5. *Yacht Design* at Politecnico di Milano. Origin, Development, and Future of the Research and Training Area in Yacht Design

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5.1 Yacht & Design

The title of the contribution we present, *Yacht Design at Politecnico di Milano*, encapsulates a broad field of study, both theoretical and applied research, encompassing all aspects of waterborne vessels, from small sailing boats to large cruise ships. Yacht Design is positioned within the broader field of Design and has evolved over the years in close dialogue with both Italian and international design discourse. Two examples highlight the deep interconnection between design culture and yacht design: one related to cruise ship design, and the other to the design of yachts, both sailing and motor-powered.

Regarding cruise ship design, many authors trace the success of post-war Italian design to large-scale naval contracts that propelled brands like Cassina, Molteni, and Moroso – just to name a few – into prominence, brands that are still active today. Since the 1920s, Italian ships were regarded as the most beautiful in the world. Designers with exceptional creative talent, such as Coppedè, renowned not only for his work on ships but also for his architectural achievements, Pulitzer-

Finali, with his international background working in the U.S. alongside Henry Dreyfuss, and the genius of Gio Ponti, who discussed naval interior aesthetics in *Domus*, contributed greatly to defining new languages and new ways of living at sea.

Around these designers, a community formed, made up of entrepreneurs eager to find innovative solutions, highly skilled artisans, and artists whose works enriched the ships, not to mention shipowners, always focused on launching the most beautiful vessels.

The design of naval interiors has seen new interpreters and forms of expression over the years, yet the link with the larger field of design has always remained strong.

If we leap to the present day and look at the boats competing in the America's Cup, we can clearly see how the culture of design, with its approaches and methods, is expressed. *Luna Rossa*, for example, as well as all the other competing vessels, represents a perfect synthesis of the most efficient forms, cutting-edge technologies, and the crew. It is an exemplary project of product design, interior design, organization, communication, and fashion. The boat itself is merely the endpoint of a more complex system, meticulously designed and managed by various groups working together with passion and expertise over a four-year cycle from one competition to the next.

In 2023, the *Genoa Boat Show* and the *Salone del Mobile* in Milan finally converged, marking the close relationship and mutual benefit of these two productive sectors.

The discipline of Yacht Design has, therefore, deep roots embedded in the Italian tradition. At Politecnico di Milano it first founds fertile ground to evolve into a structured field of education and research. Starting from the 1990s, driven by a rapidly growing market and the vision and passion of some professors and researchers, Politecnico initiated the first courses dedicated to nautical design. These courses blended architectural and engineering skills with the specific requirements of boat design, leading to the creation of excellent educational programs, preparing new generations of yacht designers while stimulating interdisciplinary research.

The present narrative reconstructs – through documents and testimonies – the steps that led from the initial ideas on how to structure a research and educational field in the yachting industry, to the

development of various educational programs, research initiatives, and practical and sports activities in the area of Yacht Design.

This process was long and complex, involving theoretical reflections and bureaucratic steps. It necessitated interdisciplinary relationships both within and outside Politecnico context. To bring order to this journey, the narrative is divided into three sections to present, in chronological order, a common history intertwining actions, themes, and people. The first section, *The Origins*, narrated through the memories of Silvia Piardi, gathers institutional teaching experiences from the first theses at the Faculty of Architecture to the three-year *Nautical Design* program at the School of Design, from the Interuniversity Master's Degree in *Naval and Nautical Design* to the current final synthesis workshops. The second section, *Research and Development*, edited by Andrea Ratti, retraces the mature phase of post-graduate training initiatives, emblematic research at the Smart Lab research laboratory in Lecco, and experimentation opportunities through student competitions. Finally, the third section, *Evolutions and Future*, curated by Arianna Bionda, looks at ongoing research in the fields of digital technologies and sustainability, starting from doctoral research topics to national and international research projects.

