

Date: 25 December 2017

RESUME

Full name: Nitai Drimer

Web site: <https://meeng.technion.ac.il/members/nitai-drimer/>

ACADEMIC DEGREES

1994, D.Sc., Department of Civil Engineering, Technion – Israel Institute of Technology

1991, M.Sc., Department of Civil Engineering, Technion – Israel Institute of Technology

1989, B.Sc. *Summa cum Laude*, Mechanical Engineering, Naval Architecture Division, Technion – Israel Institute of Technology

ACADEMIC APPOINTMENTS

Since October 2012, Associate Professor, Faculty of Mechanical Engineering, Technion – Israel Institute of Technology.

PROFESSIONAL EXPERIENCE

NAMCO – Naval and Mechanical Engineering Company, Haifa, Israel

1998-2013 Owner, Director, Designer

1994-1997 CO-Director, Designer

1989-1991 Designer

CAMERI – Coastal & Marine Engineering Research Institute, Technion, Haifa, Israel

2001-2012 Director

1998-2000 Deputy director

1994-1998 Research engineer

Military service in the Israeli Navy

1978-1984 Naval Officer course and service.

Major (reserve).

RESEARCH INTERESTS

Design in marine environment

Wave-Structure Interaction

Naval Architecture

Offshore aquaculture engineering

Structural analysis

TEACHING EXPERIENCE

1. Water Waves, graduate, Civil Engineering (016210)
2. Coastal and Harbor Engineering, graduate, Civil Engineering, existing course developed by me (016209)
3. Dynamics of Marine Structures, graduate, Mechanical Engineering, existing course developed by me (036027)
4. Analysis of Structures, undergraduate, Mechanical Engineering (035062)
5. Advanced Structural Design and Analysis, graduate, Mechanical Engineering, New course offered and developed by me (036064)
6. Finite Elements for Engineering Analysis, undergraduate, Mechanical Engineering, existing course, further developed by me (035022)
7. Engineering Drawing , undergraduate, Mechanical Engineering, existing course, further developed by me (034042)

TECHNION ACTIVITIES

2014 -Academic committee for European Researchers' Night and presentation of two lectures

DEPARTMENTAL ACTIVITIES

2012-2013, Coordinator of the minor program in Naval Architecture.

2013-Current, Coordinator of the major program in Naval Architecture and Ocean Engineering.

2013-2014, Establishment of Naval Architecture and Ocean Engineering Direction for Graduate Students.

2015-Current, Committee member of the Inter-unit program of Ocean Engineering.

2013- Current, Development of Structural Design and Analysis area, supervising structural design and analysis projects of 7 ME students and 13 undergraduate students:

Supervision of ME Students

1. Alexey Sokolsky, Completed December 2013, Plastic dynamic analysis of energy absorber for crew seat at impact events and comparison with load experiment.
2. Daniel Schwarzmann, Completed September 2014, Design of bottom panel for a fast boat, made of advanced composites.
3. Menahem Bengio, Completed November 2014, Design and analysis of cardan guard for fast boats.
4. Andrei Gerbenko, 2014, Design and analysis of a pressure hull of a small submarine.
5. Felix Fisher, 2015, Loads applied to sub-sea installation near-shore.
6. Yuval Shur, 2015, Development of a prototype of an innovative flexible connector for cage aquaculture
7. Hai Algawi, 2015, Nonlinear Analysis of ROPS (Roll Over Protective Structure)

Supervision of Undergraduate Senior Projects

1. Yehuda Barak, 2013, Pressure distributor and controller for the activation of flexible propulsion fin.
2. Jonathan Mendelson, 2013, Experiments of a new type of hydraulic muscle
3. Gil Lampert, 2014, Hydraulic motor for a robotic ray-fish.
4. Ron Lifshitz and Liron Gutman (Special project in Civil Engineering), 2014, Rational design of a Barge for Open Sea.
5. Barak Keren, 2014, Efficient (low hysteresis) Elastomers for hydraulic muscle – rheological model and experiments.
6. Guy Benun, 2014, General Arrangement design for an Autonomous Underwater Vehicle.
7. Roi Steinetz and Zvika Barasz, 2015, Duck Dive Boat – Demonstration Model.
8. Daniel Tamarkin, 2015, Fatigue Experiments of Marine Aluminum and Applications to Fast Boat Design.
9. Michael Milich, 2015, Analysis in AQUASIM of flexible structures at open sea and verifications.
10. Roey Hakmon, 2016, Processing Sea Trials of Impact Load apply to Fast Boat.
11. Ilya Volovik, 2016, Parametric Structural Model of Fast Boat Hull.
12. Roey Hakmon, 2016, Processing Sea Trials of Impact Load apply to Fast Boat.
13. Tal Fridman, 2017, Preliminary Design of Fast Boat.

