• Paper / Proposal Title:
Soft Materials: Confronting the Socio-Cultural Effects of Software-Embedded-Design in Shaping an Inclusive Built Environment

• Format:
Written paper / verbal presentation

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• Abstract (300 words):
This work presents the discovery and articulation of methods for expanding the degree to which architects engage computationally-oriented project components from a socio-cultural and ethical perspective.

The first part of the paper presents two inter-related discussions motivating the need for such an expansion. The first positions architects as producers of technology: Designers are deploying custom algorithms to do wide ranging work in their projects and, in particular cases, this custom software actively contributes to a project’s outcomes over its lifespan by mediating the surrounding conditions. We argue that these data/algorithm bundles have become soft materials and embed themselves as parts in a project’s material assembly. The second discussion presents these data/code bundles as having a direct role in shaping the socio-cultural outcomes of the design work. This argument is supported by articulating offerings from the field of Software Studies which position
software – its actual lines of code and data, not just its effects – as a material practice with social and spatial outcomes.

These two discussions support a reconceptualization of ethical literacy; by including soft materials in our conception of a material assembly, they implicitly become a part of the matrix defining its ethical dimensions. Ideally, as designers, we should have literacy and agency with respect to the social, cultural and political effects of each part of this matrix.

Next, the paper focuses on building designers’ capacity for such engagement with their projects’ computational components. We focus on data as a key component and present methods with which designers can develop a more sophisticated understanding of its effects in their work. The concepts of data quality and terrain nominal, as described in disciplines with more established histories of valuing data-literacy, are used as drivers in this exploration and guide the unpacking of a selected project’s datascape along numerous ethically-minded dimensions.

This work shapes a potential for architects’ relationship with soft materials so that their socio-cultural agency is acknowledged, managed and leveraged towards ethical outcomes. It supports the development of richer engagement with the computational components being embedded within design work.

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

Maya Przybylek is an Assistant Professor at the School of Architecture at the University of Waterloo where she is the founding director of the DATALab research group. She is a graduate of the Faculty of Architecture, Landscape and Design at the University of Toronto (M.Arch. 2007) and previously earned a degree with a specialization in Software Engineering at the Department of Computer Science at the University of Toronto (B.Sc.Hon. 2003). Through her teaching, research and design work Maya is exploring the complex intersection of architectural design, data and computation. She is co-editor of Bracket Journal (Actar) and co-author of Pamphlet Architecture 30: Coupling — Strategies for Infrastructure Opportunism (Princeton Architectural Press 2009).