5.2 The Origins

5.2.1 From a Passion for Sailing to the Birth of an Educational Project

During the 1980s, Politecnico di Milano Faculty of Architecture underwent a reorganization under the guidance of dean professor Cesare Stevan. Two main lines of thought dominated this transformation: the first promoted the specialization of new disciplinary areas, defining the architect with diverse skills; the second encouraged interdisciplinary research between engineering and architecture. These educational innovations, such as design laboratories with various professional figures, fostered the development of new academic projects, including those for nautical design.

At Politecnico, studying the scientific fundamentals of sailboat design originally began in the Engineering departments, driven by Giorgio Diana's (director of the Department of Mechanics) passion for sailing.

During a conference organized by professor Diana on nautical design, the idea of introducing sailing yacht design as a study area at Politecnico emerged. The aspiration was to combine theory and practice, study and hands-on experience, the passion for sailing and the study of physics and mechanics, the poetry of forms and the history and culture of boat design. All elements set in motion activities that start in the following years.

In 1989, Silvia Piardi asked dean Stevan for permission to present a thesis unrelated to building or urban design. With his approval, it was officially the first time that thesis topics not aligned with the traditional architecture curriculum were accepted and valued. The thesis was by Umberto Felci [1↘], who studied composite materials for nautical use. This work opened the doors for Felci to join the America's Cup team, leading to a brilliant career as a designer of always-winning racing boats. Other research theses followed, covering various research fields – historical and cultural, technological and scientific, and market-related – fostering relationships with the Museo della Scienza e della Tecnologia in Milan and the Naval Technical Museum of the Navy in La Spezia.

1. L'avvento dei compositi artificiali nel settore nautico.
Document→

Starting form the early 1990s, Silvia Piardi and Andrea Ratti began proposing advanced courses and thematic seminars on design for recreational boating [2↘]. It is essential to consider the historical context. The profession of yacht designer was often self-taught, based on technical training in architecture or engineering and apprenticeships at shipyards. Between the late 1990s and early 2000s, the nautical sector overgrew, requiring qualified personnel in various areas, from small boats to cruise ships and mega-yachts. Italy, a leader in the global market, saw an increasing demand for specialized professionals. The successes in the 2000 America's Cup [3↘] reinforced the image of the Italian industry, combining technology and aesthetics. *Luna Rossa*, an Italian boat sponsored by Prada, represented the strength of Made in Italy. The rapid evolution of the nautical market made it necessary to train professionals capable of enhancing Italian specifics and promoting the competitive factors of the national economy [4↘].

2. Design e Valorizzazione dei beni culturali nella nautica italiana.
Document→

3. Competizione e ricerca nella nautica. Il caso America's Cup.
Document→

4. Materiali e tecniche innovative nel settore nautico.
Document→

5.2.2 From the Milanese Three-Year Program to the Specialized Degree

In 1990, the University of Genoa established the first Italian School of Recreational Boat Design at the behest of the Ministry of the Merchant Navy. Configured as a Scuola Diretta a Fini Speciali (School for Special Purposes), it formed the first nucleus of the La Spezia branch of the University of Genoa, supported by the joint efforts of all local entities. In 2000, the school's success led to the creation of the curriculum in *Naval and Nautical Design* and the course in *Nautical Engineering*, thanks to the contributions of Benedetta Spadolini and Vittorio Garroni Carbonara, supported by Massimo Musio Sale and Ivan Zignego. This context and the meeting between deans Benedetta Spadolini of the University of Genoa and Alberto Seassaro of Politecnico di Milano stimulated collaboration on joint educational projects in the design area. Lombardy and Liguria provided an ideal environment with their rich shipbuilding and industrial presence in the nautical sector.

Figure 1.
Students and professors of the three-years *Yacht Design* educational program, 2022.

Meanwhile, during the academic years 1999-2002, the Master's in *Yacht Design* and the three-year *Yacht Design* educational program were activated in Milan. This program led to the graduation of about 40 students, guiding them from the third year of the course with specialized project laboratories. This experience allowed a group of professors from the Universities of Genoa, Politecnico di Milano, and the University of Pescara to experiment with a common educational path dedicated entirely to nautical design 5↘ 6↘.