2014-2017, Coordinator of the ME special projects

HONORS

2017, Hershel Rich Technion Innovation Award

1993, Israel Ministry of Science honor for excellence in research (D.Sc. research)

1991, Wolf Foundation Scholarship (M.Sc. research)

1989, *Summa cum Laude* in mechanical engineering graduation

GRADUATE STUDENTS

MSc Completed Theses (4)

1. Yahav Moskovits, “A Design Method for Planing Hulls, Considering Hydro-Elasticity, Dynamics and Nonlinear Structural Response”, December 2015, [J7, C5, C6]
2. Jonathan Mendelson, “Hydo-elastic model for a flexible fin”, January 2016, [J6, C4].
3. Or Neuberg, “Limit state design of fast boat hull”, June 2016, [J7, J8, C5, C6, RC5].
4. Roy Gafter, “Delta type VLFS (Very Large Floating Structure) for open sea”, November 2016, [C3, C7, J10].

MSc Theses in Progress (3)

1. Michael Milich, starting March 2015, topic "Hydrodynamic-Structural Analysis of Offshore Aquaculture Cages", currently BRAKIM student ME – a special B.Sc. & M.Sc. program for distinguished students. [S1].
2. Roey Hachmon, starting May 2016, topic "Fatigue Design of Fast Boats Hull subjected to Slamming at Head Seas", currently BRAKIM student ME – a special B.Sc. & M.Sc. program for distinguished students. [RC5].
3. Elad Mazaltrim, starting November 2016, topic "Appling Composite materials in building fast boat".
4. Nimrod Lustgarten, starting March 2017, topic "Hydrodynamic-Structural Analysis for the Design of Flexible Systems for Open Sea Aquaculture", currently BRAKIM student ME – a special B.Sc. & M.Sc. program for distinguished students.
5. Rezik Abramov, starting June 2017, topic "Design of Fast Boats Hull subjected to Slamming at Head Seas", currently BRAKIM student ME – a special B.Sc. & M.Sc. program for distinguished students.

PhD Theses in Progress (2)

1. Roy Gafter, appointment January 2017, approved topic “Feasibility of Delta type VLFS (Very Large Floating Structure) at Open Sea”, currently a Technion Teaching Assistant ME, [J10].
2. Gil Wang, appointment May 2017, approved topic “Design Guidelines and Regulatory Framework for Offshore Floating Structures for Urban Use”, Civil Engineering.

RESEARCH GRANTS

(RPI - Responsible Principal Investigator, PI - Principal Investigator)

January 2013 – The Technion Autonomous Systems Program (TASP), “Unmanned vehicle similar in appearance and propulsion to a ray”, \$100,000 for one year, RPI Nitai Drimer, PI Associate Prof. Gil Iosilevskii, Technion AE.

August 2013 – MEYMAD program Ministry of Industry Trade and Labor (MAGNET administration), “Development of Aluminum-Polyurea panels for the production of advanced fast boats”, Total R&D budget including industry NIS 5,000,000 for 30 month, Technion budget Year 1 NIS 481,000, RPI Nitai Drimer, PI Prof. Daniel Rittel Technion ME.

October 2013 – The Technion Autonomous Systems Program (TASP), “Autonomous duck dive to exit through surf zone”, \$100,000 for one year, RPI Nitai Drimer, PI Prof. Michael Lindenbaum Technion CS.

October 2014 – Rafael Advanced Defense Systems, “Active ride control for Planning USV based on sea surface prediction”, \$100,000 for 2 years, RPI Nitai Drimer.

October 2014 – MEYMAD program Ministry of Industry Trade and Labor (MAGNET administration), “Development of Aluminum-Polyurea panels for the production of advanced fast boats”, Technion budget Year 2 NIS 483,000, RPI Nitai Drimer, PI Prof. Daniel Rittel.

August 2015 – H2020 SME instrument as part of Horizon 2020 – The EU Framework Program for Research and Innovation, “Single Point Mooring Flexible Submerged System for Open Sea Aquaculture”, Technion budget NIS 700,000, 2017-2018, RPI Nitai Drimer.

