RoboFoam looks at the increasingly expanding category of foam-based materials and engages with ubiquitous expandable foam, which is characterized by a high degree of non-linearity. The capacities of this material were extended by the introduction of the extreme precision of algorithmic design and robotic production. Multi-agent systems and computational physics simulations were employed and woven into a design space. Aesthetic, thermal and structural capacities are mined from the interplay of noise and accuracy. The project deals with the tension between the extreme control of the robotic machine and the noisy and unpredictable behavior of the material.
3. Space Formation Studies in order to Generate a High-resolution Fabric of Architecture

4. Material Deposition Detail
The project examines the evolvement of the uncertainty in the design process resulting in an integrated and resilient structure that emerges from local conditions and possesses the ability to create global patterns and emerging forms. The project synthesis is developed through a constant feedback loop between the algorithmic design, the material research and the fabrication process where each one informs the other during the process. The result is a dynamic and volatile system that negotiates between the high articulation of the material behavior and the inconsistent manipulation of structural formation. In order to generate a high-resolution heterogeneous structure, the design process initiates by introducing specific aspects of performance, aesthetics and material behavior on space formation studies. The system works simultaneously at a macro- and micro-scale articulating the high resolution of materiality, enabling an evolving resilient fabric of architecture and generating new synthetic landscapes.
RODRIGO NOVELO Pastrana is an architect, designer and programmer based in Mexico, he has obtained several awards for his work such as an honorable mention in the “Alberto J. Pani award” and the inclusion in the biennale “World Best Graduation Projects”. He was awarded with the “Vladimir Kaspé” Scholarship allowing him to attend the “GAD” program at the Bartlett where he obtained the “Golden ear” and the “Special Peter Cook” award. He’s currently researching experimental processes in design through robotic fabrication, multiple agents systems and digital simulations. His work has been exposed and published in Mexico, China, Uruguay and London.

NIKOLA PAPIĆ is a Serbian architect. He graduated from the Faculty of Architecture at the University of Belgrade and obtained a Master Engineer degree in Architecture. During his time in college he worked for several architectural offices in Belgrade. After finishing his studies he started working in the design studio Articons in Belgrade. In 2012 he moved to London in order to increase his knowledge in the field of architectural design. He joined a master course at UCL Bartlett School of Architecture where he graduated in November 2013 with the following awards; The Peter Cook Prize and “Golden Ear” Prize.

ELINA CHRISTOU is a young architect, designer and researcher. She recently graduated from The Bartlett School, with distinction. In 2012, she obtained her bachelor degree in Polytechnic Faculty of University of Thessaly in Greece. She has been awarded with the Golden ear and the Special Peter award for her master’s project at Bartlett. She has participated in art and photography exhibitions and in several architectural workshops regarding computational design, urban design and robotic applications in architecture. Her current research focuses on emergence, nonlinearity and volatility as methods of design. She is currently working as an architect at Foster and Partner’s.

JAN DIERKX is a recent Bartlett (UCL) postgraduate in Architectural Design where he researched the juxtaposition between extreme control of roboticized deposition and the unpredictability of highly expansive synthetic materials. He focused on the scripted control and process planning optimization of industrial robotic arms and custom end-effectors. Jan also holds a graduate degree in Civil Engineering and Architecture from Ghent University (BE).

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Combination of Two Different Material Fabrics