Nome e tipo di istituto di istruzione o formazione

- Principali materie / abilità professionali oggetto dello studio

- Qualifica conseguita
  - Voto

Da 1 Gennaio 2011 a 31 Ottobre 2012

### **Consiglio Nazionale delle Ricerche, Centro di Responsabilità Istituto Nazionale per Studi ed Esperienze di Architettura Navale INSEAN**

Via di Vallerano 139, 00128 Roma, Italia

Ente pubblico di ricerca

#### **Ricercatore (con contratto di collaborazione coordinata e continuativa)**

Ricerca nel campo dell'ottimizzazione della forma di carena di un veicolo propulso per gravità da impiegare in un sistema di monitoraggio sottomarino finalizzata al miglioramento globale delle caratteristiche di manovrabilità; partecipazione a progetti di ricerca finanziati dall'UE e dall'US Navy Office of Naval Research

Da 3 Novembre 2008 a 31 Dicembre 2010

### **Istituto Nazionale per Studi ed Esperienze di Architettura Navale INSEAN**

Via di Vallerano 139, 00128 Roma, Italia

Ente pubblico di ricerca

#### **Ricercatore (con contratto di collaborazione coordinata e continuativa)**

Studio e sviluppo di meta-modelli ibridi per l'approssimazione di funzioni complesse per l'analisi delle prestazioni idrodinamiche e dell'interazione fluido-struttura; ricerca nel campo delle metodologie di ottimizzazione deterministiche e stocastiche per l'ingegneria marina e marittima, mediante simulazioni multi-fedeltà; partecipazione a progetti di ricerca finanziati dall'US Navy Office of Naval Research

Da 1 Febbraio 2010 a 31 Gennaio 2012

### **Università Roma Tre, Dipartimento di Ingegneria Meccanica e Industriale**

Via della Vasca Navale 79, 00146 Roma, Italia

Università

#### **Assegnista di ricerca**

Sviluppo di algoritmi multi-fedeltà per l'ottimizzazione multidisciplinare in presenza di variabili aleatorie

1 Novembre 2003 – 14 Marzo 2007 (XIX ciclo dottorato di ricerca)

### **Università Roma Tre, Dipartimento di Ingegneria Meccanica e Industriale**

Il candidato ha curato una tesi di dottorato di ricerca avente titolo "Sviluppo di modelli analitici e numerici per la progettazione multidisciplinare di velivoli per uso civile" (docente guida: Prof. Luigi Morino)

#### **Dottorato di Ricerca in Ingegneria Meccanica e Industriale**

1 Ottobre 1996 – 21 Luglio 2003

### **Università Roma Tre, Facoltà di Ingegneria**

Il candidato ha curato una tesi di laurea avente titolo: "Olografia digitale e decomposizione di Karhunen e Loève per l'identificazione modale di strutture" (relatore: Prof. Umberto Iemma; correlatore: Prof. Luigi Morino)

#### **Laurea in Ingegneria Meccanica (vecchio ordinamento)**

110/110 e lode

**PREMI, RICONOSCIMENTI E  
BORSE DI STUDIO E  
COLLABORAZIONE**

- Consiglio Nazionale delle Ricerche; Short Term Mobility Program 2016; Research project "High-fidelity tightly-coupled CFD/CSM FSI/MDO for composite bottom panels of high-speed planing hulls slamming in waves"; Host Institution: The University of Iowa; Host: Prof. F. Stern
- Consiglio Nazionale delle Ricerche; Short Term Mobility Program 2015; Research project "High fidelity CFD/FE two-way FSI for high-speed planing hull slamming with composite bottom panels"; Host Institution: The University of Iowa; Host: Prof. F. Stern
- Fellowship finanziata dalla EU, 2004; Acoustics Seminar, International Engineering Physics Program, School of Mathematics and Science, University of Oldenburg, Germany
- Borsa di collaborazione, Università Roma Tre, 2001-2002; Dipartimento di Ingegneria Meccanica e Industriale, Roma, Laboratorio di Misure Meccaniche e Termiche
- Borsa di studio finanziata dalla EU, programma SOCRATES/ERASMUS, 2000-2001; Faculty of Mechanical Engineering, Czech Technical University, Prague, Czech Republic
- Borsa di collaborazione, Università Roma Tre, 1998-1999, 1999-2000; Dipartimento di Ingegneria Meccanica e Industriale, Roma
- Borsa di collaborazione, Università Roma Tre, 1997-1998; Servizi Bibliotecari di Ateneo, Roma

**PROGETTI DI RICERCA E GRANT  
INTERNAZIONALI CON RUOLI DI  
RESPONSABILITA'**

1. US Office of Naval Research (ONR), NICOP grant N62909-15-1-2016 "Stochastic SBD for Reduction of Added-Powering/Motions/Slamming for Surface Ships in Real Seas"; \$140,000; 5/2015 – 4/2017; Grantee: CNR-INSEAN, PI: Matteo Diez, Co-PI: Emilio F. Campana
2. US Office of Naval Research (ONR), NICOP grant N62909-11-1-7011 "Stochastic Variable Physics Simulation-Based Design (SBD) for High Speed Waterjet Ships"; \$205,000; 9/2011 – 8/2014; Grantee: CNR-INSEAN, PI: Matteo Diez, Co-PI: Emilio F. Campana

**PROGETTI DI RICERCA E GRANT  
INTERNAZIONALI E NAZIONALI**

1. Italian Ministry of Education, University and Research, National Research Program 2011-2013. RITMARE Flagship Project "IV anno", Subproject 1 "Maritime Technologies," subtask SP1-L11-WP1-UO03 "Riduzione dell'impatto del wave wash sull'ambiente costiero"; EUR 68,814; Dates: 1/1/2016 – ongoing; Grantee: CNR-INSEAN, subproject PI: Emilio F. Campana, subtask PI: Riccardo Brogna, subtask Co-PI: Matteo Antuono, Matteo Diez,
2. European Commission, Horizon 2020 Program, Research Project, ID: 689074, HOLISHIP "Holistic optimization of ship design and operation for life cycle"; EUR 207,916; Dates: 1/9/2016 – 31/8/2020; Grantee: CNR-INSEAN, PI: Riccardo Brogna, Co-PI: Matteo Diez, Francesca Magionesi, Daniele Ranocchia
3. Regione Lombardia, Programma Operativo Regionale 2014-2020, Obiettivo "Investimenti in Favore della Crescita e dell'Occupazione", Progetto: "Sistema Innovativo Integrato di Ventilazione Industriale in Materiali Compositi (VINMAC)"; EUR 202,819; Dates: 1/4/2016 – 6/12/2018; Grantee: CNR-INSEAN, PI: Riccardo Brogna; Co-PI: Matteo Diez, Danilo Durante
4. US Office of Naval Research (ONR), grant N000141410584 "CFDShip-Iowa Code Development, Fluid-Structure Interaction and V and V for Semi-Planing and Deep-V Planing Hulls"; Dates: 1/4/2014 – 31/3/2017; Grantee: The University of Iowa, PI: Frederick Stern, Co-PI: Matteo Diez, Sayyed Maysam Mousaviraad, Zhaoyuan Wang,
5. DLTM, Liguria District of Marine Technology, Italy; "USV PERMARE, Autonomous surface vehicle for marine environment monitoring system"; EUR 236,145; Dates: 1/2015 – 12/2016; Grantee: CNR-INSEAN, PI: Stefano Zaghi, Co-PIs: Matteo Diez, Luca Mauro, Francesco Salvatore
6. Ministero dell'Istruzione, dell'Università e della Ricerca, Progetto TRIM "Tecnologia e Ricerca Industriale per la Mobilità Marina"; EUR 1,136,640; Dates: 1/1/2014 – 31/12/2016; Grantee: CNR-INSEAN, PI: Enrico De Bernardis; Co-PI: Matteo Diez (assieme ad altri)
7. Technip Italy, "Light catamaran floatover basin test campaign"; EUR 248,000; Dates: 1/2015 – 12/2016; Grantee: CNR-INSEAN, PI: Daniele Dessi, Co-PI: Matteo Diez

