



ASSOLOMBARDA

Confindustria Milano Monza e Brianza

Robotica per il manifatturiero avanzato

Metodo per la fabbricazione rapida di componenti di geometria complessa in fibra lunga senza l'ausilio di stampi

Speaker

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Motivation and Relevance of the Challenge

Additive manufacturing (AM) represents a promising technology to produce 3D objects from a digital model

Existing systems for additive manufacturing have the following **limitations**:

- ❑ the **working volume is usually limited** to 500x500x500mm and only very expensive machines can work bigger volumes; this limits their application to the production of components, not of complete structures
- ❑ components are produced slice after slice
- ❑ these systems either use aluminum/titanium alloys or plastic materials but **only one material at a time**
- ❑ non-homogeneous or non-isotropic materials (e.g. CFRP) cannot be used
- ❑ due to the cost of these machines as well as of the powder (for metal sintering machines), **production costs are extremely high**, thus limiting the use of this innovative production systems

Project objectives

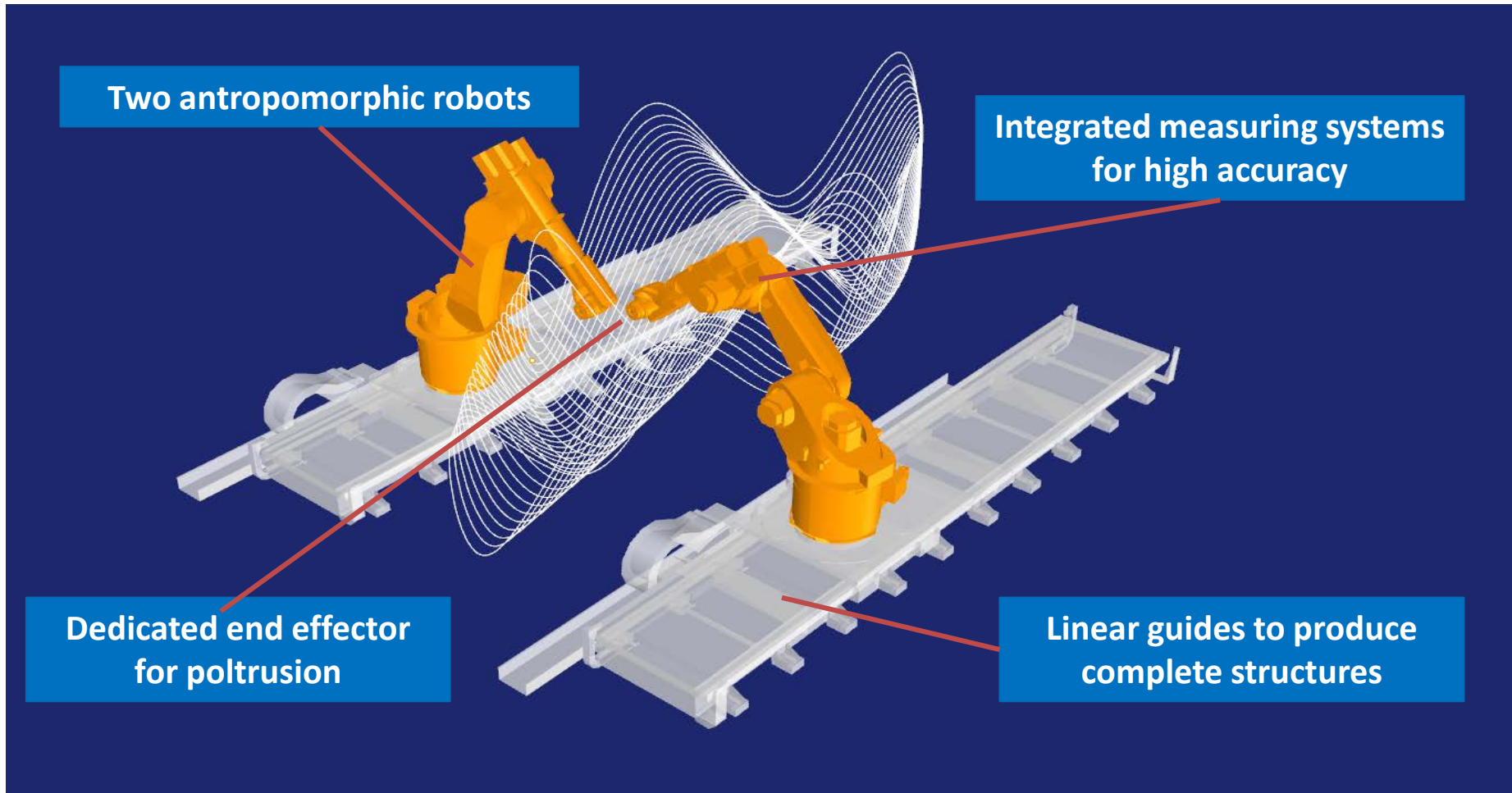
Central question

How is it possible to overcome the technical and economical limitations of the traditional additive manufacturing systems?

