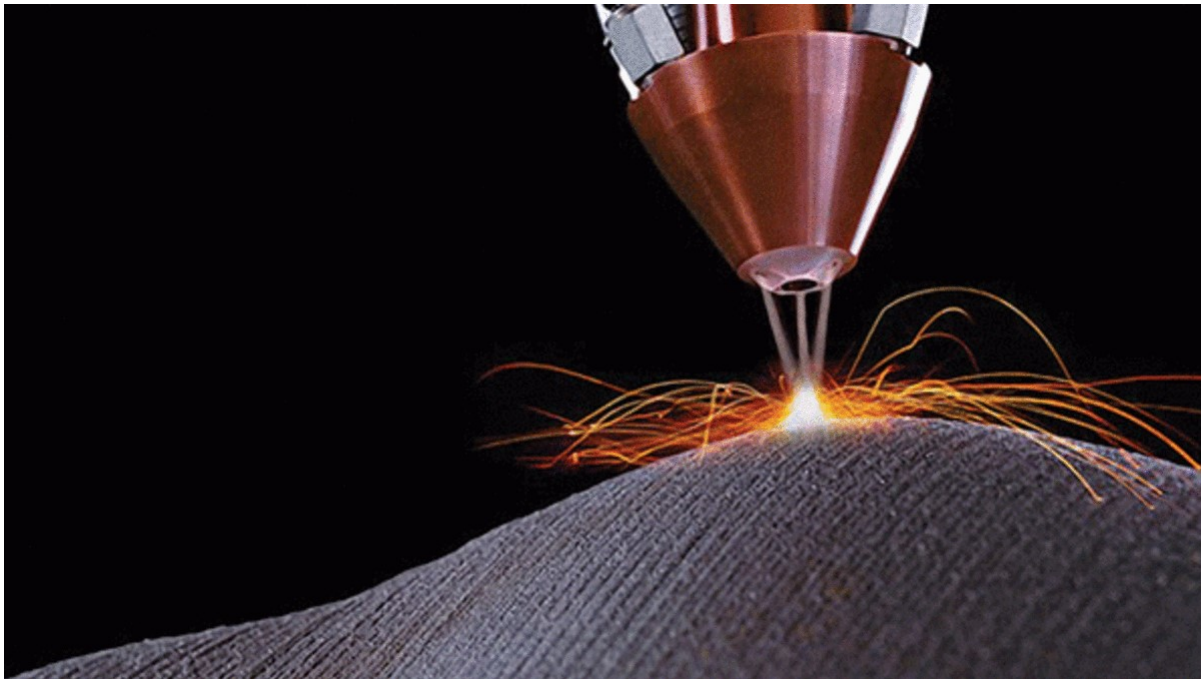# Machine learning making light work of AM aerospace alloys

Press Release

Machine learning methods will be integrated into additive manufacturing workflows to accelerate the development of reliable and repeatable processes. Intellegens' machine learning technology, Alchemite™, will be embedded within Ansys materials data management platform, Granta MI™.

Cambridge, UK, 17th February 2021 – Machine learning specialist Intellegens and engineering simulation leader Ansys have announced a collaboration to integrate machine learning methods into Additive Manufacturing (AM) workflows, accelerating the development of reliable and repeatable AM processes. The combination of the two companies' technologies will make it quick and easy for AM project teams to analyse data from experiment, simulation, or production generating models that capture vital insights. These models are used to optimise process parameters and powders, improving the quality of AM parts while cutting time to market.

The agreement will embed Intellegens' machine learning technology, Alchemite™, within the Ansys materials data management platform, Granta MI™. Alchemite™ deep learning algorithms very rapidly find relationships within complex datasets, even when that data is 'sparse' (i.e., has many empty values). This makes Alchemite™ ideal for AM teams seeking to exploit data brought together from multiple sources. It extracts all possible knowledge from the data to identify the critical combinations of factors that ultimately control the performance of AM parts. Alchemite™ needs no prior knowledge of which parameters are likely to be important – a significant advantage in this emerging technology area. Applications throughout the AM workflow include:

- Process parameter optimisation for AM processes
- Computational design of AM materials
- Failure analysis and quality control
- Data validation and gap-filling
- Assisted Design of Experiments (DoE) for AM.

Granta MI™ is the de facto standard for materials data management in engineering enterprises and is applied in AM applications to capture, in a single place, all of a company's AM data. This includes data on the properties of powders and raw materials, machine build parameters, post-build processing data, test results for AM parts, and simulation data from the Ansys AM simulation suite. Integrating Alchemite™ into this holistic system will make it straightforward to analyse the full range of this data in the search for key process/property relationships and to continuously improve models as the data is updated.

"Intellegens' machine learning technology offers a ready-made solution to key data analysis challenges faced by our Additive Manufacturing customers," commented Rob Davis, Director of Product Management, at Ansys. "Integration with Ansys Granta MI™ creates a unified workflow for capturing and applying results from AM testing, simulation, and production."

"Merging the data management capabilities of Ansys' Granta MI™ with the machine learning prowess of Alchemite™ is a perfect fit, promising to deliver deep insights to Additive Manufacturing workflows," said Dr. Gareth Conduit, CTO at Intellegens. "We look forward to working with the global Ansys network to deliver the benefits of machine learning to many more AM project teams."

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