January 2016 – MEYMAD program Ministry of Industry Trade and Labor (MAGNET administration), “Development of Aluminum-Polyurea panels for the production of advanced fast boats”, Technion budget Year 3 NIS 117,000, RPI Nitai Drimer.

May 2017 – The Israel Ports Development & Assets Company Ltd. (IPC). "A new concept of VLFS (Very Large Floating Structure) for Mediterranean Sea conditions offshore Israel", Technion budget NIS 433,000, 2017-2020.

SIGNIFICANT PROFESSIONAL PROJECTS

With NAMCO – Naval and Mechanical Engineering Company

2002 – 2012. Client: RAFAEL. Project: Development and Design of PROTECTOR - Unmanned Marine Vehicle.

2002 – 2012. Client: SUBFLEX. Project: Development of a new concept of offshore Aquaculture cage system.

2005 – 2006. Client: MCE. Project: Development and design of UAV (Unmanned Aerial Vehicle) Launcher.

2000 – 2002. Client: Libis Engineering. Project: Special flexible vessel for sea transportation of fresh-water.

1999 – 2001. Client: Israel Ports Authority. Project: Roll on - Roll off Link-span at the port of Haifa.

1996 – 1996 Client: Petroleum & Energy Infrastructures. Analysis of hydrodynamic stability of an offshore pipeline.

1998 – 1999 Client: Petroleum & Energy Infrastructures. Analysis of lateral buckling of an offshore pipeline due to thermal load.

With CAMERI – Coastal & Marine Engineering Research Institute

2010-2012. Client: Israeli Ports Company. Project: Models for wave propagation, flow, and sand transport to assess impact of sand borrow pits for the Haifa Bay Port 2015 development project.

2010. Client: HPA Engineers. Project: Stability models for Breakwaters and Seawalls for the Haifa Bay Port 2015 development project.

2007 – 08. Client: Ashdod Port Company. Project: Models in a wave basin for harbor agitation and motion of berthed ships.

2005 – 07. Client: Ministry of Defense. Project: New Harbor at Haifa. Coastal and Harbor Engineering Models: Stability of Breakwater, Agitation, Sand Transport.

2004 – 06. Client: Ministry of Infrastructures. Project: Artificial Islands Project. Sand transport model.

2004. Client: Via Maris, Palmachim desalination plant Project: Hydraulic model for brine disposal.

2004. Client: VID, Ashkelon desalination plant Project: Hydraulic model for brine disposal.

2003. Client: Marina Herzelia. Project: Sand transport model.

2002 – 03. Ministry of Defense. Project: Towing Tank study of a special surface/submerged vehicle.

2001 – 02. Client: Mekorot. Project: Ashdod desalination plant – Hydraulic model for brine disposal and contamination transport.

2001. Client: Ministry of Infrastructures. Project: Pre-feasibility Study of offshore wind farms (wind energy).

2000. Client: Technital. Project: Special stability model of a composite vertical breakwater for HAYOVEL port (Ashdod).

2000. Ministry of Infrastructures. Project: Hydrodynamic model for an innovative modular breakwater.

1998 – 99. Client: Technital. Project: Special stability model for the design of the main breakwater of HAYOVEL port (Ashdod).

1994 – 04. Client: Israel Ports and Railways Authority. Project: Harbors 2000 – Agitation models in a wave basin for the development of the ports of Haifa and Ashdod.

1994 – 99. Client: Israel Ports and Railways Authority. Project: Harbors 2021 – Numerical agitation models for the development of the ports of Haifa and Ashdod.

PUBLICATIONS

Theses

M.Sc. Floating breakwaters in water of finite depth, Technion I.I.T. March 1991.

Supervisors: Prof. Michael Stiassnie & Prof. Yehuda Agnon.

D.Sc. The interaction of gravity waves with marine structures, Technion I.I.T. May 1994.

Supervisors: Prof. Yehuda Agnon & Prof. Michael Stiassnie.