5. Immagini del corso di Progettazione di una barca a vela. Document→

6. OpenLab 1999_003. Document→

To build an innovative teaching approach based on the integration of theory and practice, a full-scale model reproducing a section of a boat designed by Andrea Vallicelli was built. *L'Arca*, designed and built by Paolo Padova and Ettore Pagani, hosted exercises focused on yacht interiors, offering the opportunity to experiment with onboard equipment in scenarios

that simulate real sailing conditions. In fact, the model can be heeled up to 25° to simulate upwind sailing. The *Allestimenti Laboratory*, led by Paolo Padova, served as a space for experimentation, both for the construction of scaled-down hull models and for hands-on exercises that led to the realization of full-scale hulls.

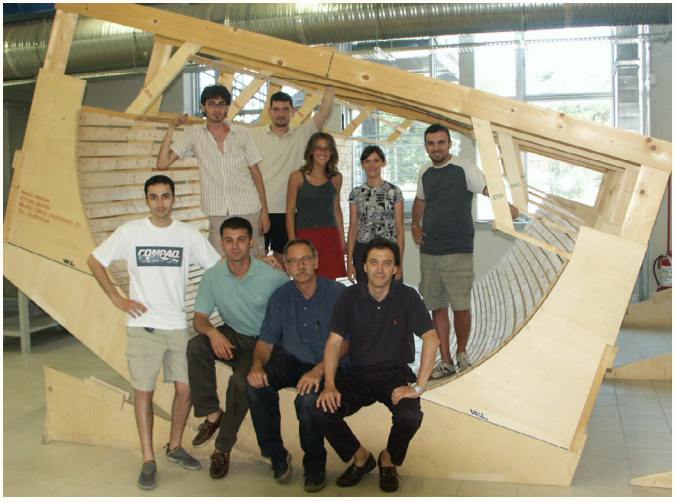
As a result of a collaboration between the Universities of Genoa and Milan, the Specialized Degree in *Naval and Nautical Design* 7↘ 8↘ 9↘ was launched in 2005 after a not-always-easy gestation. This joint degree program involved four Architecture, Design, and Engineering departments across the two universities. The location was established at the University Campus of La Spezia. This city invested considerable resources to transform a local initiative into an attractive centre for national and international students. The redesign required by Law 270, which led to the Master's Degree, necessitated a profound revision of the program and its regulations. The joint Master's Degree with the University of Genoa concluded in 2024 10↘. Concurrently, a completely Milanese path was activated within the Master's Degree in *Interior and Spatial Design*. An educational activity emerged from the experiences in La Spezia and Milan, proposing cruise ship design as the theme for the final synthesis laboratory and subsequent three-years degree theses.

7. Verbale del Senato Accademico. Approvazione della Laurea Specialistica in *Design Navale e Nautico*. Document→

8. Nomina di Silvia Piardi a Presidente della Laurea Specialistica in *Design Navale e Nautico*. Document→

9. Corso di Laurea specialistica in *Design Navale e Nautico*. Event→

Figure 2.
Training activities on *L' Arca* equipment: students with prof. Andrea Ratti, Paolo Padova, Federico Maggiulli.



10. Adeguamento 270 Laurea Magistrale in Design Navale e Nautico. Document→

5.2.3 Cruise Ship Design as an Educational Laboratory

In recent years, Silvia Piardi has led the final synthesis laboratory, developing typical interior design themes. Within the large vessel container, public and private spaces are articulated, separated from everyday life, and characterized by the need to amaze and entertain travelers.

Many authors trace the origins of Italian design to the large contracts promoted by the transatlantic shipbuilding sector in the 1950s and 1960s. Although the term *design* was not yet in use, how our glorious transatlantic liners were designed, built, and marketed used an integrated approach typical of design. This approach involved harmonizing all design and communication aspects, from interior design to furnishings and accessories and from external communication to the coordinated image design. It was a complex and refined operation aimed at proposing an idea, a way of being, and a sense of belonging. Over the years, hundreds of degree theses have been prepared. The result has been an exploration of various aspects of interior design and the establishment of a broad network of experts, designers, scholars, and technicians who continuously enrich the students' experience 11↘ 12↘. There have been numerous opportunities to present the work internationally, such as at the *Marintec International Conference* in China in 2019 and 2021 13↘ .