8. Technip Italy, "Numerical simulation and model test for catamaran float over installation/decommissioning"; EUR 60,000; Dates: 9/2014 – 9/2015; Grantee: CNR-INSEAN, PI: Daniele Dessi, Co-PI: Matteo Diez
9. US Office of Naval Research (ONR), grant N00014-14-1-0195 "Stochastic SBD for Reduction of Added-Powering/Motions/Slamming for Surface Ships in Real Seas"; Dates: 10/2013 – 9/2016; Grantee: The University of Iowa, PI: Frederick Stern, Co-PI: Matteo Diez
10. US Office of Naval Research (ONR), grant N00014-13-1-0617 "Integrated High-Fidelity CFD/FE FSI Code Development and Benchmark Full-Scale Validation EFD for Slamming Analysis"; Dates: 10/2013 – 9/2015; Grantee: The University of Iowa, PI: Frederick Stern, Co-PI: Matteo Diez, Hamid Sadat-Hosseini
11. Italian Ministry of Education, University and Research, National Research Program 2011-2013. RITMARE Flagship Project, Subproject 1 "Maritime Technologies," subtask SP1\_WP2\_AZ2\_UO06 "CO2 emission reduction"; EUR 231,982; Dates: 1/2012 – 12/2016; Grantee: CNR-INSEAN, subproject PI: Emilio F. Campana, subtask PI: Matteo Diez
12. Italian Ministry of Education, University and Research, National Research Program 2011-2013. RITMARE Flagship Project, Subproject 1 "Maritime Technologies," subtask SP1\_WP2\_AZ3\_UO08 "Acoustic emission reduction"; EUR 100,000; Dates: 1/2012 – 12/2016; Grantee: CNR-INSEAN, subproject PI: Emilio F. Campana, subtask PI: Matteo Diez
13. Italian Ministry of Education, University and Research, National Research Program 2011-2013. RITMARE Flagship Project, Subproject 2 "Technologies for Sustainable Fishing," action SP2\_WP3\_AZ1 "Energy efficiency and environmental impact"; EUR 630,000; Dates: 1/2012 – 12/2016; and subtask SP2\_WP3\_AZ1\_UO03 "Hull/propeller optimization"; EUR 200,000; 1/2012 – 12/2016; Grantee: CNR-INSEAN, subproject PI: Fabio Fiorentino, subtask PI: Matteo Diez
14. US Office of Naval Research (ONR), grant N00014-1-11-0237 "Stochastic Variable Physics SBD for High Speed Waterjet Ships"; Dates: 10/2010 – 9/2013; Grantee: The University of Iowa, PI: Frederick Stern, Co-PIs: Matteo Diez, Sayyed Maysam Mousaviraad
15. European Commission, FP7, Collaborative Project, grant no. ACP8-GA-2009-234118 "COSMA, Community Oriented Solutions to Minimise Aircraft Noise Annoyance"; EUR 213,840; Dates: 6/2009 - 3/2013; Grantee: University of Roma Tre, PI: Umberto Iemma, Co-PIs: Francesco Centracchio, Matteo Diez, Cecilia Leotardi
16. US Office of Naval Research (ONR), NICOP grant N62909-12-1-7082 "Experimental study of static drift and stochastic added resistance for the Delft Catamaran"; \$180,000; Dates: 5/2012 – 4/2015; Grantee: CNR-INSEAN, PI: Riccardo Broglio, Co-PIs: Matteo Diez, Luigi Fabbri
17. US Office of Naval Research (ONR), NICOP grant N00014-08-1-0957 "Variable Physics Simulation-Based Design (SBD) for High Speed Waterjet Ships"; \$175,000; Dates: 4/2008 – 4/2011; Grantee: CNR-INSEAN, PI: Emilio F. Campana, Co-PIs: Matteo Diez, Daniele Peri
18. Italian Navy, Project ViSIR "Numerical and experimental test of the interaction effects during replenishment at sea"; Dates: 10/2005 – 9/2008; Grantee: CNR-INSEAN, PI: Daniele Peri, Co-PI: Matteo Diez
19. European Commission, FP6, Specific Targeted Research Project, grant no. AST-CT-2003-502865 "SEFA, Sound Engineering For Aircraft"; EUR 147,000; Dates: 2/2004 - 1/2007; Grantee: University of Roma Tre, PI: Umberto Iemma, Co-PIs: Matteo Diez, Vincenzo Marchese

**ATTIVITA' ED INCARICHI  
PROFESSIONALI,  
PARTECIPAZIONE A GRUPPI DI  
LAVORO**

- Italian national expert (in rappresentanza del CNR Istituto INSEAN), European Public Private Partnership (PPP) "Vessel for the future", Task Group 8 "Pan European Vessel Demonstrator" (2014-oggi)
- Technical Team Member (in rappresentanza del CNR Istituto INSEAN), NATO Science and Technology Organization, Applied Vehicle Technology, AVT-252 (former ET-142), "Stochastic Design Optimization for Naval And Aero Military Vehicles" (2016-2018)
- Technical Team Member (in rappresentanza del CNR Istituto INSEAN), NATO Science and Technology Organization, Applied Vehicle Technology, AVT-237, "Benchmarks in Multidisciplinary Optimization and Design for Affordable Military Vehicles" (2015-2017)
- Technical Team Member (in rappresentanza del CNR Istituto INSEAN), NATO Science and Technology Organization, Applied Vehicle Technology, AVT-204, "Assess the Ability to Optimize Hull Forms of Sea Vehicles for Best Performance in a Sea Environment" (2012-2015)
- Technical Team Member (in rappresentanza del CNR Istituto INSEAN), NATO Science and Technology Organization, Applied Vehicle Technology, AVT-191, "Application of Sensitivity Analysis and Uncertainty Quantification to Military Vehicle Design" (2011-2014)
- Member (in rappresentanza del CNR Istituto INSEAN), ERCOFTAC (European Research Community On Flow, Turbulence And Combustion), Special Interest Group in Uncertainty Quantification in Industrial Analysis and Design (SIG45, 2012-oggi)
- Reviewer for scholarly journals, conferences and international panels:
  - Journal of Computational Physics
  - Acta Mechanica Sinica
  - Acta Astronautica
  - Computer Methods in applied Mechanics and Engineering
  - Computer and Fluids
  - Engineering Optimization
  - Structural Multidisciplinary Optimization
  - Ocean Engineering
  - Journal of Ship Research
  - Ship and Offshore Structures
  - Journal of Marine Science and Technology
  - SNAME Transactions
  - Communications in Applied and Industrial Mathematics
  - Applied Sciences
  - International Journal of Civil Aviation
  - Enterprise Risk Management
  - SNAME Maritime Convention
  - SNAME Technical, Research & Development Panel 19, guidelines for "Ship Hull Optimization"
- Conference invited session organizer and chair:
  - VII International Congress on Computational Methods in Marine Engineering - MARINE 2017, Nantes, France, Invited Session on "Deterministic and stochastic simulation-based design analysis and optimization in marine engineering," Co-Chair with Prof. Charles Hirsch
- Conference session chair:
  - Numerical Towing Tanks Symposium, NuTTS 2015, Cortona, Italy;
  - VI International Conference on Computational Methods for Coupled Problems in Science and Engineering, COUPLED PROBLEMS 2015, Venice, Italy;
  - Numerical Towing Tanks Symposium, NuTTS 2014, Mastrand, Sweden;
  - International Forum on Aeroelasticity and Structural Dynamics, IFASD 2009, Seattle, USA
- Membro di commissione di concorso per assegno di ricerca presso CNR
  - Presidente, Bando INSEAN-004-2016-RM per assegno post dottorale
  - Presidente, Bando INSEAN-005-2016-RM per assegno professionalizzante
  - Supplente, Bando INSEAN-007-2016-RM per assegno senior
  - Segretario, Bando INSEAN-003-2015-RM per assegno professionalizzante

