

SOFTWARE TOOLS FOR HYBRID ROBOT BASED ADDITIVE MANUFACTURING (SOFTDREAM)



THE NEXT GENERATION SOFTWARE IN HYBRID ADDITIVE MANUFACTURING

Today, the benefits of additive manufacturing (AM) for European industry are well established, enabling design flexibility, near-net-shape manufacturing, mass customization, flexible manufacturing and reduced lead times. Hybrid AM using industrial robotics can further improve production flexibility by combining multiple manufacturing processes in a single manufacturing cell.

SoftDREAM, short for Software tools for hybrid robot based additive manufacturing for industrial applications, will develop software tools unlocking the full potential of hybrid AM based on industrial robotics. The project brings together Research Institutes of Sweden, ESTIA Institute of Technology, TU Braunschweig, Volkswagen Group, Aerospace Valley and Spectrum Technology. The results will lead to improved agility and responsiveness by reducing lead times in production, prototyping and tool manufacturing, particularly in the European automotive, aerospace, construction and manufacturing industries.



COMMERCIAL READINESS

Two large scale industrial demonstrators have been printed using the software developed in the project.

- One metal aerospace part printed using WAAM
- One automotive part printed using thermoplastic extrusion



FEATURES OF OUR SOLUTION

- Cross platform and modular
- Deployed as both API and native desktop software
- Intelligent path planning module
- Thermo-mechanical simulations module
- Real time monitoring module
- Integration of ML and geometric algorithms based on process data
- Data models embedding materials and process knowledge
- Parallelization based on GPU for high speed computation



INDUSTRIAL IMPACT

Europe has a high robot density of 1 robot per 100 industrial workers. Our software will transform any industrial robotic arm, regardless of OEM, into a flexible additive manufacturing cell for metals or thermoplastic.

Hybrid AM using industrial robotics has the potential to revolutionize manufacturing and repair of large scale prototypes, tooling and functional parts in several sectors leading to improved competitiveness of European manufacturing industry.

SoftDREAM addresses both an enticing technology and a great business opportunity. Software for 3D printing market is currently valued at 460 M and is expected to grow by 800 percentage in the next 7 years. Robotic additive manufacturing is a relatively new market segment which is growing very fast and with potential to transform many different industry sectors.

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