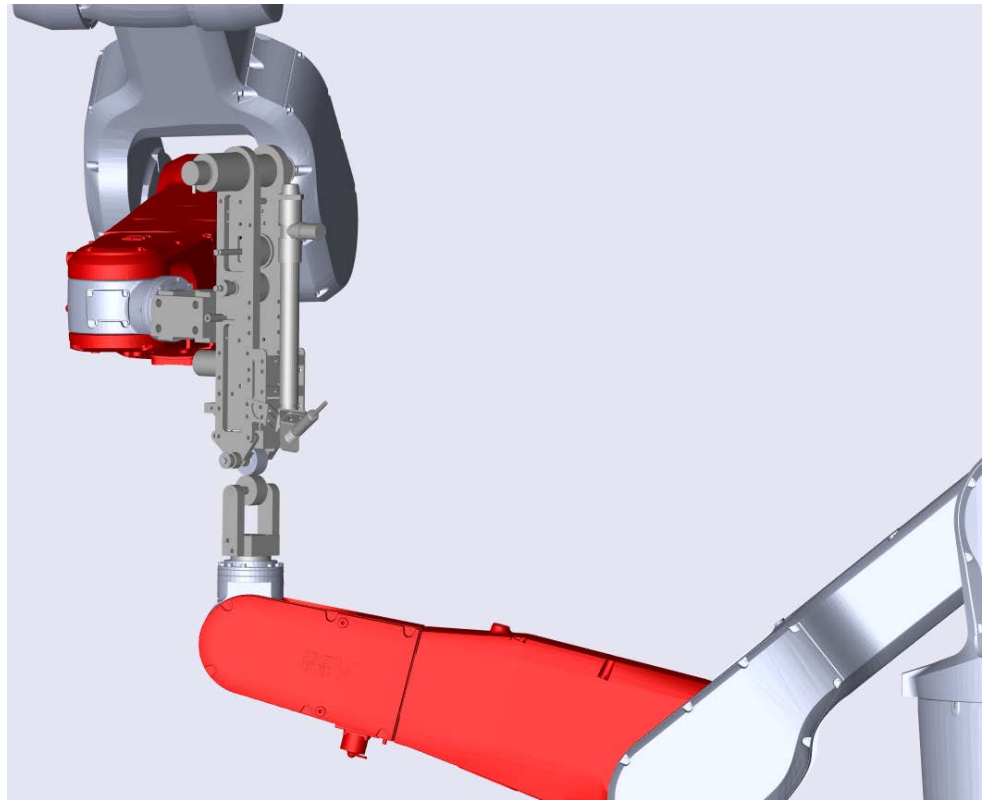
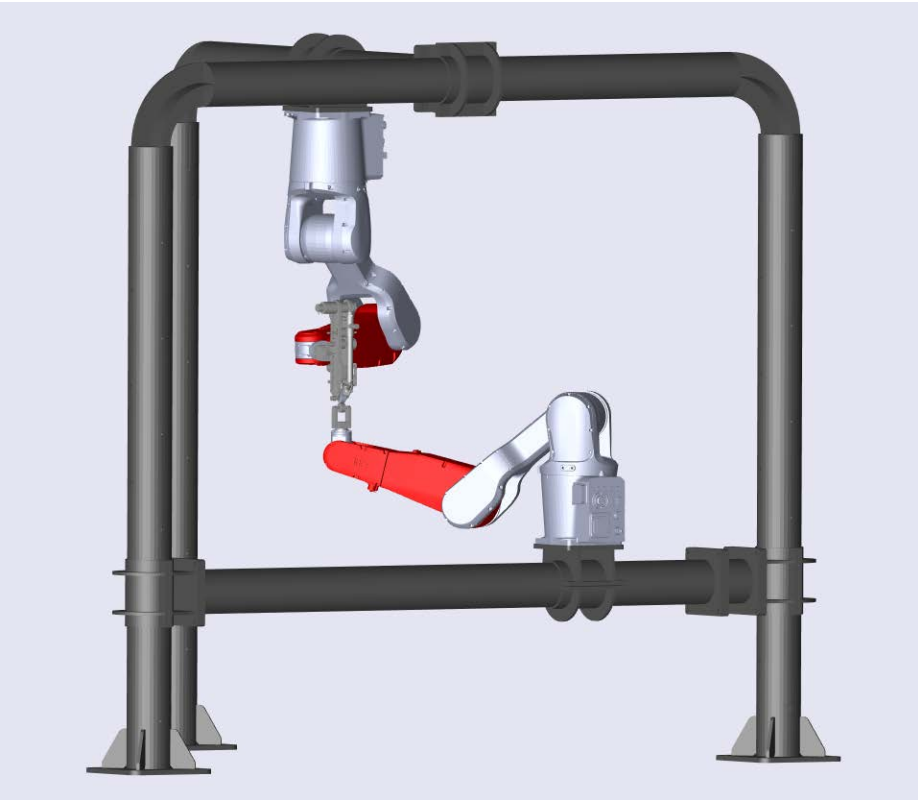
Project objectives

- ☐ **Working space** limited only by the available space
- ☐ Being able to produce **double curvature structures without mould**
- ☐ Capability of **integrating different materials** at a time (e.g. composites)
- ☐ Ability to **integrate additional components** such as sensors (e.g. fiber glass sensors) or actuators
- ☐ Drastic **reduction of the cost** of both machines as well as of the material (no special powder required)
- ☐ Manufacturing costs of the products have to be as low as those obtained with the traditional processes, or even lower