- Member, Ph.D. Examination Committee of Florian Vesting (advisor Prof. Rickard Bensow), "Methods for constrained propeller blade optimisation", Dept. of Shipping and Marine Technology, Division of Marine Technology, Chalmers University of Technology, Goteborg, Sweden, Ottobre 2015
- Membro di Commissione di Laurea Triennale e Specialistica/Vecchio Ordinamento, Università Rome Tre, Facoltà di Ingegneria, 2004-2013
- Abilitato all'esercizio della professione di Ingegnere ed iscritto all'Ordine degli Ingegneri della Provincia di Roma; Numero di iscrizione: 30813 Sezione A; Settore: Civile e ambientale, Industriale, Dell'Informazione; Specializzazione: Ingegneria Meccanica

## CAPITOLI DI LIBRI

1. Serani A., Diez M., Campana E.F., Fasano G., Peri D., Iemma U., "Globally Convergent Hybridization of Particle Swarm Optimization Using Line Search-Based Derivative-Free Techniques," In: Recent Advances in Swarm Intelligence and Evolutionary Computation, Studies in Computational Intelligence, Vol. 585, Yang, Xin-She (Ed.), Springer, 2015, ISBN 978-3-319-13825-1.
2. Diez M., Serani A., Leotardi C., Campana E.F., Peri D., Iemma U., Fasano G., Giove S., "A proposal of PSO particles' initialization for costly unconstrained optimization problems: ORTHOinit," 5th International Conference, ICSI 2014, Hefei, China, October 17-20, 2014, Proceedings, Part I. In: Advances in Swarm Intelligence, Lecture Notes in Computer Science Volume 8794, 2014, pp 126-133.
3. Campana E.F., Diez M., Fasano G., Peri D., "Initial particles position for PSO, in bound constrained optimization," 4th International Conference, ICSI 2013, Harbin, China, June 12-15, 2013, Proceedings, Part I, In: Advances in Swarm Intelligence, Lecture Notes in Computer Science Volume 7928, 2013, pp 112-119.

## ARTICOLI IN RIVISTE INTERNAZIONALI CON REFEREE

1. Diez M., Campana E.F., Stern F., "Stochastic optimization methods for ship resistance and operational efficiency via CFD," Structural Multidisciplinary Optimization, accepted by Editor 19 July 2017. DOI: 10.1007/s00158-017-1775-4.
2. Pellegrini, R., Serani, A., Leotardi, C., Iemma, U., Campana, E.F. and Diez, M., 2017. Formulation and parameter selection of multi-objective deterministic particle swarm for simulation-based optimization. Applied Soft Computing, 58, pp.714-731. DOI: 10.1016/j.asoc.2017.05.013.
3. Serani, A., Leotardi, C., Iemma, U., Campana, E.F., Fasano, G. Diez, M., "Parameter selection in synchronous and asynchronous deterministic particle swarm optimization for ship hydrodynamics problems," Applied Soft Computing, Vol. 49,2016, pp.313-334. DOI: 10.1016/j.asoc.2016.08.028.
4. Serani A., Fasano G., Liuzzi G., Lucidi S., Iemma U., Campana E.F., Stern F., Diez M., "Ship hydrodynamic optimization by local hybridization of deterministic derivative-free global algorithms," Applied Ocean Research, Vol. 59, 2016, pp. 115-128. DOI: 10.1016/j.apor.2016.04.006.
5. Leotardi C., Serani A., Iemma U., Campana E.F., Diez M., "A variable-accuracy metamodel-based architecture for global MDO under uncertainty," Structural Multidisciplinary Optimization, Vol. 54, 2016, pp. 573-593. DOI: 10.1007/s00158-016-1423-4.
6. Campana E.F., Diez M., Iemma U., Liuzzi G., Lucidi S., Rinaldi F., Serani A., "Derivative-free global ship design optimization using global/local hybridization of the DIRECT algorithm," Optimization and Engineering, Vol. 15, No. 1, 2016, pp. 127-156. DOI: 10.1007/s11081-015-9303-0.
7. Diez M., Campana E.F., Stern F., "Design-space dimensionality reduction in shape optimization by Karhunen-Loève expansion," Computer Methods in Applied Mechanics and Engineering, Vol. 283, pp. 1525-1544, 2015. DOI: 10.1016/j.cma.2014.10.042.
8. Stern F., Wang Z., Yang J., Sadat-Hosseini H., Bhushan S., Mousaviraad S.M., Diez M., Yoon S.-H., Wu P.-C., Yeon S. M., Dogan T., Kim D.-H., Volpi S., Conger M., Michael T., Xing T., Thodal R.S., Grenestedt J.L., "Recent progress in CFD for naval architecture and