Figure 3.
Working on models in the Laboratorio Allestimenti.

The interest in Italian naval and nautical design expertise is very high; industries and universities demand research and training in this sector.

Therefore, design research and educational experimentation intertwine with the goal of training capable and critical designers who operate in complex systems, not necessarily limited to the naval and nautical design sector. Innovative and experimental capabilities can be applied to studying waterborne facilities like hospitals, schools, or training centres.

Technical expertise and creativity can be applied to designing simplified construction systems to produce workboats in poorly equipped areas. A systemic perspective can be directed at studying integrated water-land services. Military or commercial ships are beginning to un-

11. Immagini delle attività del laboratorio di Sintesi. Document→

12. Designing Design Education. Narrative→

13. Estetica nel Design degli Interni delle Navi da Crociera. Document→

Figure 4.
Activities of final synthesis laboratory *Tutti a bordo* within the Bachelor's Degree curriculum in *Interior Design*:
a. student workshop project result, 2023;
b. final project student exhibition, 2024;
c. MSC Meraviglia on-board field trip, 2023.

dergo design processes for living spaces. Thus, practising naval and nautical design is about more than just yachts or ships. It is a starting point, a complex design gym that can train for ever-new challenges.

5.3 Research and Development

5.3.1 Master in *Yacht Design*: An Innovative Educational Proposal

Parallel to the institutional Bachelor's and Master's Degree programs, the first-level university Master's in *Yacht Design* was established in 2002 at the Consorzio POLI.design of Politecnico di Milano. This initiative represented a growing desire within the Milanese university to launch an educational path aimed explicitly at building professional figures in recreational boat design and production. The program benefited from the experience developed within the three-years *Yacht Design* educational project started at the Faculty of Design in the previous three years, which involved a group of colleagues from Politecnico (Silvia Piardi, Fabio Fossati, and Andrea Ratti) and contributions from colleagues at other institutions who had already gained experience in *Yacht Design* education. Notable among these were Andrea Vallicelli from the University G. d'Annunzio of Chieti and Carlo Bertorello from the University Federico II of Naples.

14. Visite in Cantiere con studenti MYD. Document→

The developed model introduced significant innovation in the global educational landscape by structuring a path for diverse profiles: architects, designers, engineers, and graduates in economic disciplines, with common program and tailor-made educational objectives. This uniqueness required specific teaching modules and new dynamics to determine the initiative's success. Over the past twenty years, the Master in *Yacht Design* (MYD) has supported the development of the Italian

nautical industry towards a position of international leadership, training over 700 professionals. This path of excellence has broadened its user base, with 70% of students coming from around the world, strengthening relationships with the industrial and shipbuilding sectors [14↘] [15↘]. After more than twenty years, the project has generated its first spin-off. In response to the growing demand for subcontracting in nautical and naval outfitting, the professional course in *Executive Interior Yacht Design* was launched in 2023 [16↘]. This post-graduate training, now an international benchmark, has become a ground for experimenting with new forms of cutting-edge content delivery, fueled by increasingly numerous international research projects.

15. Decreto rettorale 1st Level Specialising Master in *Yacht Design*. Document→

16. *Design degli Interni per Yacht* – Corso *Executive*. Document→

5.3.2 An Emblematic Research Hub: Lecco Innovation Hub and Smart Lab

The educational experiences have always followed a consolidated model within the School of Design, closely linked to research. Experimentation in the nautical sector focused on reducing the environmental impact of production processes and innovating in composites, finding synergies with educational experiences.

The results of the research have often influenced the evolution of academic models. The 2010 *Emblematic Major Project* by the Cariplo Foundation was a significant episode within which the Lecco Innovation Hub was created [1↘] [17↘]. This research and training centre of Politecnico di Milano is characterized by high technological innovation and interaction with the territory.

Note 1.
Lecco Innovation Hub.
Link→

Recognized among the ADI Design Index excellences [18↘], this centre has facilitated not always linear technological transfer between research, education, and industry in the nautical sector. The initiative supported strategic and instrumental research conducted within the Sustainable Marine Research & Technology (Smart Lab) to help companies operating in the nautical sector and related fields that share technologies, materials, and production processes.