Refereed papers in professional Journals

Published papers

1. N. Drimer, Y. Agnon and M. Stiassnie. A simplified analytical model for a floating breakwater in water of finite depth Applied Ocean Research, vol. 14 (1992) No. 1 p33-41, Elsevier Applied Science.
2. N. Drimer and Y. Agnon, A hybrid boundary element method for second order wave-body interaction. Applied Ocean Research, vol. 16 (1994) No. 1 p27-45, Elsevier Applied Science.
3. M. Stiassnie and N. Drimer. On a freely floating porous box in shallow water waves. Applied Ocean Research, vol. 25 (2003) p262–268, Elsevier Applied Science.
4. N. Drimer and Y. Agnon. An improved low-order boundary element method for breaking surface waves. Wave Motion 43 (2006) p241–258, Elsevier Applied Science.

5. M. Stiassnie and N. Drimer. Prediction of Long Forcing Waves for Harbor Agitation Studies. Journal of Waterway, Port, Coastal, and Ocean Engineering, vol 132 (2006) No. 3 p166-171, ASCE.
6. N. Drimer, J. Mendelson and A. Peleg, A New Type of Hydraulic Muscle, Actuators (2016) 5, 3, MDPI.
7. N. Drimer, Y. Moskovits and O. Neuberg. A design method for planing hulls, considering hydro-elasticity and nonlinear dynamic structural response. Ships and Offshore Structures (2016), DOI: 10.1080/17445302.2016.1187362.
8. N. Drimer, First Principle Approach to the Design of an Open Sea Aquaculture System. Ships and Offshore Structures (2016), DOI: 10.1080/17445302.2016.1213491.
9. O. Neuberg, N. Drimer, Fatigue Limit State Design of Fast Boats, Marine Structures (2017), DOI: 10.1016/j.marstruc.2017.05.002.
10. N. Drimer, R. Gafter, Delta Type VLFS – Hydrodynamic aspects. Ships and Offshore Structures (2017), DOI: 10.1080/17445302.2017.1384440.

Submitted papers

(Names of graduate students are underlined)

1. M. Milich, N. Drimer, Design and Analysis of an Innovative Open-sea Aquaculture System, submitted to IEEE Journal of Oceanic Engineering.

Patents

1. Katz Giora, Brook Noam, Goral Giora, Drimer Nitai: Unmanned vessel. RAFAEL Armament Development Authority Jun, 15 2006: WO 2006/061841N.
2. Sarid Ofir, Kraier Alberto, Drimer Nitai, Feiglin Tehila, Rakhman Moshe: Underwater Storage system. SEAGEN Systems Nov, 5 2009: WO 2009/133563
3. Drimer Nitai: RHICS – Rigid Hull Inflated Cross Structure Boat, Technion Patents Committee decision to apply for provisional 31 January 2013
4. Drimer Nitai: ICON – Inflated Connector, Technion Patents Committee decision to apply for provisional 06 March 2013 (Application Receipt State of Israel Patents Office 31 July 2013).
5. Drimer Nitai, Peleg Amitai: HELM – Hydraulic Equal Strain Linear Muscle, Technion Patents Committee decision to apply for provisional 03 October 2013 (Application Receipt State of Israel Patents Office 26 December 2013).
6. Danino Benjamin, Rittel Daniel, Drimer Nitai: Poly-urea Coating of Surfaces for Leak Protection, Provisional Patent US 04 December 2016.

Research reports or Case reports

More than 80 research reports with CAMERI – Coastal & Marine Engineering Research Institute, between 1994 and 2012.

At the Technion

1. Technion Autonomous Systems Program (TASP). Unmanned vehicle similar in appearance and propulsion to a ray. Interim Report 31 July 2013 (30 pages).
2. Technion Autonomous Systems Program (TASP). Unmanned vehicle similar in appearance and propulsion to a ray. Interim Report 27 November 2013 (16 pages).
3. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Interim Report 28 November 2013 (29 pages).
4. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Interim Report 27 February 2014 (22 pages).
5. Technion Autonomous Systems Program (TASP). Unmanned vehicle similar in appearance and propulsion to a ray. First Year Report 31 March 2014 (51 pages).
6. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Interim Report 30 July 2014 (44 pages).
7. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Yearly Report 31 July 2014 (30 pages).
8. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Interim Report 30 November 2014 (31 pages).
9. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Interim Report 26 February 2015 (29 pages).
10. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Interim Report 30 May 2015 (40 pages).
11. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Interim Report 07 September 2015 (40 pages).
12. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Yearly Report 02 December 2015 (29 pages).
13. H2020 SME instrument as part of Horizon 2020 – The EU Framework Program for Research and Innovation, Single Point Mooring Flexible Submerged System for Open Sea Aquaculture. Interim Report 01 December 2015 (34 pages).
14. Technion Autonomous Systems Program (TASP). Autonomous Duck Dive (ADD) to exit through surf zone. Final Report 10 April 2016 (25 pages).

