Education, Design and Practice – Understanding skills in a Complex World

• Paper / Proposal Title:
Architectural Investigations: Visualization and Fabrication

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• Abstract (300 words):
The digital revolution of the late 1990’s brought new fabrication software and tools to the discipline of architecture. STEM initiatives of the 2000’s sought to bring digital and technological literacy to aspiring architects and designers in the form of computer aided drafting, visualization software, and access to digital fabrication tools like 3d printers and laser cutters.

Digital production and image making have now become mainstream in architecture. A new wave of inquiry into the future direction of the discipline is working to bring a more diverse set of tools and processes of making together into dialogue. New design methodologies encourage thinking across digital and analog media and creating a feedback loop between 2d and 3d forms of representation. Meanwhile, educators have called to change STEM to STEAM by adding art education to STEM programs. Art would expand possibilities for innovation through creativity, ingenuity, design thinking, and the practice of working with your hands (Maeda, John. “STEM to STEAM: Art in K-12 Is Key to Building a Strong Economy”. Edutopia). This new initiative has not yet been widely integrated into high school curricula. Digital literacy programs have not evolved
to incorporate the art and making strategies needed for architecture and design coursework at the collegiate level.

This Pratt Saturday Art School course foregrounds design thinking through making. Exercises employ the most current techniques in visualization and methods of fabrication available (digital modeling, drawing, rendering, CNC milling, 3D printing, laser cutting, robotics) in combination with analog making techniques, including casting and painting, to produce multimedia projects. Course evaluations, observation notes, project examples, and in-depth interviews point to a transformation in the student’s understanding as a result of this combinatorial way of thinking and making, engaging a broader cross section of students in technology-driven subjects introduced through the lens of an arts-based approach.

• Author(s) Biography (200 words each):

Alexandra Barker is the assistant chair of the Graduate Architecture and Urban Design Program and Associate Professor with CCE at Pratt Institute. She helped found the Graduate Architecture and Urban Design Department in 2001. She has also taught at the University of Pennsylvania and Princeton. This past fall she was the recipient of the Faculty Research Fellowship to integrate new design approaches into K-12 curricula. She was the recipient (with Catherine Ingraham) of an NCARB grant to integrate practice and education into Pratt’s curriculum. She also received a FIPSE grant (with Nico Kienzl) to integrate sustainable principles into the curriculum.

Alexandra Barker is also the founder and principal of BAAO Architects pllc, an award-winning practice based in New York with a focus on exploring spatial and material practices that adapt to the evolving relationships between inhabitants and the built environment. A book on the firm’s work will be published in 2019.

Alexandra Barker received her MARCH from Harvard University’s Graduate School of Design, where she received the Templeton Kelly Prize and the Clifford Wong Housing Prize for her thesis work. Her undergraduate work in Visual and Environmental Studies was completed at Harvard College, where she graduated magna cum laude.

Olivia Vien is a Visiting Assistant Professor in the Graduate Architecture and Urban Design Program at Pratt Institute. Additionally, she instructs in several K-12 platforms within Pratt including the Consortium for Research and Robotics STEM Program and the Pratt Young Scholars Program. She also is on the faculty as an Adjunct Lecturer for the Undergraduate Architecture departments at both The City College of New York and New York City College of Technology.

Olivia is an independent designer practicing in New York City. Her work includes exhibition, event, scenic, digital media, interior, residential, and commercial design and
has been featured in various exhibitions nationally and internationally. Having been trained in various genres of classical and contemporary dance, her approach to design is heavily influenced by a 20 year career in the performing arts.

Olivia holds a Master of Architecture from Pratt Institute, a Master of Science in Sustainability in the Urban Environment from the City College of New York, a Bachelor of Fine Arts in Interior Design from the New York School of Interior Design, and a Bachelor of Arts in Communication from George Mason University.