17. Smart: Laboratorio di ricerca e tecnologia marina sostenibile. Document→

18. Politecnico di Milano, Lecco Innovation Hub. Document→

The laboratory has configured itself as a flexible physical and intellectual infrastructure capable of developing basic research, applied research, training, and third-party consulting [19↘].

19. Soluzioni Avanzate per l'Efficienza degli Yacht. Document→

Thanks to its prerogatives, the Lecco Innovation Hub has led the High Technology District *Energy and Innovative Materials for Sustainable Nautical* and participated in the Pact for the Development of Lariana Nautics and the Lombard Mobility Cluster.

Over ten years, SMaRT.Lab has supported companies with innovations in industrialization, optimization of production processes, workplace safety, development of monitoring and diagnostic systems, computational models for nautical design, and low environmental impact propulsion systems. Additionally, the laboratory has addressed transversal themes such as designing waterfront structures, research for nautical sports, disability and rehabilitation, design for disassembly and upcycling, experimenting with bio-composites and renewable materials, onboard ergonomics, safety and comfort, interior lighting studies, VOC emissions, and reducing exposure risks for shipyard operators. These researches have consolidated the foundations of nautical and naval knowledge at Politecnico di Milano and have also opened up significant international collaborations for innovation in yachting.

5.3.3 International Competitions as a Field of Experimentation

Closely connected to the world of research and education, participation in international sailing competitions led to establishing the Polimi Sailing Team in 2007. This initiative created a collaborative path between professors from the Departments of Design, Aerospace Engineering, Mechanical Engineering, Materials Chemistry, Management Engineering, and Electronics, Information, and Bioengineering, along with students from all schools of Politecnico di Milano.

The Polimi Sailing Team's first experience was participating in the *1001VELACup* project 20↘. Conceived by architects Massimo Paperini and Paolo Procesi in 2005, *1001VELACup*, supported by various universities and sailing clubs, involved 20 universities and created over 40 boats. The real challenge occurs in university laboratories, where the boats are designed and built.

20. Targhe e coppe *1001VELACup*. Document→

A regulation stimulating research on natural materials and fluid dynamics has led to innovations impacting the nautical and composites industry. *1001VELACup* combines research, innovation, and sport, challenging universities in nautical design and construction, experimenting with new interdisciplinary educational models, and devel-

oping soft skills and managerial abilities. The activities of the Polimi Sailing Team have involved over 300 students, many of whom now hold significant positions in the nautical world: from designing large yachts to managing production in shipyards, from ocean navigator experiences like Alberto Riva 21↘ to participation in the Rio Olympics by Silvia Sicouri and Vittorio Bissaro 22↘, the latter also engaged in the America's Cup campaign on *Luna Rossa*.

21. Momenti in regata a Mondello per *1001VELACup* trofeo Paolo Padova. Document→

22. Momenti in regata a Mondello per *1001VELACup* trofeo Paolo Padova. Document→

The Polimi Sailing Team has also participated in the SuMoth Challenge, an international competition for foiling Moth-class boats in recent years. This challenge has involved project teams from universities worldwide, promoting innovative and sustainable technical and construction solutions. In 2024, the team won in the competition 23↘, thanks to the dedication of students and researchers and the know-how contributed by an ever-growing group of sponsor companies that believe in the project and the excellence of the education-research synergy.

