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Scalable Solutions for Robotic Brick Construction in Hong Kong

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This paper argues for alternative methods toward the integration of robotics in architectural construction. Through the integration of computational design methods and adoption of cable-driven parallel robots (CDPR), the assembly of masonry structures can be automated for safe, efficient and flexible on-site construction implementation. The paper outlines the design, development, prototyping and practical testing of the CDPR with an integrated gripper for pick and place operations based on computationally derived structural solutions. Discussed is the relationship of tool development to construction outcomes based on the limits of equipment, engineering and design agenda. Prototypes outlined illustrate the system potential for deviation from standard forms and highlight a basis for expanded integration into building construction.

Biography

Adam Fingrut is an Assistant Professor and researcher at the Chinese University of Hong Kong with a focus on computation and building systems. He received his Master of Architecture from University of California Los Angeles and his Bachelor of Architecture from Carleton University in Ottawa, Canada. He teaches design studios and courses pertaining to computational design, robotics and architectural technology. Current research explores the relationship between computational design solutions, robotics in fabrication, and on-site construction.

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