Additive Manufacturing Signature Analysis

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Abstract: This work describes the process of extracting signatures from additive manufacturing systems such as temperature, power, current, and vibrations. In addition, these data signatures are assessed for their impactfulness in determining exactly a additive manufacturing system is printing without visual inspection. Preliminary testing has been done with temperature signatures extracted from a thermoplastic 3D printer in which results are inconclusive. Plans also have made to introduce new instrumentation to gain access to other signatures and for further testing with temperature signals.