



Additive manufacturing: Rapid Prototyping thru Rhinoceros 3D software

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Abstract:

The objective of this paper is to present how robotics permits improvement of construction and building. The comparison will be made with the manufacturing industry for which the robots have operated for many years. To illustrate a robotic system developed to apply a new advanced Additive Manufacturing (AM) process will be presented: Batiprint3dTM. The proposed advanced technology consists of creating a complex wall of 3D-printed materials using a mobile and polyarticulated robot: two polymer-foam printed walls are used to encase a subsequent third wall made of concrete. By using 3D printing for the foam and extrusion of the concrete with the same robotic system, the technique creates jointly both the structure and thermal elements of the building. In the first part of this paper the composite foam/concrete 3D printing method are presented and the idea of a robotics system adapted for building on-site will be developed. In the second part, an experiment in full scale using this new walls 3D printing method will be presented, it is the construction of Yhnova, a real 95m² social housing. In the third part, other robotics solutions dedicated to construction will be presented. This technology Batiprint3d have been used to build a certified, validated and inhabited house; it is possible now to propose a synthesis of the impacts of this new advanced technology for construction.

Biography:

Muhammad Imran Farid Bhutta works at the School of Mechanical and Aerospace Engineering, Jilin University. Muhammad Imran Bhutta doing research in Additive Manufacturing and Mechanical Engineering.



Publication of speakers:

- Muhammad Imran Farid et al ; Partial Annuloplasty Rings in the Repair of Functional Ischemic Mitral Regurgitation, 2020 Jun 3
- Muhammad Imran Farid et al ; Pharmacological Activities of Psoralidin: A Comprehensive Review of the Molecular Mechanisms of Action, 2020 Oct 22
- Muhammad Imran Farid et al ; Adult Mid Ileo-Ileal Intussusception Secondary to Inflammatory Myofibroblastic Tumor (IMT): A Case Report and Literature Review, 2020 Oct; 12
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