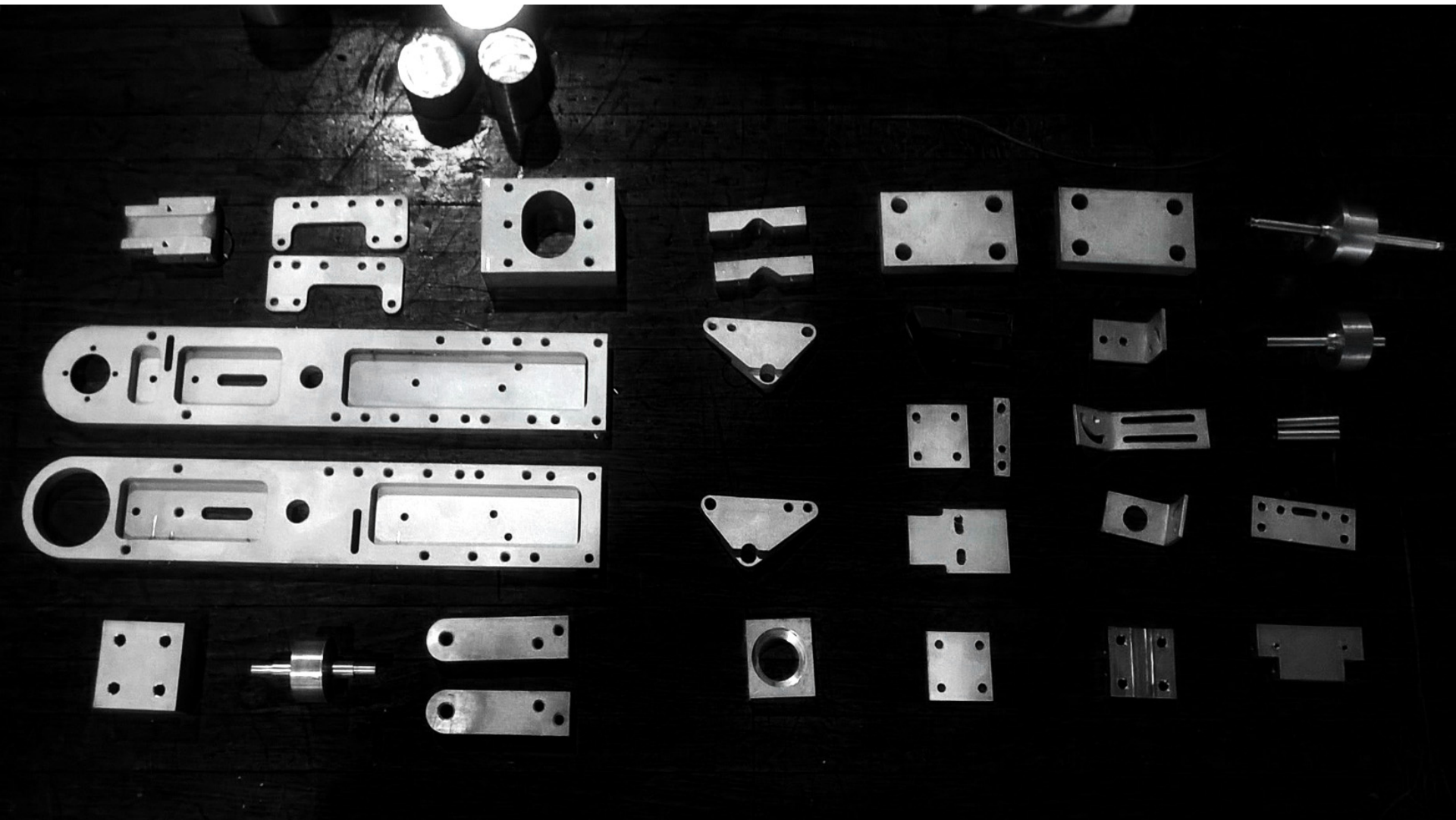
Our Approach



Our Approach



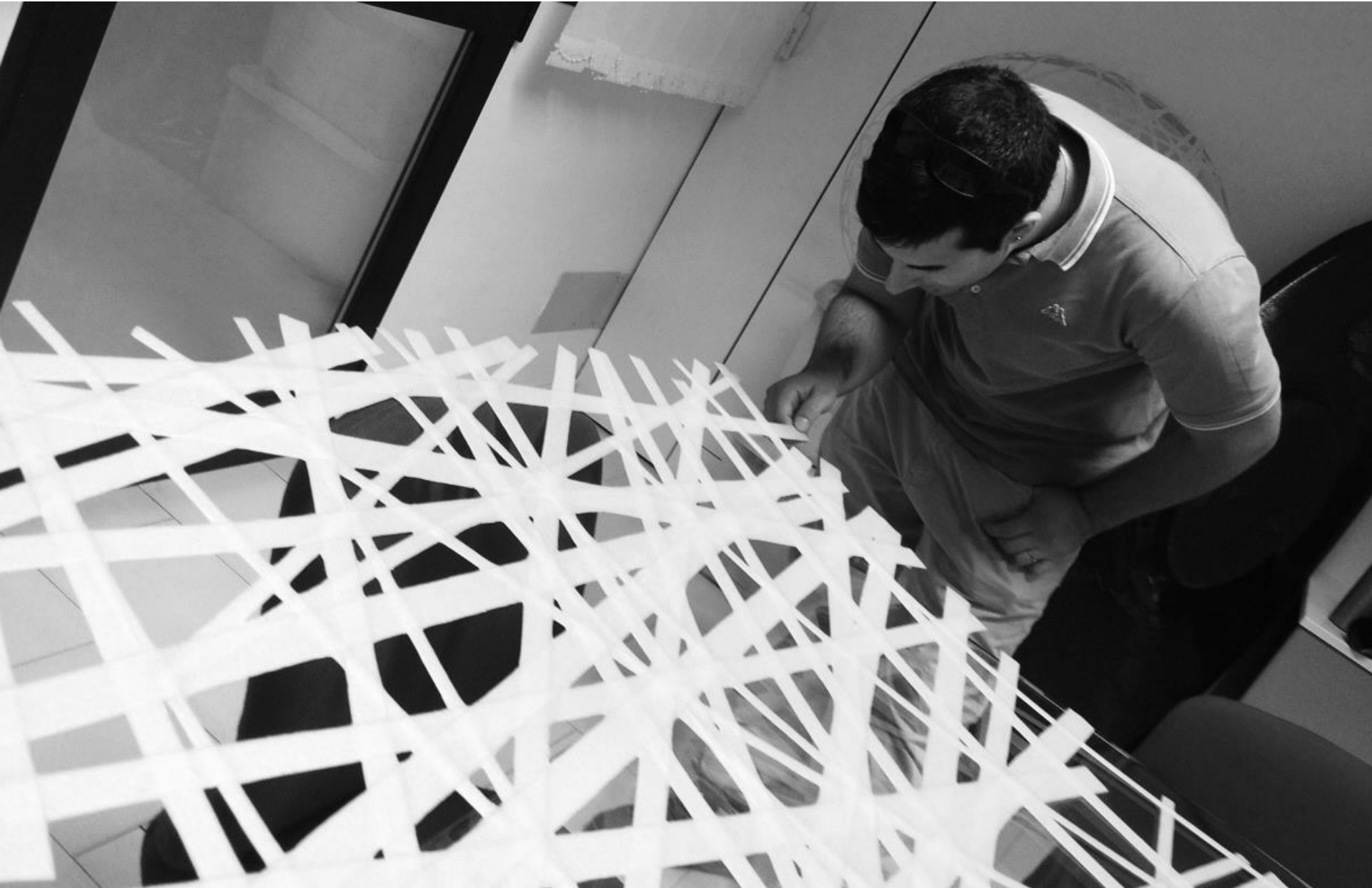