- ocean engineering," *Journal of Hydrodynamics*, Ser. B, Vol. 27, No. 1, 2015, pp. 1-23. DOI: 10.1016/S1001-6058(15)60452-8.
9. Volpi S., Diez M., Gaul N.J., Song H., Iemma U., Choi K.K., Campana E.F., Stern F., "Development and validation of a dynamic metamodel based on stochastic radial basis functions and uncertainty quantification," *Structural and Multidisciplinary Optimization*, Vol. 51, No. 2, 2015, pp. 347-368. DOI: 10.1007/s00158-014-1128-5.
  10. Chen X., Diez M., Kandasamy M., Campana E.F., Stern F., "High-fidelity global optimization of shape design by dimensionality reduction, metamodels and deterministic particle swarm," *Engineering Optimization*, Vol. 47, No. 4, 2015. DOI: 10.1080/0305215X.2014.895340.
  11. Diez M., He W., Campana E.F., Stern F., "Uncertainty quantification of Delft catamaran resistance, sinkage and trim for variable Froude number and geometry using metamodels, quadrature and Karhunen-Loève expansion," *Journal of Marine Science and Technology*, Vol. 19, pp. 143-169, 2014. DOI: 10.1007/s00773-013-0235-0.
  12. He W., Diez M., Campana E.F., Stern F., Zou Z., "A one-dimensional polynomial chaos method in CFD-based uncertainty quantification for ship hydrodynamic performance," *Journal of Hydrodynamics*, Ser. B., Vol. 25, Issue 5, 2013, pp. 655-662. DOI: 10.1016/S1001-6058(13)60410-2.
  13. He W., Diez M., Zou Z., Campana E.F., Stern F., "URANS study of Delft catamaran total/added resistance, motions and slamming loads in head sea including irregular wave and uncertainty quantification for variable regular wave and geometry," *Ocean Engineering*, Vol. 74, pp. 189-217, 2013. DOI: 10.1016/j.oceaneng.2013.06.020.
  14. Peri D., Diez M., "Ship optimization by globally convergent modification of PSO using surrogate-based Newton method," *Engineering Computations*, Vol. 30, Issue 4, pp. 548-561, 2013. DOI: 10.1108/02644401311329361.
  15. Mousaviraad S.M., He W., Diez M., Stern F., "Framework for convergence and validation of stochastic uncertainty quantification and relationship to deterministic verification and validation," *International Journal for Uncertainty Quantification*, Vol. 3, Issue 5, pp. 371-397, 2013. DOI: 10.1615/Int.J.UncertaintyQuantification.2012003594.
  16. Diez M., Peri D., Fasano G., Campana E.F., "Hydroelastic optimization of a keel fin of a sailing boat: a multidisciplinary robust formulation for ship design," *Structural and Multidisciplinary Optimization*, Volume 46, Issue 4, pp. 613-625, 2012. DOI: 10.1007/s00158-012-0783-7.
  17. Diez M., Iemma U., "Multidisciplinary conceptual design optimization of aircraft using a sound-matching based objective function," *Engineering Optimization*, Vol. 44, Issue 5, pp. 591-612, 2012. DOI: 10.1080/0305215X.2011.591791.
  18. Diez M., Peri D., "Optimal hull-form design subject to epistemic uncertainty," *Ship Technology Research*, Vol. 59, pp. 14-21, 2012.
  19. Peri D., Diez M., "A new parameterisation approach for mixed-integer optimisation," *Ship Technology Research*, Vol. 58, pp. 100-111, 2011.
  20. Diez M., Peri D., "Two-stage stochastic programming formulation for ship design optimisation under uncertainty," *Ship Technology Research*, Vol. 57, pp. 172-181, 2010.
  21. Diez M., Peri D., Campana E.F., Iemma U., "Robust decision making in aerial and marine vehicles optimization: a designer's viewpoint," *Enterprise Risk Management*, Vol. 1, pp. 68-85, 2010. DOI: 10.5296/erm.v2i1.323.
  22. Diez M., Peri D., "Robust optimization for ship conceptual design," *Ocean Engineering*, Vol. 37, pp. 966-977, 2010. DOI: 10.1016/j.oceaneng.2010.03.010.
  23. Iemma U., Diez M., Morino L., "An extended Karhunen-Loève decomposition for modal identification of inhomogeneous structures," *Journal of Vibration and Acoustics*, Vol. 128, pp. 357-365, 2006. DOI: 10.1115/1.2172263.
  24. Iemma U., Morino L., Diez M., "Digital holography and Karhunen-Loève decomposition for the modal analysis of two-dimensional vibrating structures," *Journal of Sound and Vibration*, Vol. 291, pp. 107-131, 2006. DOI: 10.1016/j.jsv.2005.05.029.

**ARTICOLI IN ATTI DI CONFERENZE  
INTERNAZIONALI**

1. Serani A., Campana E.F., Diez M., Stern F., "Towards augmented design-space exploration via combined geometry and physics based Karhunen-Loève expansion," 18th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Denver, CO, USA, 5-9 June 2017.
2. Grigoropoulos G., Campana E.F., Diez M., Serani A., Goren O., Sarioz K., Danisman D.B., Visonneau M., Queutey P., Abdel-Maksoud M., Stern F., "Mission-based hull-form and propeller optimization of a transom stern destroyer for best performance in the sea environment," to appear in the proceedings of the VII International Congress on Computational Methods in Marine Engineering - MARINE 2017, Nantes, France, 15-17 May 2017.
3. Serani A., Diez M., "Are random coefficients needed in particle swarm optimization for simulation-based ship design?" to appear in the proceedings of the VII International Congress on Computational Methods in Marine Engineering - MARINE 2017, Nantes, France, 15-17 May 2017.
4. Pellegrini R., Serani A., Harries S., Diez M., "Multi-objective hull-form optimization of a SWATH configuration via design-space dimensionality reduction, multi-fidelity metamodels, and swarm intelligence," to appear in the proceedings of the VII International Congress on Computational Methods in Marine Engineering - MARINE 2017, Nantes, France, 15-17 May 2017.
5. Volpi S., Diez M., Stern F., "Towards the high-fidelity multidisciplinary design optimization of a 3D composite material hydrofoil," to appear in the proceedings of the VII International Congress on Computational Methods in Marine Engineering - MARINE 2017, Nantes, France, 15-17 May 2017.
6. Pasquale L., Durante D., Diez M., Broglia R., "Optimized DBD plasma actuator system for the suppression of flow separation over a NACA 0012 profile," to appear in the proceedings of the VII International Congress on Computational Methods in Marine Engineering - MARINE 2017, Nantes, France, 15-17 May 2017.
7. Diez M., Broglia R., Durante D., Olivieri A., Campana E.F., Stern F., "Validation of uncertainty quantification methods for high-fidelity CFD of ship response in irregular waves," AIAA Paper 2017-1655, 55th AIAA Aerospace Sciences Meeting, Grapevine, TX, USA, 8-13 January 2017.
8. Stern F., Volpi S., Gaul N.J., Choi K.K., Diez M., Broglia R., Durante D., Campana E.F., lemma U., "Development and assessment of uncertainty quantification methods for ship hydrodynamics," AIAA Paper 2017-1654, 55th AIAA Aerospace Sciences Meeting, Grapevine, TX, USA, 8-13 January 2017.
9. Pellegrini R., Leotardi C., Zaghi S., Broglia R., Campana E.F., lemma U., Diez M., "Multi-fidelity adaptive metamodel for ship hull performance via CFD," 19th Numerical Towing Tank Symposium, St Pierre D'Oléron, France, 2-5 October 2016.
10. Pellegrini R., lemma U., Serani A., Campana E.F., Diez M., Liuzzi G., Rinaldi F., Lucidi S., "Global/local hybridization of the multi-objective particle swarm optimization with derivative-free multi-objective local search," 2016 Congress of the Italian Society of Industrial and Applied Mathematics (SIMAI), 13-16 September 2016
11. Serani A., Leotardi C., Campana E.F., Diez M., "Design-space dimensionality reduction in hydrodynamic shape optimization by generalized Karhunen-Loève Expansion," 2016 Congress of the Italian Society of Industrial and Applied Mathematics (SIMAI), 13-16 September 2016.
12. Diez M., Serani A., Stern F., Campana E.F., "Combined geometry and physics based method for design-space dimensionality reduction in hydrodynamic shape optimization," 31st Symposium on Naval Hydrodynamics, Monterey, CA, USA, 11-16 September 2016.
13. Volpi S., Diez M., Sadat-Hosseini H., Kim D.-H., Stern F., Thodal R.S., Grenestedt J.L., "Full-scale fluid-structure interaction simulation and experimental validation of high-speed planing-hull slamming with composite panels," 31st Symposium on Naval Hydrodynamics, Monterey, CA, USA, 11-16 September 2016.