23. Polimi Sailing Team vince la *SuMoth Challenge 2024*. Document→

5.4 Evolutions and Future

5.4.1. Doctoral Researches in *Naval and Nautical Design*

The most recent research experiences in the naval and nautical fields at Politecnico di Milano result from the intricate intertwining of all those experimental threads that have spontaneously sprouted over the past 35 years in education, international competitions, and company relations. They hark back to early experiences in *Design 4 All* and *Design 4 Disassembly*, the themes of passenger transport, hybrid mobility, and advanced and lightweight composite materials. Doctoral research topics have maintained a strong connection with the discipline of yacht design and its tradition at Politecnico, open-

Figure 5.
Polimi Sailing Team at *SuMoth Challenge 2024*:
a. the sustainable moth sailing in front of Malcesine during the competion;
b. Polimi Sailing Team celebrate the first place at *Foiling Week*.

ing up to two significant ongoing transition areas: sustainability and digitalization. The first doctoral research in this field dates back to 2012. *Sebastiano Ercoli's The Seamless Journey.*

A Universal Design Approach to Water-based Public Transport Systems 24↘ is the result of a comprehensive investigation into accessibility to water-based public transport systems as a key factor for social inclusion and quality of life for people living in fragmented territories. The research resulted in a guide to improving the accessibility of water transport systems for all passengers, not just vulnerable users, in terms of social sustainability and design for all.

Meanwhile, Europe entered a new industrial phase known as Industry 4.0. In 2016, at the start of Arianna Bionda's doctoral research titled *Toward a Yacht Design 4.0* 25↘, the term *4.0* was a projection, a desire to investigate possible technological transformations in design, production, and distribution of manufacturing systems and products enabled by advanced and interconnected manufacturing technologies. It was necessary to understand the impact of these technologies on a design and production process that, in yachting then, as in part today, was linked to analogue tools and the artisanal tradition of carpenters and shipwrights. The research provided an opportunity to establish the Nautica 4.0 Observatory in 2017 26↘ 27↘.

Promoted by the Design and DIG departments of Politecnico di Milano, the Observatory organized co-design seminars and workshops with Italian companies on digitalization topics, outlining digital transformation scenarios that planted the seeds for experimental research in digital twin 28↘, additive manufacturing, and interconnected systems.

However, it is with Giuseppe Carmosino's doctoral research, *New Paradigms of Travelling on Smart Ships* 29↘,that the two themes of digital and sustainable transition intertwine, laying the foundation for current ongoing research that intersects digital technologies and eco-design strategies in nautical and urban water transport. The convergence of technological innovation and sustainability underpins national and international projects that increasingly require the interdisciplinary competencies characteristic of Politecnico di Milano.

24. *IL VIAGGIO SENZA OSTACOLI*.
Document→

25. *VERSO UNO YACHT DESIGN 4.0. Come i nuovi modelli produttivi e le tecnologie digitali [potrebbero] influenzare le pratiche di progettazione degli yacht*.
Document→

26. Osservatorio Nautica 4.0.
Document→

27. Focus Group e workshop Osservatorio Nautica 4.0.
Document→

28. *MILDS – Maintenance, Infotainment, Learning Digital Services*.
Document→

29. *Nuovi paradigmi del viaggio su navi intelligenti*.
Document→

These researches accompany national and international yachting in contemporary design, construction, and process innovation challenges.

5.4.2 Sustainability and Digitalization as Pillars of Present and Future Research

Starting in 2018, the interdisciplinary dimension of the research group became structured, leading to interdepartmental research projects increasingly focusing on the ecosystemic dimension of nautical products. The research group matured in designing and producing biocomposite components, collaborating with shipyards and startups for innovative project. Within them, the skiff sailingboat *El Niño* 30↘, designed for children solo use, and winner of the *Compasso d'Oro Targa Giovani*. Simultaneously, it initiated experiments in antifouling films, also thanks to acquiring an indispensable and unprecedented research structure: *Gullisara* 31↘, a mini-tonner boat-laboratory for non-destructive testing 32↘.

30. *El Niño* skiff. Document→

31. Varo Gullisara. Document→

32. Smart Lab: esperienze di ricerca applicata per la nautica. Document→

The European projects *H2020 LINCOLN* and *e-SHyIPS*, coordinated by the Department of Management Engineering but involving the Departments of Design, Mechanics, and Energy of Politecnico, serve as catalysts for international research, positioning the institution among the leading universities in yacht and vessel design research. In *LINCOLN* (*Lean Innovative Connected Vessels*) 33↘, the developed boats were the first test of using 4.0 tools in work and leisure boat design, where real IoT data and virtual simulations supported the generation of innovative concepts.