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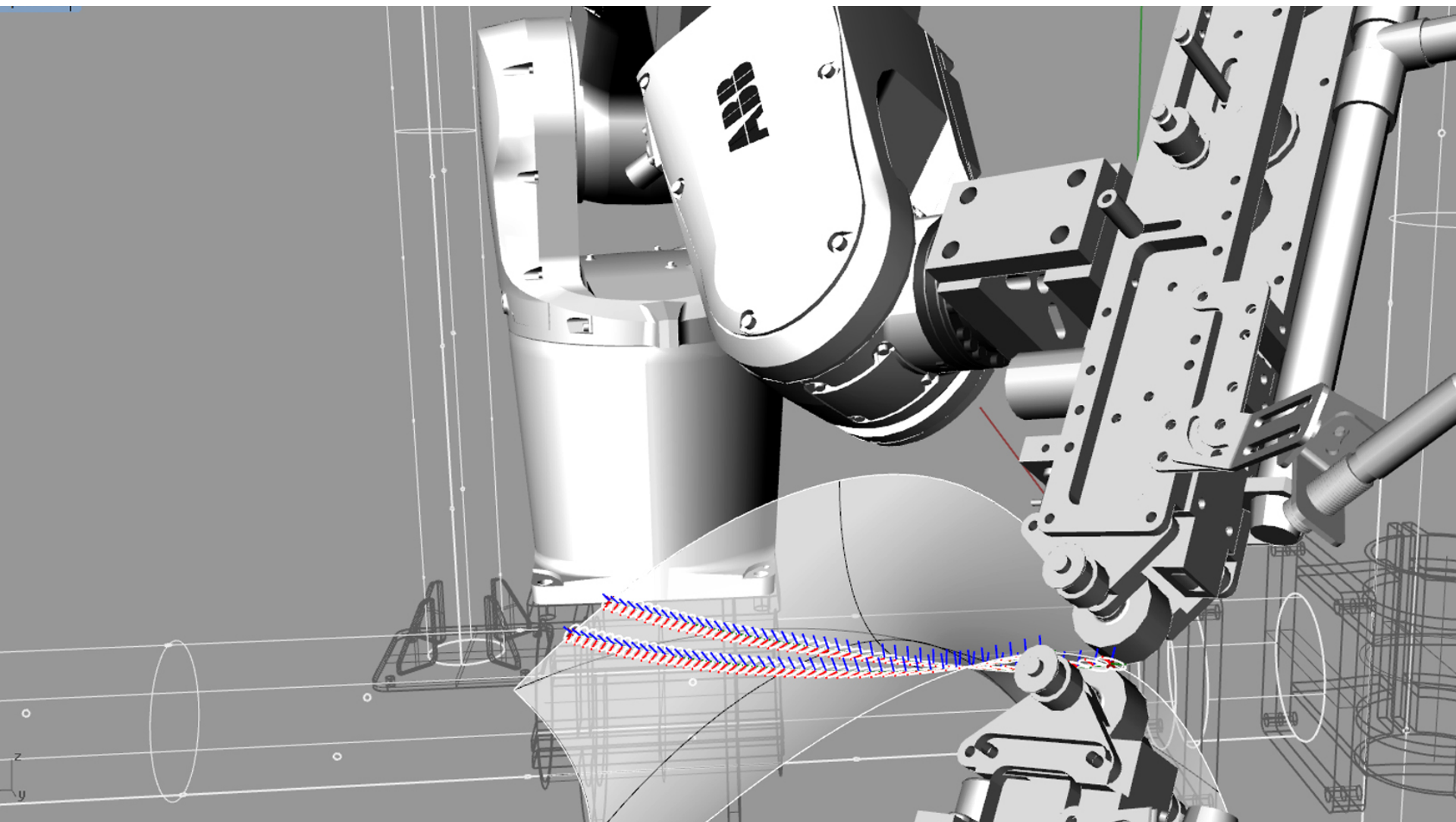