14. Diez M., Broglia R., Durante D., Olivieri A., Campana E.F., Stern F., "Statistical Validation of a High-speed Catamaran in Irregular Waves," 31st Symposium on Naval Hydrodynamics, Monterey, CA, USA, 11-16 September 2016.
15. Pellegrini R., Iemma U., Leotardi C., Campana E.F., Diez M., "Multi-fidelity adaptive global Metamodel of expensive computer simulations," IEEE CEC 2016, World Congress on Computational Intelligence, Special Session on Multi-Fidelity Design Optimization under Epistemic Uncertainties, Vancouver, Canada, 25-29 July 2016.
16. Diez M., Serani A., Campana E.F., Volpi S., Stern F., "Design space dimensionality reduction for single- and multi-disciplinary shape optimization," AIAA Paper 2016-4275, 17th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, AIAA Aviation and Aeronautics Forum and Exposition 2016, Washington DC, USA, 13-17 June 2016.
17. Pellegrini R., Leotardi C., Iemma U., Campana E.F., Diez M., "A multi-fidelity adaptive sampling method for metamodel-based uncertainty quantification of computer simulations," VII European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS Congress 2016), Crete, Greece, 5-10 June 2016.
18. Stern F., Diez M., Sadat-Hosseini H., "Improved Statistical Approach for Certification of CFD Codes with Examples," (abstract only) ASME 2016 V&V – Verification and Validation Symposium, Las Vegas, Nevada, USA, 16-20 May 2016.
19. Serani A., Campana E.F., Stern F., Diez M., "A multi-objective optimization: effects of potential flow formulation and RANS," 15th Conference on Computer Applications and Information Technology in the Maritime Industries, COMPIT'16, Lecce, Italy, 9-11 May 2016.
20. Sadat-Hosseini H., Kim D.H., Toxopeus S., Diez M., Stern F., "CFD and potential flow simulations of fully appended free running 5415M in irregular waves," World Maritime Technology Conference 2015, Providence, Rhode Island, USA, November 2015.
21. Pellegrini R., Leotardi C., Iemma U., Campana E.F., Diez M., "Structural and hydrodynamic characterization of a NACA 0009 hydrofoil by finite elements," 18th Numerical Towing Tank Symposium (NuTTS'15), Cortona, Arezzo, Italy, September 2015.
22. Zaghi S., Leotardi C., Muscari R., Dubbioso G., Diez M., Broglia R., "RANS hydrodynamic characterization of a USV SWATH configuration including design optimization," 18th Numerical Towing Tank Symposium (NuTTS'15), Cortona, Arezzo, Italy, September 2015.
23. Diez M., Volpi S., Serani A., Stern F., Campana E.F., "Simulation-based Design Optimization by Sequential Multi-criterion Adaptive Sampling and Dynamic Radial Basis Functions," EUROGEN 2015 - International Conference on Evolutionary and Deterministic Methods for Design, Optimization and Control with Applications to Industrial and Societal Problems, Glasgow, UK, September 2015.
24. Diez M., Serani A., Campana E.F., Goren O., Sarioz K., Bulent Danisman D., Grigoropoulos G., Aloniati E., Visonneau M., Queutey P., Stern F., "Multi-objective hydrodynamic optimization of the DTMB 5415 for resistance and seakeeping," FAST 2015, 13th International Conference on Fast Sea Transportation, Washington DC, USA, September 2015.
25. Diez M., Campana E.F., Stern F., "Development and evaluation of hull-form stochastic optimization methods for resistance and operability," FAST 2015, 13th International Conference on Fast Sea Transportation, Washington DC, USA, September 2015.
26. Diez M., Broglia R., Durante D., Campana E.F., Stern F., "Validation of high-fidelity uncertainty quantification of a high-speed catamaran in irregular waves," FAST 2015, 13th International Conference on Fast Sea Transportation, Washington DC, USA, September 2015.
27. Campana E.F., Stern F., Diez M., "Hydrodynamic ship design optimization considering uncertainty," NAV 2015, 18th International Conference on Ships and Shipping Research, Lecco, Italy, June 2015.
28. Volpi S., Sadat-Hosseini H., Diez M., Kim D.-H., Stern F., Thodal R.S., Grenestedt J.L., "Validation of high fidelity CFD/FE FSI for full-scale high-speed planing hull with composite bottom panels slamming," VI International Conference on Computational Methods for Coupled Problems in Science and Engineering, COUPLED PROBLEMS 2015, May 2015.

29. Leotardi C., Campana E.F., Diez M., "Resistance reduction of a military ship by variable-accuracy metamodel-based multidisciplinary robust design optimization," VI International Conference on Computational Methods for Coupled Problems in Science and Engineering, COUPLED PROBLEMS 2015, May 2015.
30. Serani A., Fasano G., Liuzzi G., Lucidi S., Iemma U., Campana E.F., Diez M., "Derivative-free global design optimization in ship hydrodynamics by local hybridization," 14th International Conference on Computer Applications and Information Technology in the Maritime Industries, COMPIT 2015, Ulrichshusen, Germany, May 2015.
31. Leotardi C., Campana E.F., Diez M., "On the use of uncertainty quantification in variable-accuracy simulation-based multidisciplinary optimization," 3rd Workshop on Uncertainty Quantification in Computational Fluid Dynamics, Paris, France, May 2015.
32. Tahara Y., Diez M., Volpi S., Chen X., Campana E.F., Stern F., "CFD-based multiobjective stochastic optimization of a waterjet propelled high speed ship," 30th Symposium on Naval Hydrodynamics, Hobart, Tasmania, Australia, November 2014.
33. Stern F., Wang Z., Yang J., Sadat-Hosseini H., Bhushan S., Mousaviraad S.M., Diez M., Yoon S.-H., Wu P.-C., Yeon S. M., Dogan T., Kim D.-H., Volpi S., Conger M., Michael T., Xing T., Thodal R.S., Grenestedt J.L., "Recent progress in CFD for naval architecture and ocean engineering," 11th International Conference on Hydrodynamics, ICHD 2014, Singapore, October 2014.
34. Diez M., Serani A., Iemma U., Campana E.F., "A fish shoal algorithm for global derivative-free simulation-based ship design optimization," 17th Numerical Towing Tank Symposium - NuTTS 2014, Marstrand, Sweden, September 2014.
35. Pellegrini R., Serani A., Diez M., Iemma U., Campana E.F., "Multi-objective extensions of the deterministic particle swarm algorithm for RBRDO in ship design: a parametric study," 17th Numerical Towing Tank Symposium - NuTTS 2014, Marstrand, Sweden, September 2014.
36. Pellegrini R., Campana E.F., Diez M., Serani A., Rinaldi F., Fasano G., Iemma U., Lucidi S., Liuzzi G., Stern F., "Application of derivative-free multi-objective algorithms to reliability-based robust design optimization of a high-speed catamaran in real ocean environment," 4th International Conference on Engineering Optimization - EngOpt 2014, Lisbon, Portugal, September 2014.
37. Leotardi C., Diez M., Serani A., Iemma U., Campana E.F., "Efficient simulation-based design optimization for fluid-structure interaction problems affected by uncertainty," (extended abstract only) 17th U.S. National Congress on Theoretical and Applied Mechanics, Michigan State University, June 2014.
38. Leotardi C., Diez M., Serani A., Iemma U., Campana E.F., "A framework for efficient simulation-based multidisciplinary robust design optimization with application to a keel fin of a racing sailboat," OPT-i 2014, 1st International Conference on Engineering and Applied Sciences Optimization, Kos Island, Greece, June 2014.
39. Serani A., Diez M., Leotardi C., Peri D., Fasano G., Iemma U., Campana E.F., "On the use of synchronous and asynchronous single-objective deterministic particle swarm optimization in ship design problems," OPT-i 2014, 1st International Conference on Engineering and Applied Sciences Optimization, Kos Island, Greece, June 2014.
40. Diez M., Chen X., Campana E.F., Stern F., "Reliability-based robust design optimization for ships in real ocean environment," 12th International Conference on Fast Sea Transportation, FAST2013, Amsterdam, The Netherlands, December 2013.
41. Chen X., Diez M., Kandasamy E.F., Campana E.F., Stern F., "Design optimization of the waterjet-propelled Delft Catamaran in calm water using URANS, design of experiments, metamodels and swarm intelligence," 12th International Conference on Fast Sea Transportation, FAST2013, Amsterdam, The Netherlands, December 2013.
42. Iemma U., Diez M., Leotardi C., Centracchio F., "Decision making based on community noise annoyance in the multi-objective optimization of a commercial aircraft," Twentieth International Congress on Sound and Vibration, Bangkok, Thailand, July 2013.
43. Peri D., Diez M., "Robust design optimization of a monohull for wave wash minimization," V International Conference on Computational Methods in Marine Engineering, MARINE 2013.

