As today’s young artists and designers increasingly work with digital technologies, more and more schools have incorporated computer programming into their curricula. Programming is, of course, a powerful tool: it allows for interactivity, customization, game-play, and cultural critique. However current pedagogical frameworks for teaching coding to artists, designers, and other so-called ‘non-coders’ tend to stratify classrooms according to a ‘fixed’ mindset of ability: students who ‘get it’ excel, and students who don’t flail and flounder.

This paper explores a radically different pedagogical framework for introducing coding to artists and designers: one that begins with a visceral, physical, and tactile experience with the foundational concepts of computer science through ‘paper algorithms’. Paper algorithms – literally algorithmic principles played out through exercises with the familiar medium of paper – offer fidelity to conceptual underpinnings of computation while teaching coding principles through tactile means. Examples of in-class activities using paper will be provided as case studies. These examples cover topics such as loops, Boolean logic, functions, randomness, and even the very basic yet teachable concept
that computers do not possess their own inherent intelligence (they do not ‘know’ what they are doing), but instead follow simple rules that can be manipulated, stacked, and repeated to perform complex tasks.

Beginning with paper as medium allows non-coders to learn software-writing skills with a material they understand, handle, use, and manipulate on a daily basis. Moreover, exercises using this tactile medium serve as points of reference for students when they later begin writing computer code, itself. These exercises foreground the ‘growth’ mindset of learning – the mindset which indicates that all students are can learn and excel at a subject. As such, the ‘paper algorithms’ approach to coding provides for wider access to computer science, and greater success in learning it.

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Liat Berdugo is an artist, writer, and curator whose work -- which focuses on embodiment and digitality, archive theory, and new economies -- interweaves video, writing, performance, and computer programming to form a considerate and critical lens on digital culture. Berdugo has been exhibited in galleries and festivals internationally, and she collaborates widely with individuals and archives. She is the co-founder and curator of the Bay Area’s Living Room Light Exchange, a monthly new media art salon; co-founder and curator of World Wide West, an annual summit, exhibit, and performative new media event, among others. Her writing appears in Rhizome, Temporary Art Review, Real Life magazine, and others, and her book, *The Everyday Maths*, was published by Anomalous Press in 2013. Berdugo received an MFA from RISD and a BA from Brown University. She is currently an assistant professor of Art + Architecture at the University of San Francisco. More at liatberdugo.com.