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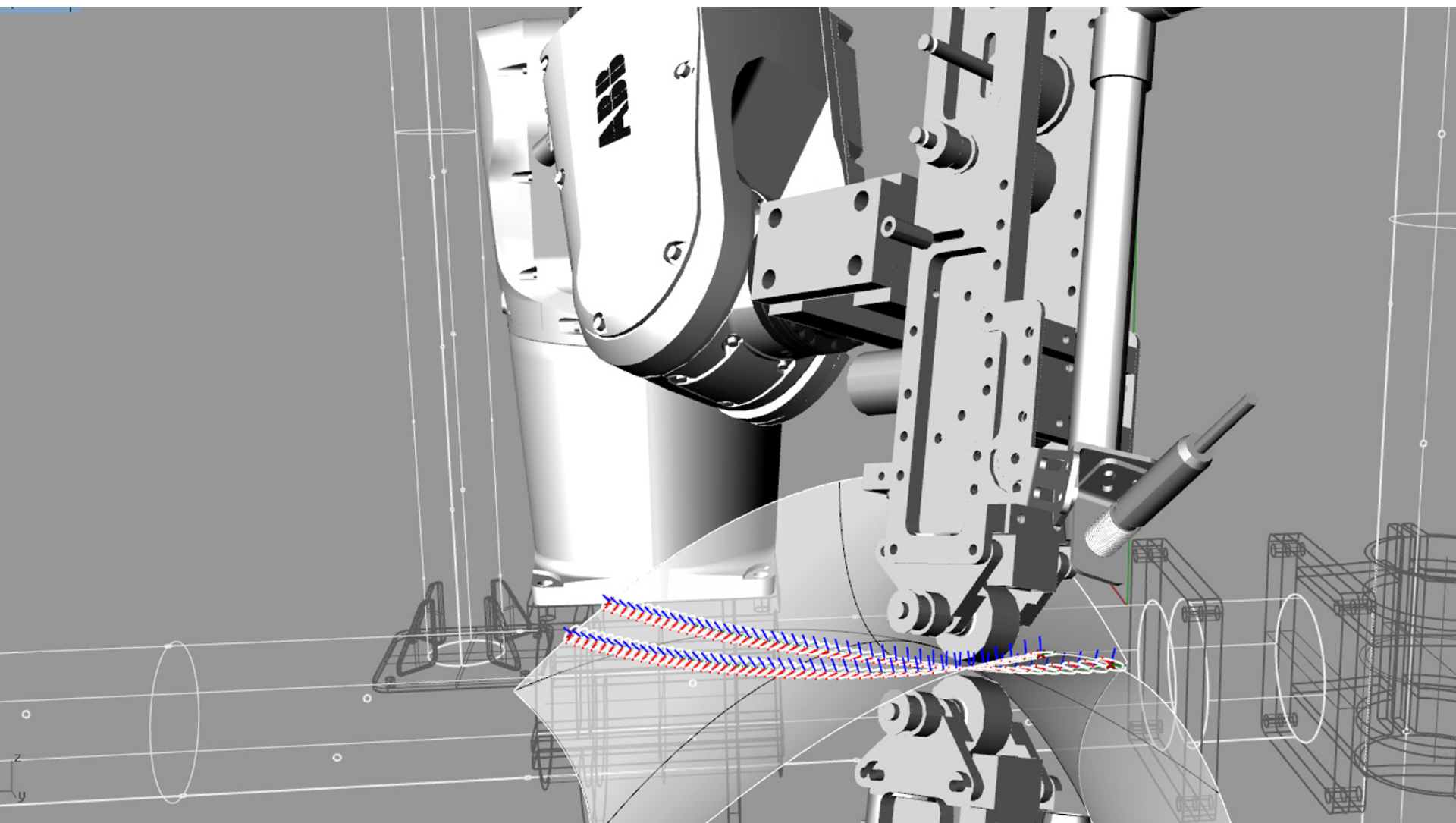