44. He W., Diez M., Peri D., Campana E.F., Tahara Y., Stern F., "Uncertainty quantification of Delft catamaran total/added resistance and motions in irregular and variable regular wave," 29th Symposium on Naval Hydrodynamics, Gothenburg, Sweden, 2012.
45. Peri D., Diez M., Fasano G., "Comparison between deterministic and stochastic formulations of particle swarm optimization for multidisciplinary design optimization," AIAA Paper 2012-5523, 12th AIAA Aviation Technology, Integration, and Operations (ATIO) Conference and 14th AIAA/ISSM, 2012.
46. Tahara Y., Kobayashi H., Kandasamy M., He W., Peri D., Diez M., Campana E.F., Stern F., "CFD-based multiobjective stochastic optimization of a waterjet propelled high speed ship," 29th Symposium on Naval Hydrodynamics, Gothenburg, Sweden, 2012.
47. Diez M., Peri D., Stern F., Campana F., "An Uncertainty quantification approach to assess geometry-optimization research spaces through Karhunen-Loève expansion," (abstract only) SIAM Conference on Uncertainty Quantification, UQ12, Raleigh, North Carolina, US, April 2012.
48. Peri D., Diez M., "Efficient Evaluation of Integral Quantities in RDO by Sequential Quadrature Formulas," (abstract only) SIAM Conference on Uncertainty Quantification, UQ12, Raleigh, North Carolina, US, April 2012.
49. Diez M., Leotardi C., Iemma U., "Identification of the mass distribution of a vibrating system through an output-only modal identification technique," Noise and Vibration: Emerging Methods, NOVEM 2012, Sorrento, Italy, April 2012. In: INTER-NOISE and NOISE-CON Congress and Conference Proceedings, Vol. 244, pp. 468-479, 2012.
50. Iemma U., Diez M., Leotardi C., Centracchio F., "Multi-objective, multi-disciplinary optimization of take-off and landing procedures to minimize the environmental impact of commercial aircraft: the noise vs. fuel consumption trade-off within the EC project COSMA," Nineteenth International Congress on Sound and Vibration - ICSV19, Vilnius, Lithuania, 2012.
51. Iemma U., Diez M., Leotardi C., Centracchio F., "On the use of noise annoyance as a design optimization constraint: the COSMA experience," Eighteenth International Congress on Sound and Vibration, ICSV18, Rio de Janeiro, Brazil, 2011.
52. Diez M., Peri D., "Optimal hull-form design subject to epistemic uncertainty," 10th International Conference on Computer Applications and Information Technology in the Maritime Industries, COMPIT 2011, Berlin, Germany, 2011.
53. Diez M., Peri D., Fasano G., Campana E.F., "Multidisciplinary robust optimization for ship design," 28th Symposium on Naval Hydrodynamics Pasadena, California, US, 2010.
54. Diez M., Peri D., "Two-stage stochastic programming formulation for ship design optimization under Uncertainty," 9th International Conference on Computer Applications and Information Technology in the Maritime Industries, COMPIT 2010, Gubbio, Italy, 2010.
55. Diez M., Peri D., "A stochastic programming approach to robust ship design using a derivative-free particle swarm optimization algorithm," (abstract only) Joint SIMAI/SEMA Conference on Applied and Industrial Mathematics, Cagliari, Italy, 2010.
56. Campana, E.F., Diez, M., Peri, D., Fasano, G., "Globally convergent modifications of Particle Swarm Optimization for Unconstrained Optimization," (abstract only) Joint SIMAI/SEMA Conference on Applied and Industrial Mathematics, Cagliari, Italy, 2010.
57. Peri, D., Diez, M., "A coupled PSO/ACM derivative free global optimization method," (abstract only) Joint SIMAI/SEMA Conference on Applied and Industrial Mathematics, Cagliari, Italy, 2010.
58. Peri, D., Tinti, F., Diez, M., "Coupling local and global models into a derivative free global optimization algorithm," (abstract only) Joint SIMAI/SEMA Conference on Applied and Industrial Mathematics, Cagliari, Italy, 2010.
59. Diez M., "Performance-based wing design including environmental sustainability issues," International Forum in Aeroelasticity and Structural Dynamics, IFASD 2009, Seattle, US, 2009.

60. Diez M., Leotardi C., lemma U., "Aeroelastic issues in multidisciplinary design optimization for aircraft configurations," International Forum in Aeroelasticity and Structural Dynamics, IFASD 2009, Seattle, US, 2009.
61. Diez, M. and Peri, D., "Global optimization algorithms for robust optimization in naval design," 8th International Conference on Computer Applications and Information Technology in the Maritime Industries, COMPIT 2009, Budapest, Hungary, 2009.
62. Diez M., Leotardi C., "Modal Identification of an aeroelastic system using an extended Karhunen-Loève decomposition", Flow-Induced Vibration – FIV, Prague, Czech Republic, 2008.
63. Diez M., Burghignoli L., Leotardi C., Sargentini A., "A multi-fidelity formulation for multidisciplinary design optimization of aircraft configurations", (extended abstract) 8th World Congress on Computational Mechanics – WCCM8, 5th European Congress on Computational Methods in Applied Sciences and Engineering – ECCOMAS, Venice, Italy, 2008.
64. Diez M, lemma U., "Robust optimization of aircraft life-cycle costs including the cost of community noise," AIAA Paper 2007-3668, Thirteenth AIAA/CEAS Aeroacoustics Conference, Rome, Italy, 2007.
65. Diez M., lemma U., Marchese V., "A sound-matching-based approach for aircraft noise annoyance alleviation via MDO," AIAA Paper 2007-3667, Thirteenth AIAA/CEAS Aeroacoustics Conference, Rome, Italy, 2007.
66. lemma U., Diez M., "Optimal conceptual design of aircraft including community noise prediction," AIAA Paper 2006-2621, Twelfth AIAA/CEAS Aeroacoustics Conference, Cambridge, Massachusetts, US, 2006.
67. lemma U., Sciuto S. A., Diez M., "Modal identification from experiments of inhomogeneous structures using an extended Karhunen-Loève decomposition," Thirteenth International Congress on Sound and Vibration - ICSV13, Vienna, Austria, 2006.
68. lemma U., Diez M., Marchese V., "Matching the aircraft noise to a target sound: a novel approach for optimal design under community noise constraints," Thirteenth International Congress on Sound and Vibration - ICSV13, Vienna, Austria, 2006.
69. lemma U., Diez M., Marchese V., "Sculpting the sound of aircraft: a novel MDO approach for noise annoyance alleviation," 2nd International Conference on Research in Air Transportation - ICRAT 2006, Belgrad, Serbia, 2006.
70. lemma U., Diez M., "Optimal Life-cycle-costs design of new large aircraft including the cost of community noise," invited, International Conference on Computational & Experimental Engineering and Sciences - ICCES'05, Chennai, India, 2005.
71. lemma U., Diez M., Morino L., "Community noise impact on the conceptual design of innovative aircraft configurations," AIAA Paper 2005-2982, Eleventh AIAA/CEAS Aeroacoustics Conference, Monterey, US, 2005.
72. lemma U., Diez M., Morino L., "Experimental modal identification of structures: the Karhunen-Loève decomposition revisited," Eleventh International Congress on Sound and Vibration - ICSV11, St. Petersburg, Russia, 2004.
73. Morino L., lemma U., Bernardini G., Diez M., "Community noise considerations in multidisciplinary optimization for preliminary design of innovative configurations," AIAA Paper 2004-2809, Tenth AIAA/CEAS Aeroacoustics Conference, Manchester, UK, 2004.
74. lemma U., Morino L., Diez M., "Digital holography for modal analysis of vibrating structures," Tenth International Congress on Sound and Vibration - ICSV10, Stockholm, Sweden, 2003.

