AFRICAN FABBERS LAB: URBAN ECOLOGIES, SELF-CONSTRUCTION & DIGITAL FABRICATION

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Categories: africanCities, Middle Density, Paolo Cascone, Project, Technology and fabrication

Tags: 3D printers, Africa, African Cities, Dakar, Design process, Design strategies, Designing Matter, Digital fabrication, Environmental, Experimental Fabrications, Innovation, Local materials, Marrakesh, Material experimentation, Morocco, Performative Envelope, Project, Research, self-construction, Senegal, Technology, Tradition, Urban ecology, Vernacular

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The African Fabbers School (AFS) is the first school of urban ecologies, self-construction and digital fabrication in Africa.

Following participation in the Dakar and Marrakesh biennales, the school project was directed by Paolo Cascone and developed with the urban fabrication laboratory. The project was realized in the framework of the CAMon program – an initiative promoted by the NGO CEO (Centro Orientamento Educativo) with the support of AICS, the Italian Agency for Development Cooperation. The educational and research platform is based on the idea of bridging African and European knowledge through community-oriented projects and applied research. Therefore, the AFS will be part of an international network of design schools and research laboratories. The project aims to respond to the lack of design schools in the region in order to investigate the growth of African cities, placing emphasis on an ecological agenda, and exploring the interaction between African material systems and computer-aided manufacturing technologies.

Khaima Urban Tent

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location: Salé (Morocco)
client: CISS
team: Paolo Cascone (architect), Tamara Vecchione, with the local community
partners: Quartiers du Monde

This lightweight structure is conceived as a tensile fabric shelter for the public garden of Salé. The project is inspired by a traditional cables system for generating shade solutions in the ancient medina. The aim is to create a relational space in cooperation with the local community, involving

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them in a self-construction project for a common shaded gathering place.

Earthground

location: Sourgoubila (Burkina Faso)

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client: Sourgoubila primary school
team: Paolo Cascone (architect) with Pascal Angel, Geoffroy Griveaud, Christophe Lefevre, Matthieu De Lacvicier, Ali Benabdellah, Ayda Bennani-Smires, Edouard Fenet, Mathieu Quilici, Fatou Dieng, Youssef Haddadi, Victor Du Peloux, Nadege Guion, Oceane Patole, Murielle Teguel, Omar Ghaiti, Juliette Rubel, Loubna Touzani, Marguerite Bureau, Nina Rotter, Salwa Essoussi
construction team: Atelier Paolo Cascone, with the local community
consultant: La Voûte Nubienne
partner: ESA

The project was developed with the Atelier Paolo Cascone (ESA-Paris) in collaboration with the local community of Sourgoubila. The design process intended to develop a high-tech design / low-tech construction approach to performative design, merging a computational process with vernacular construction techniques from the Sahel region. Following research in a design workshop held in Paris based on the use of earth bricks for vaults, we discussed the project of building a primary school playground with the village. The space allows the children of the village to play and study in a shady playground.

Open-Air Lab

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location: Dakar (Senegal)
client: Ker Thiossane - Defko Ak Niep Lab
team: Paolo Cascone (architect) with Elena Ciancio, Flavio Galdi, Giuliano Galluccio, Andrea Giglio, Imma Polito
technical partner: Urban Fablab
partner: Fondazione Idis - Città della Scienza; Fondazione Architetti e Ingegneri Liberi Professionisti Iscritti Inarcassa; Ker Thiossane; Dakar Biennale.

The project is conceived as a small infrastructure realized in a public space in Dakar, providing an

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open-air laboratory for local craftsmen. The construction of the structure was realized in the framework of the African Fabbers project, through a participatory process involving the local community and European makers, with the aim of supporting the creation of the first fablab in Senegal. The project was selected to participate at the Dakar Biennale in 2014.

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3D-Printed Pavilion

location: Marrakesh (Morocco)
client: Marrakech Biennale
team: Paolo Cascone (architect) with Elena Ciancio, Flavio Galdi, Giuliano Galluccio, Andrea Giglio, Imma Polito
technical partners: Urban Fablab; WASP, for the Big Delta prototype
partners: Fondazione Idis / Città della Scienza (Italy), Fondazione Architetti e Ingegneri Liberi Professionisti

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Iscritti Inarcassa, Marrakesh Biennale
thanks to: Madre Museum - Naples, ESAV - École Superieure des Arts Visuels, Cfqmam - Centre de Formation et Qualification dans les Métiers de l'Artisanat, Voice Gallery – Marrakesh

The project explores the use of 3D-printing technologies for structural components in architecture. The structure in question is made with interlocked ceramic elements, fabricated by extruding local clay. The components are designed with the aim of generating a hydroponic system.

