Faculty Publications for Academic Year 2018-19

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**Recommended Citation**

Brandt, Kathleen; Lonsway, Brian; Brown, Lori; Chun, Junho; Cooke, Sekou; Corso, Gregory; Czerniak, Julia; Davis, Lawrence; Dixit, Mitesh; Louie, Jonathan; McIntosh, Nicole; Parga, Marcos; Park, Daekwon; Wang, Fei; Bartosh, Amber; Bedard, Jean-Francois; Chua, Lawrence; Hunker, Molly; Hubeli, Roger; Larsen, Julie; Krietemeyer, Elizabeth; Linder, Mark; Namara, Sinead Mac; Sho, Yutaka; Brown, Ted; Godlewski, Joseph; Miller, Kyle; and Shanks, David, "Faculty Publications for Academic Year 2018-19" (2019). *Full list of publications from School of Architecture*. 230.  
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Figure 2.1
The PARC beanbag exhibit at the Computer History Museum in Mountain View, California. Photograph by the authors.

The Computer History Museum exhibits the beanbag with a nod to both historical accuracy and cultural cheekiness, acknowledging that the transformative impacts of this commonplace piece of furniture in the domain of computing history are manifold. The beanbag functions ergonomically, culturally, and symbolically, and these various functions have been built upon, expanded, and in many cases reified since this famous placement in the early PARC. Our friend the beanbag has grown up, but not necessarily matured, in the hands of designers since its invention. Together with many allies including the fern, the ping-pong table, and the playground slide, the beanbag has become a de facto indicator and erstwhile instigator of creative capacity.

What is behind this evolution? And to what do we owe the iconic status of the beanbag? We need look no further than Bruno Latour and Steve Woolgar’s observational work with the Salk Institute’s scientists for a method to unpack the evolution of PARC’s beanbags into the Googleplex. We see that designers, much like scientists,


“SPORTS / Syracuse”, Design 360, no. 74 (April 2018): 40–45


JULIA CZERNIAK
Associate Dean & Professor

Guest Editor. Special Issue on Landscape Criticism, Journal of Landscape Architecture (JoLA) 13, no. 3 (April 2019): 5–7 (introduction)

Subic, Sandra (co-author), **DOMAIN**. Nis: Galaksijanis, 2018.

**DOMAIN OFFICE**
Selected Works

**Macro Plaza**
Monterey, Mexico

**DATUM**
Derraw, Pennsylvania

**Luna Rota**
Lima, Peru

**CCMC**
Tampa, Florida

**Riordan Ranch**
Napa, California

**The Need for (re)Definition**
Belgrade, Serbia

**No Labour / All Work**
Skopje, Macedonia

*Domain Office: Selected Works, Nis: Galaksijanis, 2018.*
ROGER HUBELI
Assistant Professor

JULIE LARSEN
Assistant Professor
ELIZABETH (BEJJ) KRIETEMEYER
Assistant Professor

“A method for integrating an UBEM with GIS for Spatiotemporal visualization and analysis”,
Society for Modeling & Simulation International,
SIMAUD 2019 April 07–09 Atlanta, Georgia.


TOPO-JOINT

Topology Optimization Framework for 3D-Printed Building Joints

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Abstract. Joints and connectors are often the most complex elements in building assemblies and systems. To ensure the performance of the structures and systems, it is critical to optimize the geometry of joints and connectors. However, the optimization of joints is highly dependent on the type of joint, its usage, and the conditions under which it is expected to perform. The multi-objective optimization framework proposed in this study can be applied to design highly efficient joints and connectors for building applications. The constrained joints that often contain stress or loads are fabricated using additive manufacturing techniques. This framework takes into account the integration of additively manufactured joints with the building structure and system by optimization of structural properties, material usage, and geometric design. Our studies and numerical simulations are performed to determine the viability and effectiveness of the proposed optimization and additive manufacturing framework. General joint designs, such as those for windows and door frames, are discussed to provide an insightful interpretation of this relationship to the mechanical behavior and their interaction on performance.

Keywords. Topology optimization, parametric design, 3D printing.

1. Introduction

Joints and connectors are among the most critical components that affect the overall performance of building structures and systems. This is because these components are often the most complex elements in an assembly, consisting of multiple geometric shapes, load-bearing elements, and connections. The performance of joints can be significantly affected by factors such as stress, load, and temperature, which can cause stress concentrations or defects under extreme conditions. These factors can lead to failure of the structural system if not properly engineered. Compliant joints, which can be modeled using joint models, are designed to act as nonlinear elements that can absorb and distribute loads to improve the overall performance of the structure.

YUTAKA SHO
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FEI WANG
Assistant Teaching Professor


Lubell, Sam. “This Glowing Grilled Cheese Restaurant Offers the Formerly Incarcerated a Fresh Start,” Metropolis, January 7, 2019, https://www.metropolismag.com/interiors/all-square-minneapolis-restaurant-architecture-office/
MARCOS PARGA
Assistant Professor

POSSIBLE MEDIUMS presents a collection of sixteen speculative design mediums by emerging architects.

- ARTIFACTS are man-made objects gathered and reused in the composition of new constructions.
- GRIDS are underlying formal structures guiding the arrangement of architectural elements in two-dimensional representation and three-dimensional space.
- PATTERN is a repetitive arrangement of linear elements that produces figuration through excessive overlapping.
- BODIES are continuous topological forms with features resembling human or animal body parts.
- LINES are abstract geometric entities manifested as material constructions organizing form, space, structure, and use.
- PLANS are two-dimensional representations of walls, windows and doors cut up, recomposed, or extruded to produce new spatial and formal arrangements.
- FURNITURE refers to objects with expressive forms, details, and components that challenge the rituals of eating, sitting, sleeping, storage and display.
- NARRATIVES are graphic stories of real or fictional architecture involving sequential arrangements of language, animations, illustrations, and props.
- PLASTIC is a synthetic material used in non-standard fabrication to create heterogeneous tactile and visual qualities.