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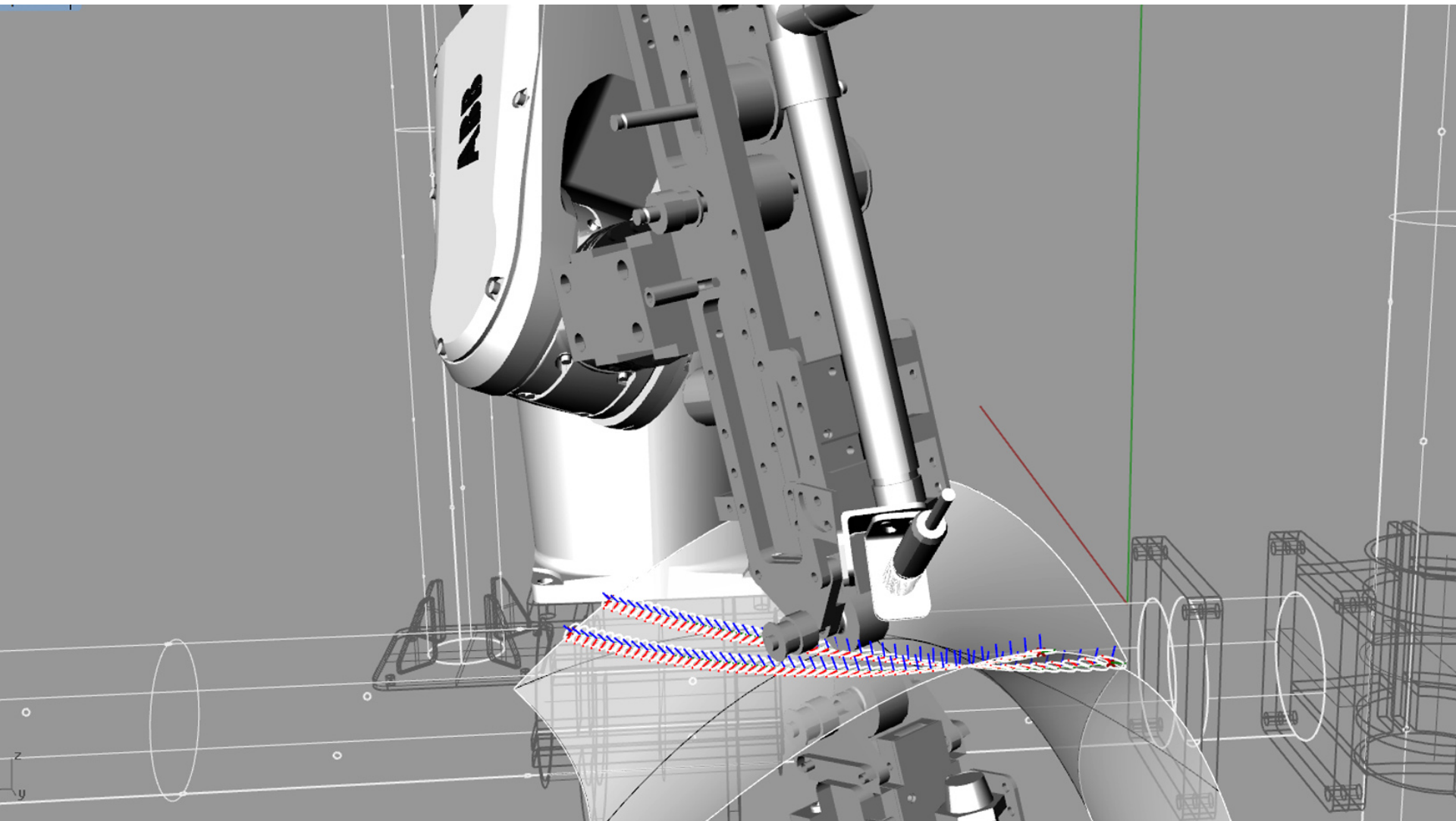
Our Approach