1. Diez M., Serani A., Campana E.F., Stern F., Visonneau M., Queutey P., "NATO AVT-204 Assess the Ability to Optimize Hull Forms of Sea Vehicles for Best Performance in a Sea Environment – Final Report," STO-TR-AVT-204, 2016. Chapter 3: "INSEAN/UI Optimization Approach"; Chapter 6: "Validation"; Chapter 8: "Low- versus High-fidelity Analysis Tools."
2. Toxopeus S., Diez M., Stern F., Grigoropoulos G., Makris D., "NATO AVT-216 Evaluation of Prediction Methods for Ship Maneuvering and Control – Final Report," STO-TR-AVT-216, 2016. Chapter 4: "CFD and Potential Flow Simulations of Fully Appended Free Running 5415M in Irregular Waves."
3. Stern F., Volpi S., Gaul N.J., Choi K.K., Diez M., Broglia R., Durante D., Campana E.F., Iemma U., "NATO AVT-191 Application of Sensitivity Analysis and Uncertainty Quantification to Military Vehicle Design – Final Report," STO-TR-AVT-191, 2015. Chapter 13: "Hydrodynamics Team Contribution Final Report."
4. Leotardi C., Diez M., "Ottimizzazione Deterministica Idrodinamica del Mezzo Swath con Modelli per Flussi a Potenziale," RITMARE Project, SP1, Deliverable SP1\_LI2\_WP1\_UO01\_D02.
5. Leotardi C., Campana E.F., Diez M., "Particle Swarm Optimization of an Unmanned Surface Vehicle for research activities," CNR-INSEAN Technical Report 2015-TR-017, Dicembre 2015.
6. Leotardi C., Campana E.F., Diez M., "Design optimization of an Unmanned Surface Vehicle for research activities using potential flow computations," CNR-INSEAN Technical Report 2015-TR-009, Luglio 2015.
7. Pellegrini R., Diez M., Dessi D., "Numerical seakeeping analysis for floatover topside installation by asymmetric catamaran in open Sea," CNR-INSEAN Technical Report 2015-TR-014, October 2015.
8. Serani A., Diez M. and Campana E.F., "Single- and multi-objective design optimization study for DTMB 5415, based on low fidelity solvers," CNR-INSEAN Technical Report 2015-TR-002, January 2015.
9. Dessi D., Diez M., Pellegrini R., "Catamaran float over numerical seakeeping analysis," Technical Report, CNR-INSEAN, under contract PO No. 2315mi749, 11 December 2014.
10. Leotardi C., Diez M., Bellotto F., "Performance analysis for EXPLORER-type hulls with parametric geometry modifications," CNR-INSEAN Technical report 2014-TR-012, October 2014.
11. Diez M., Serani A., Leotardi C., Peri D., Fasano G., Iemma U., Campana E.F., "Development of parallel-architecture optimization algorithms," RITMARE Project, SP1, Deliverable SP1\_WP2\_AZ3\_UO08\_D03, 2014.
12. Leotardi C., Bellotto F., Diez M., "Parametric analysis of performance (resistance and seakeeping) for diverse fishing-vessel hulls," RITMARE Project, SP2, Deliverable SP2\_WP3\_AZ1\_UO03\_D02, 2014.
13. Diez M., Peri D., "Development of robust design optimization algorithms," RITMARE Project, SP1, Deliverable SP1\_WP2\_AZ2\_UO06\_D02, 2013.
14. Peri D., Diez M., "Single-objective design optimization for wave-wash minimization," RITMARE Project, SP1, Deliverable SP1\_WP2\_AZ3\_UO08\_D02, 2013.
15. Diez M., Campana E.F., Stern F., "Karhunen–Loève expansion for assessing stochastic subspaces in geometry optimization and geometric uncertainty quantification," IIHR technical report no. 481. 2012.
16. Diez M., Leotardi C., Iemma U., "Results of the single-event optimisation procedure in terms of EPNL at the certification points, noise footprints, and Iss maps," COSMA Project, Deliverable 5.3, 2012.
17. Diez M., Leotardi C., Iemma U., "Results of optimisation of procedures for current scenarios," COSMA Project, Deliverable 5.6, 2012.
18. Diez M., Leotardi C., Iemma U., "Results of design optimisation for current scenarios," COSMA Project, Deliverable 5.7, 2012.

19. Leotardi C., Diez M., Iemma U., "Results of design optimization for future scenario," COSMA Project, Deliverable 5.8, 2012.
20. Leotardi C., Diez M., Iemma U., "Definition of the optimization criteria for the multiple-events scenario in terms of objective function," COSMA Project, Deliverable 5.4, 2010.
21. Diez M., Peri D., "Metamodel for RAS interaction prediction, based on numerical data," Technical Report, INSEAN 2009-009/RT.
22. Iemma U., Leotardi C., Diez M., "Definition of the operational limits imposed by the relevant regulation, to be included as optimization constraints" COSMA Project, Deliverable 5.1, 2009.
23. Iemma U., Diez M., Burghignoli L., Leotardi C., "Leonardo da Vinci Fiumicino Airport – acoustic impact prediction for new generation aircraft in the 2040 technological horizon" Technical Report, Mechanical and Industrial Engineering Dept., University of Roma Tre, 2009.
24. Diez M., Peri D., "Robust Design Optimization test problems for a particle swarm optimization algorithm," Technical Report, INSEAN 2008-056/RT.
25. Mariani R., Diez M., Agostini C., "Experimental setup design for the hydroelastic analysis of a plate," Technical Report, INSEAN 2007-076/RT.
26. Iemma U., Diez M., Marchese V., "Multidisciplinary design optimization criteria," SEFA Project, Deliverable 6.7, 2006.
27. Averardo M., Iemma U., Diez M., Mayer R., "Final evaluation of aircraft and engine noise reduction technologies and low noise flight procedures with respect to human annoyance," SEFA Project, Deliverable 6.8-12, 2006.
28. Averardo M., Iemma U., Diez M., Mayer R., "Progress evaluation of aircraft and engine noise reduction technologies and low noise flight procedures with respect to human annoyance," SEFA Project, Deliverable 6.4-6, 2006.
29. Averardo M., Iemma U., Diez M., Mayer R., "Design constraints of aircraft and engine noise reduction technologies and low noise flight procedures with respect to human annoyance," SEFA Project, Deliverable 6.1-3, 2006.