15. MEYMAD Program of the Israeli government Ministry of Economy. Development of Aluminum-Polyurea panels for the production of advanced fast boats and other products. Final Report 15 July 2016 (90 pages).
16. H2020 SME instrument as part of Horizon 2020 – The EU Framework Program for Research and Innovation, Single Point Mooring Flexible Submerged System for Open Sea Aquaculture. Interim Report 20 July 2016 (10 pages).
17. H2020 SME instrument as part of Horizon 2020 – The EU Framework Program for Research and Innovation, Single Point Mooring Flexible Submerged System for Open Sea Aquaculture. Interim Report 03 February 2017 (36 pages).
18. H2020 SME instrument as part of Horizon 2020 – The EU Framework Program for Research and Innovation, Single Point Mooring Flexible Submerged System for Open Sea Aquaculture. Interim Report 30 July 2017 (11 pages).
19. The Israel Ports Development & Assets Company Ltd. (IPC), A new concept of VLFS (Very Large Floating Structure) for Mediterranean Sea conditions offshore Israel, Scientific Report Year 1 (18 Pages).

CONFERENCES

(Names of graduate students are underlined, speaker appears first)

1. N. Drimer, Accelerations and stresses in head seas – the dominant design load for fast unmanned boat. AUVSI Association for Unmanned Vehicle Systems International, Marine Robotics Systems, October 2013, Tel-Aviv, Israel
2. N. Drimer, Design and re-commissioning of Eilat undersea observatory. Naval architecture conference, June 2014, Haifa, Israel
3. Roy Gefter and N. Drimer, Delta type VLFS for open sea. Naval architecture conference, June 2014, Haifa, Israel
4. Jonathan Mendelson and N. Drimer, A Hydro-Elastic model for a flexible fin, The 33rd Israeli Conference on Mechanical Engineering (ICME 2015), March 2015, Tel Aviv, Israel
5. N. Drimer, Y. Moskovits and O. Neuberg, A design method for planing hulls, considering hydro-elasticity and nonlinear dynamic structural response. Naval architecture conference, July 2015, Haifa, Israel
6. O. Neuberg, Y. Moshkovich, N. Drimer, Limit State Rational Design of Fast Boats, The 34th Israeli Conference on Mechanical Engineering (ICME 2016), November 2016, Haifa, Israel
7. R. Gafter, N. Drimer, The Delta type VLFS - Hydrodynamic Aspects, The 34th Israeli Conference on Mechanical Engineering (ICME 2016), November 2016, Haifa, Israel

Refereed papers in Conference proceedings

1. F. Dicastro, N. Drimer, M. Glosman, P. Harari, Y. Keren, M. Radomir, A. Sheremet, M. Stiassnie, & J.A.Zwamborn. A Numerical model for studying the motion of berthed ships in harbours. Coastal Engineering 97, La Coruna, Spain.
2. N. Drimer, Floating structures in waves – loads and motions, Workshop on Offshore Technologies for Aqua-culture, October 1998, Haifa, Israel

3. N. Drimer, M. Glosman, M. Stiassnie, & G. Zilman. Forecasting the motion of berthed ships in harbours. 15th International Workshop on Water Waves and Floating Bodies. Caesarea Israel 2000.
4. N. Drimer, M. Glosman. A computerized system for real time forecasting of operability of marine installations. International Harbour Masters Association Congress, Cape Town, South Africa, May 2002.
5. N. Drimer, O. Neuberg, Y. Moshkovich & R. Hakmon. Rational design of fast boat hull. The seventh Conference on Computational Methods in Marine Engineering Marine 2017, Nantes, France, May 2017.

Participation in organizing conferences

Naval Architecture Conference, Technion Haifa Israel, 29 June 2014, Principal organizer in cooperation with the Israeli Navy and the Association of Engineers, Architects and Graduates in Technological Sciences in Israel.

Naval Architecture Conference, Technion Haifa Israel, 21 July 2015, Principal organizer in cooperation with the Israeli Navy.

The 34th Israeli Conference on Mechanical Engineering (ICME 2016), Technion Haifa Israel, November 2016, Organization of Naval Architecture and Ocean Engineering Session.