

## Design of an open-source 3D gantry system for automated metabolic assessment (and drug delivery) in cell culture

### Description

Biomedical research largely relies on culture of cells in standardized arrays of culture wells (e.g. 96-plate). To measure biological function, or even just to feed the cells, often requires removing the cells from their preferred (incubator) environment and time-consuming manual handling.

The aim of this project is to design a robotic gantry system that can operate *inside a cell culture incubator* to measure metabolic function and dispense/exchange liquids. The goal is to use standard, low-cost components and provide an open-source design to make it accessible to academic laboratories worldwide.

### You will:

- Learn about key aspects of cell culture, including cutting-edge organ-chips
- Draw up specifications for gantry construction, evaluate component suitability (starting points: literature & 3D printers), and generate a full design document
- Optionally, implement gantry construction and/or robot programming

### You should:

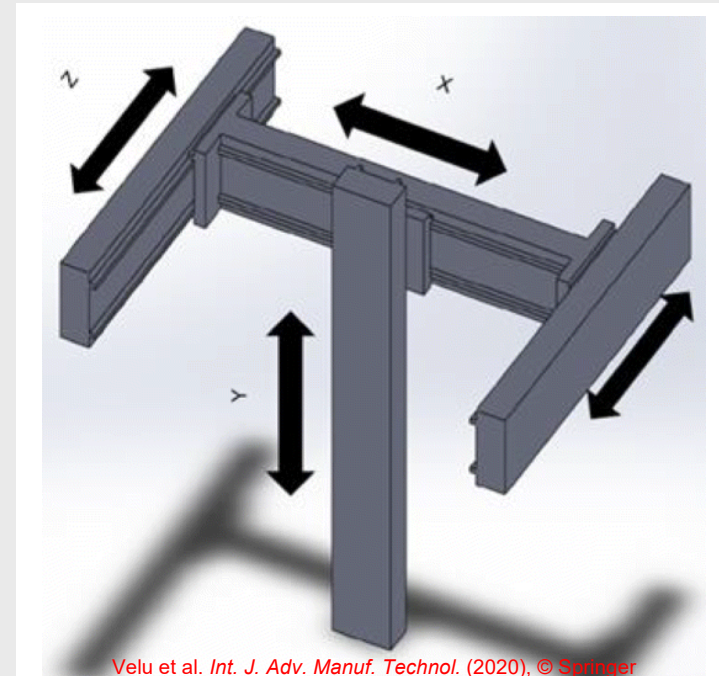
- Be highly motivated and creative, able to work independently, open to feedback
- Have a relevant educational background (mechanical engineering)

**Start:** By arrangement

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*please apply with CV, transcripts, and letter of motivation*



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Velu et al. *Int. J. Adv. Manuf. Technol.* (2020), © Springer



Dettinger et al. *Nat. Comm.* (2022), © Nature