33. Lean Design ed Internet of Things per il settore marittimo. Document→

In the *e-SHyIPS* (*Ecosystemic Knowledge in Standards for Hydrogen Implementation on Passenger Ship*) 34↘ project, hydrogen boat design is instrumental in defining guidelines to support maritime sector innovation.

34. *e-SHyIPS* – Conoscenza ecosistemica negli standard per l'implementazione dell'idrogeno sulle navi passeggeri. Document→

From these projects, interdepartmental doctoral research on design, knowledge management, product-service systems, integrated manufacturing, and supply chain management has emerged, aimed at identifying systemic transition strategies. The integrated use of artificial intelligence and additive manufacturing has proven fertile ground for advanced experimentation. The *NEMO*

project – *Design 4 Yacht Flexible Customization*, launched in 2023 with PNRR funding, focuses on new production processes for yachting, aiming at flexibility and waste reduction [35↘]. Since 2017, with the publication *Nautica+++* [36↘] and the homonymous seminar, Politecnico has begun systematizing a series of fragmented experiences in *Additive Manufacturing in the Naval and Nautical Fields*, aiming to develop methodologies that allow the fabrication of yachts and composite components without molds and models. NEMO uses parametric algorithms to model complex components and experiments with additive manufacturing processes to reduce weight and costs, improving product customization and lifecycle. Research on AI models for generating 3D images has had educational repercussions in *Yacht Design* courses, and additive manufacturing experiments have been applied in *SuMoth* projects.

35. Aggiornamento Attività *NEMO*. Document→

36. *NAUTICA +++* Additive Manufacturing in campo navale e nautico. Document→

5.4.3 Beyond Politecnico: Opening to the Community

Innovation in research, education, and sports competitions remains the common thread of experiments today, as it was in the past.

These experiments have never been limited to the languages of interior and exterior design alone but have made synergy and collaboration their distinctive feature, opening up to community collaborations. Some social sustainability and citizen engagement activities have been launched in the past ten years, notably the Polisocial project *Tambali Fii* [37↘] and the event *Building a Boat: A Kid's Play* for the 150th anniversary of Politecnico di Milano. The *Tambali Fii* project created a technological hub at the Panafrican Polytechnic Institute in Dakar, Senegal, to train young professionals in materials, technologies [38↘], and social enterprise management [39↘]. This business incubator has transferred cutting-edge teaching models to promote local development and sustainability in the fishing sector.

Young people were at the centre of Politecnico di Milano's activities during its 150th foundation anniversary celebration. In 2013, the event *Building a Boat: A Kid's Play* [2↘] involved children aged 7 to 13 in all-nautical-themed initiatives: building a small boat with natural materials and low-impact processes, a workshop on making sails, fabricating boat models, and learn-

37. *Tambali Fii*. Document→

38. Foto *Tambali Fii* attività compositi. Document→

39. Foto *Tambali Fii*. Document→

Note 2. ***Costruire una barca: un gioco da ragazzi!*** Link→

40. Yacht City. Document→

41. Conferenza Italiana di yacht design. Document→

Figure 6.
Building a hull at the Panafrican Polytechnic Institute in Dakar, Senegal, during the activities of *Tambali Fii* project.

ing nautical knot techniques, thanks to the valuable availability of the Department of Design's Allestimenti Laboratory. Today, the future of yachting at Politecnico is enriched by a new space: Yacht City [40↘], born from the collaboration between the Consorzio POLI.design, the magazine *Yacht Design*, and the TV channel *The Boat Show*, following shared experiences with the coordination of the annual *Italian Yacht Design Conference* [41↘]. Yacht City, dedicated to training and meeting with companies and athletes, is conceived as an ideas atelier, a space where tradition and innovation coexist, and the proximity between the academic and industrial worlds is valued. Today, more than ever, this synergy is indispensable for combining cultural, technological, and material know-how with a broad design vision that embraces environmental and social sustainability themes.

Figure 7.
Activities *Building a Boat: A Kid's Play!* during Politecnico di Milano 150th foundation anniversary celebration.

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