Temporary Laboratory Marrakesh

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location: Marrakesh (Morocco)
client: Marrakech Biennale
team: Paolo Cascone (architect) with Elena Ciancio, Flavio Galdi, Giuliano Galluccio, Andrea Giglio, Imma Polito
technical partners: urban fablab; WASP, for the Big Delta prototype
partners: Fondazione Idis / Città della Scienza (Italy), Fondazione Architetti e Ingegneri Liberi Professionisti

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Iscritti Inarcassa, Marrakech Biennale
thanks to: Madre Museum - Naples, ESAV - École Superieure des Arts Visuels, Cfqmam - Centre de Formation et Qualification dans les Métiers de l'Artisanat, Voice Gallery – Marrakesh

The project was developed in the framework of the African Fabbers project in Marrakesh and consists in the transformation of an abandoned hangar into a productive atelier for design students from the ESA and the local community of artisans. The space was equipped to be a temporary laboratory, with a Big Delta 3d-printer for natural materials, an Arduino coding location and a computer area. Inside the atelier, we developed an energetically sufficient 3D-printer and explored the potential of 3D-printing with natural local materials to realize structural component prototypes for a hydroponic pavilion made from interlocked ceramic elements fabricated by extruding local clay.

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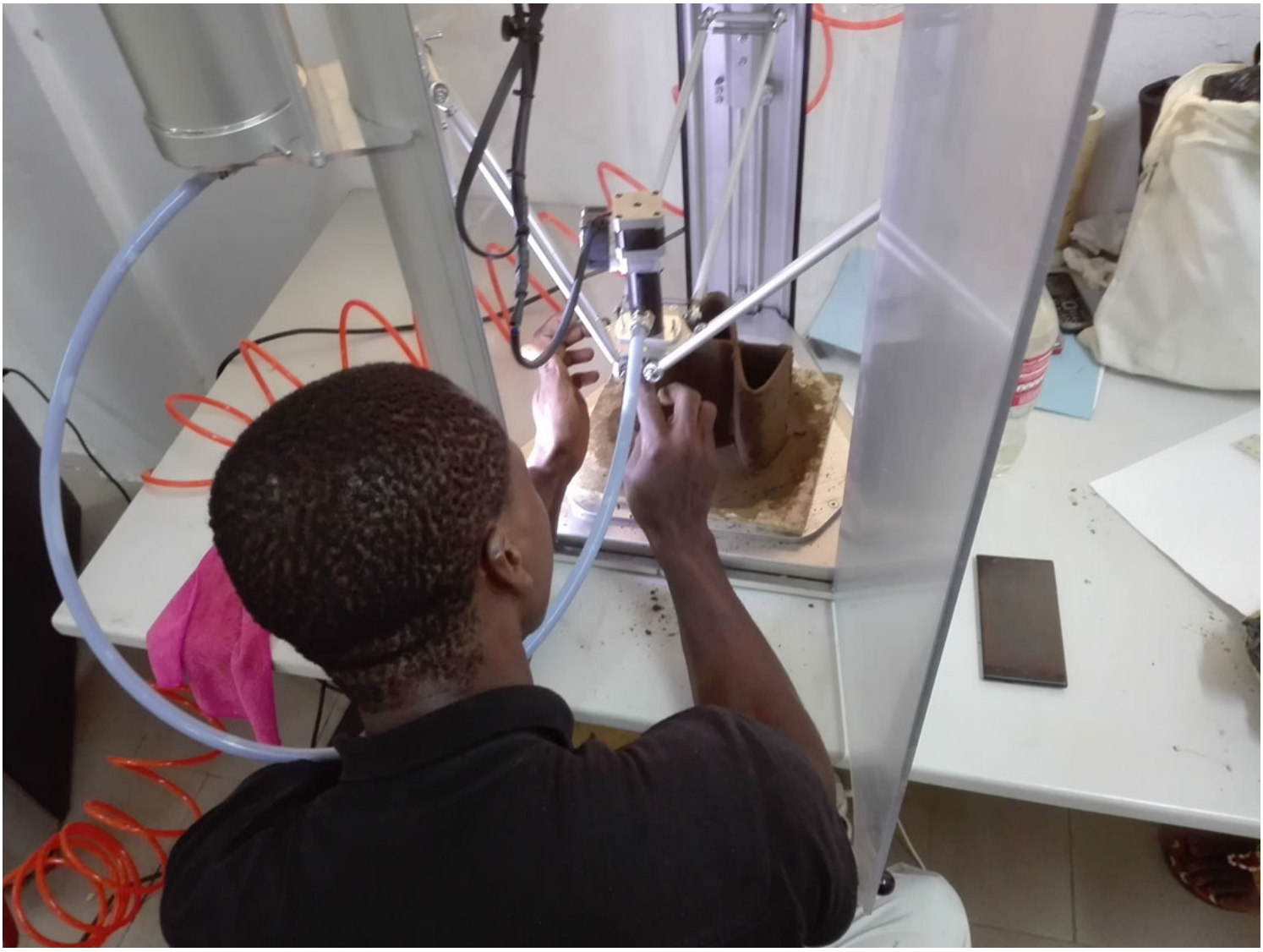

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The urban 3D-printer is a prototype of a low-cost, off-grid, transportable digital fabrication device. The first prototype was developed in the framework of the African Fabbers project and presented at the Marrakech Biennale.

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