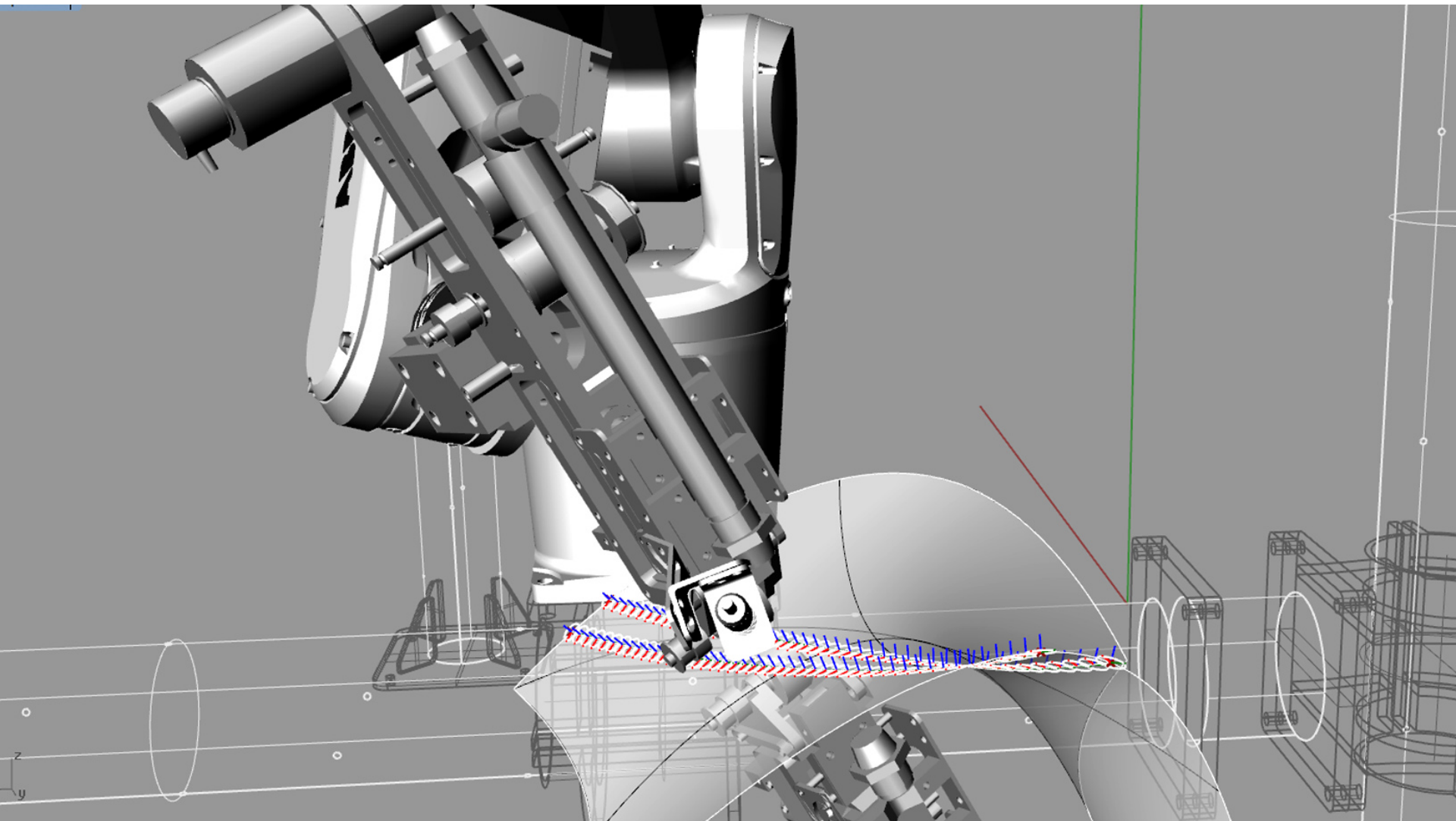
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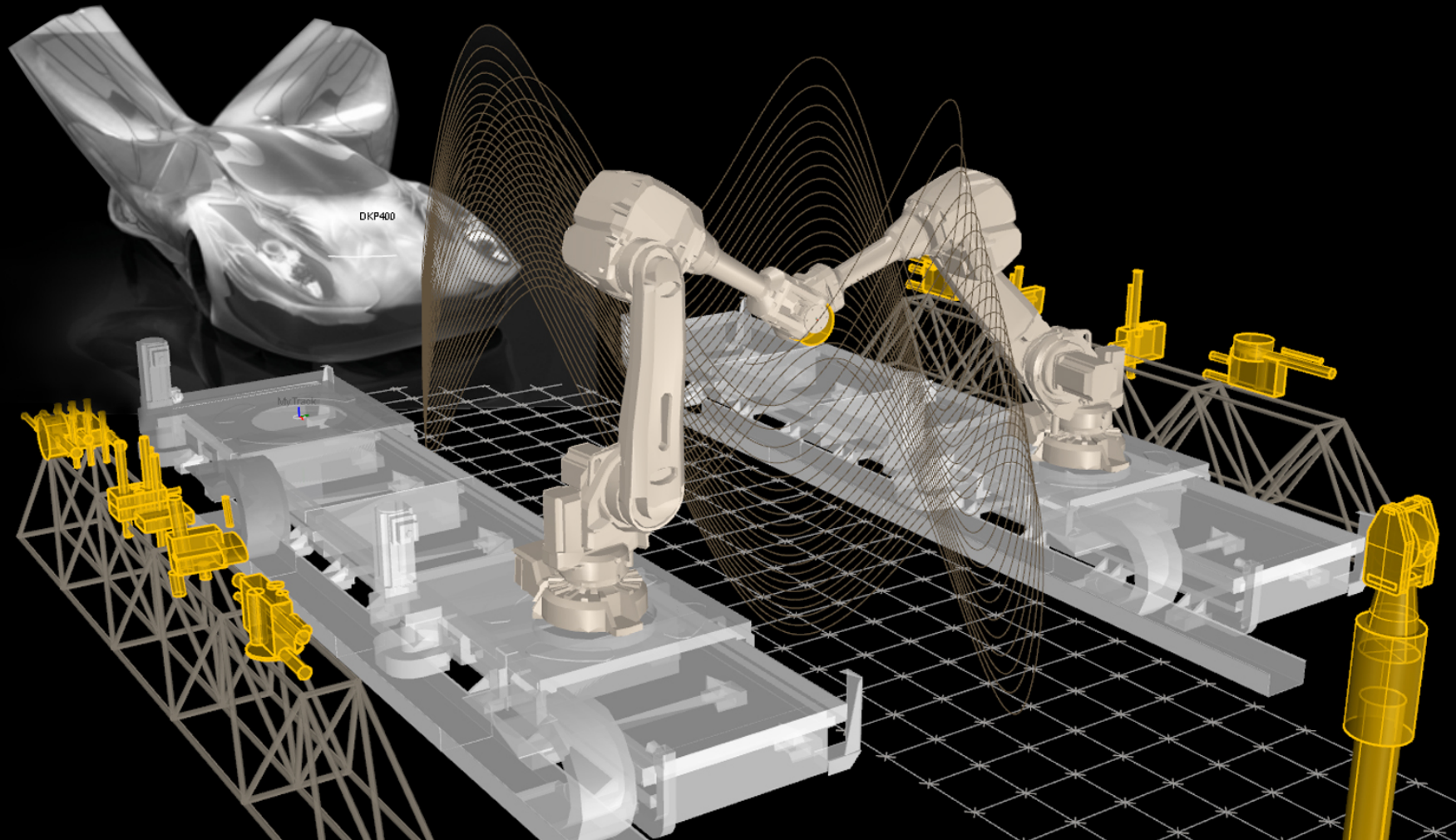