## ESPERIENZE DI INSEGNAMENTO

- 2011-2016: **Professore a contratto**, Università di Venezia IUAV, insegnamenti di "Simulation Based Design (SBD)," "Ottimizzazione," "Analisi fluidodinamica e tecniche di ottimizzazione al moto dell'aria degli edifici," e "Ottimizzazione multiobiettivo" Master Universitario di II livello "Processi Costruttivi Sostenibili"
- 2010-2013: **Professore a contratto**, Università Roma Tre Facoltà di Ingegneria, insegnamento di "Dinamica del volo," Laurea specialistica in Ingegneria Aeronautica
- 2006-2011: **Professore a contratto**, INARCH, Istituto Nazionale di Architettura in Roma, insegnamenti di "Simulazione fluidodinamica", "Simulazione termo-fluidodinamica," e "Simulation-based design", Master "Progettista di Architetture Sostenibili ed Esperto Nuove Tecnologie"
- 2003-2007: **Assistente all'insegnamento con contratti di supporto alla didattica**, Università Roma Tre, Facoltà di Ingegneria, insegnamenti di "Meccanica Razionale" (Prof. Luigi Morino), "Aeroelasticità Applicata" (Prof. Luigi Morino), "Dinamica Strutturale" (Prof. Umberto Iemma), e "Progettazione Strutturale di Velivoli" (Prof. Umberto Iemma)

## ESPERIENZE DI ADVISING ACCADEMICO

### Studenti di dottorato

1. R. Pellegrini, anno atteso della tesi 2017, "Multi-objective and multi-fidelity methods for simulation-based design optimization affected by uncertainty," CNR-INSEAN advisor, Università Roma Tre, borsa CNR-INSEAN
2. A. Serani, anno atteso della tesi 2016, "Hybrid global/local optimization methods in simulation-based shape design" CNR-INSEAN advisor, Università Roma Tre, borsa CNR-INSEAN

### Studenti laurea specialistica o vecchio ordinamento

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[www.eurescv-search.com](http://www.eurescv-search.com)

1. D. D'Agostino, 2017, "Metodi non lineari per la riduzione dello spazio di disegno nell'ottimizzazione di forma basata su simulazioni al computer," correlatore tesi con Prof. S. Lucidi, Università di Roma Sapienza
2. S. Volpi, 2013, "Development of dynamic metamodels for design optimization and uncertainty quantification," correlatore di tesi con Prof. U. Iemma e Prof. F. Stern, Università Roma Tre
3. G. Pisciotta, 2013, "Optimization algorithms for ship design problems," correlatore di tesi con Prof. S. Lucidi, Università Sapienza di Roma
4. C. Giannobile, 2010, "Models for the optimization of environment-friendly landing procedure of civil transport aircraft," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
5. E. Sanmartino, 2008, "Dynamic analysis of a mono-cell structure for aeronautic applications," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
6. S. Creatura, 2008, "Parametric characterization of a civil transport aircraft for flight dynamic modeling," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
7. S. Godio, 2007, "Modal identification of structures by acoustic measurements," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
8. A. Sargentini, 2007, "Multi-fidelity management methods for design optimization of aeronautical applications," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
9. F. Vulpiani, 2007, "Commercial transport aircraft design affected by aleatoric variables," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
10. I. Pasciuto, 2006, "Controllability of a aeroacoustic-elastic system," correlatore di tesi con Prof. U. Iemma, Università Roma Tre

#### Studenti laurea triennale

1. A. Allevi, 2007, "Effects of engine operating conditions on the acoustic certification models of civil transport aircraft," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
2. S. Renzi, 2007, "Acoustic impact of a civil transport aircraft," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
3. C. Giannobile, 2007, "Take-off and landing procedures for minimal acoustic impact of civil transport aircraft," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
4. A. Savarese, 2006, "Computational model for acoustic certification of civil transport aircraft during landing," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
5. M. Pera, 2005, "Stability analysis of an aeroelastic system," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
6. M. Patelli, 2005, "Structural analysis of a space launcher fairing under static loads," correlatore di tesi con Prof. U. Iemma, Università Roma Tre
7. D. Grassucci, 2004, "Experimental modal analysis of structures via Karhunen-Loève decomposition," correlatore di tesi con Prof. U. Iemma, Università Roma Tre

#### **ESPERIENZE DI SUPERVISIONE DI ASSEGNIATI DI RICERCA**

1. R. Pellegrini, "Coupling of shape optimization tools with hydrodynamic RANS solvers," Gennaio 2017 – oggi
2. Dr. Andrea Serani, "Simulation-based design optimization methods in ship hydrodynamics," CNR-INSEAN, Gennaio 2016 – oggi
3. Dr. Cecilia Leotardi, "Development and application of models and methods for multidisciplinary design optimization," CNR-INSEAN, Gennaio 2014 – Febbraio 2016

## PRESENTAZIONI AD INVITO

1. "Linear and Nonlinear Methods for Off-line Design-Space Assessment and Dimensionality Reduction in Shape Optimization," Seminar at George Washington University, School of Engineering and Applied Science, 5 Luglio 2017.
2. "Combined geometry and physics based methods for design-space dimensionality reduction in simulation-based shape optimization," Mechanical Engineering Graduate Seminar, College of Engineering, The University of Iowa, hosted by Prof. C. Beckermann, 9 Febbraio 2017.
3. "When stochastics matters: new pathways in ship design using stochastic simulation-based design optimization," Applied Mathematics Seminar, National Research Council of Italy - Institute for Applied Mathematics and Information Technologies "Enrico Magenes", in collaboration with Dept. of Mathematics, University of Pavia, Pavia, Italy, hosted by Dr. Annalisa Buffa, 15 Dicembre 2015.
4. "Energy efficient ships via simulation-based design with experimental assessments," DIITET 2015 Conference, National Research Council of Italy, Dept. of Engineering, ICT and Technologies for Energy and Transport, Pisa, hosted by Dr. Marco Conti, 17 Novembre 2015.
5. "Simulation-based optimization in maritime and aerial vehicles design," Mechanical Engineering Graduate Seminar, College of Engineering, The University of Iowa, hosted by Prof. P. Carrica, 2 Maggio 2013.
6. "Simulation-based optimization strategies for sustainable design," webinar hosted by COMSOL Multiphysics, 16 Ottobre 2013.

## CAPACITÀ E COMPETENZE

### PERSONALI

*Acquisite nel corso della vita e della carriera ma non necessariamente riconosciute da certificati e diplomi ufficiali.*

#### MADRELINGUA

**Italiano**

#### ALTRE LINGUE

#### Inglese

- Capacità di lettura
- Capacità di scrittura
- Capacità di espressione orale

Eccellente

Buono

Eccellente

#### Francese

- Capacità di lettura
- Capacità di scrittura
- Capacità di espressione orale

Buono

Elementare

Buono

## CAPACITÀ E COMPETENZE INFORMATICHE

Principali pacchetti applicativi Microsoft Office (Word, Powerpoint, Excel), OpenOffice, LaTeX  
Linguaggi di programmazione Fortran, C, C++

Strumenti di calcolo, analisi e visualizzazione quali Matlab. Scilab, Matematica, Tecplot, Paraview, Gnuplot

Strumenti di simulazione commerciali quali ANSYS Mechanical APDL, ANSYS Fluent, COMSOL Multiphysics

Strumenti di simulazione accademici o di ricerca quali CFDShip-Iowa (University of Iowa), Aegir (Navatek), WARP (CNR-INSEAN)

Strumenti CAD/CAE e per la produzione di griglie di calcolo quali Rhinoceros, Gridgen, Pointwise