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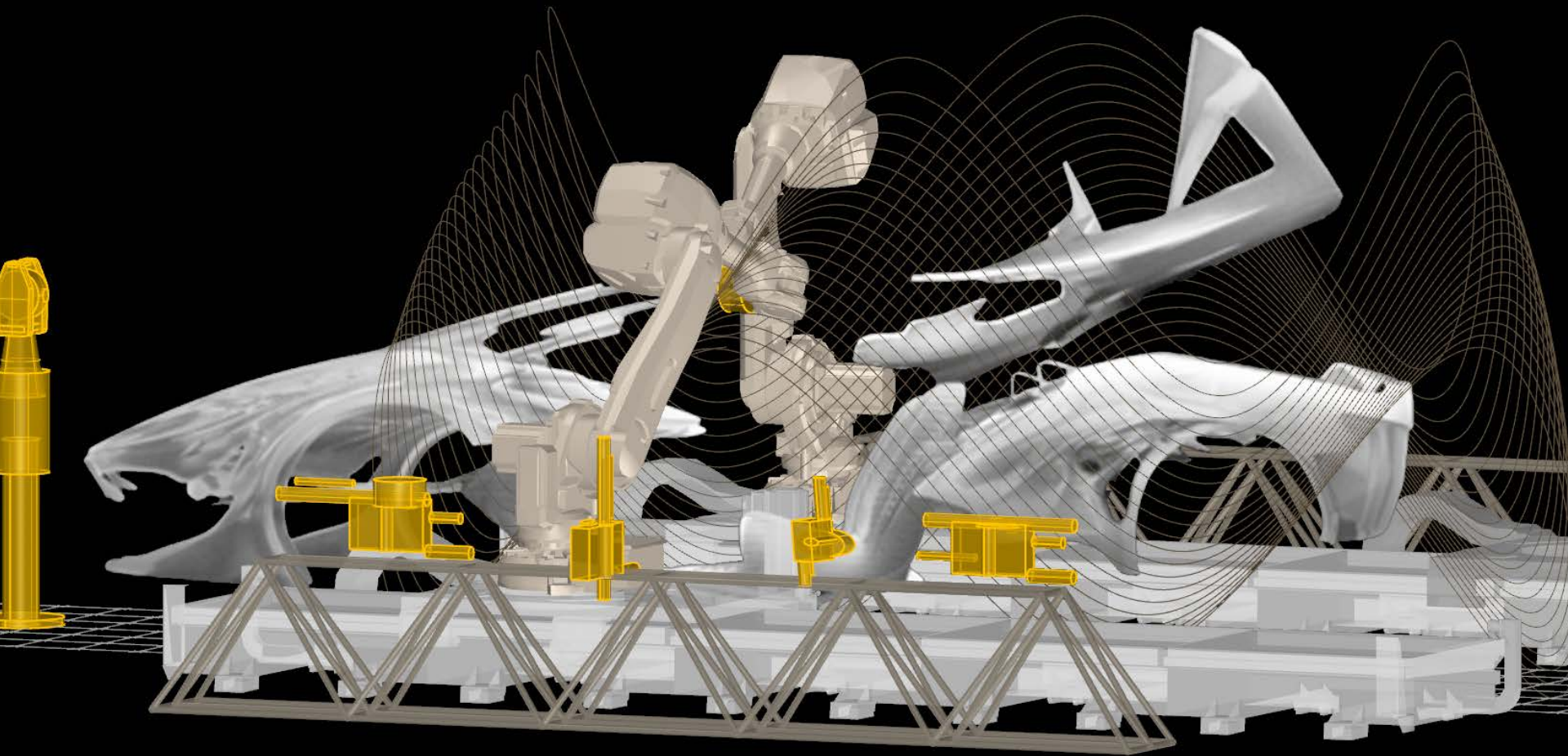
Our Approach



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