Full Team Name

Printing Reparatively with IN-situ Technology

Abbreviated Team Name

PRINT

Title of Team Thesis

In-situ Conformal 3D Printing for Targeted Repairs

Mentor's Salutation and Name

Dr. Steve Mitchell

Mentor's Title(s) and Department/Program

Librarian's Salutation and Name

Dr. Sarah Over

Project Abstract (Write in past tense, 1st person, 250 word maximum)

Additive manufacturing is an emerging technology whose users seek to benefit from repair methods to reduce time and material costs. We explore an application of the technology to targeted repairs, such as mending holes or cracks, on 3D printed parts by using conformal tool-pathing, combining the precision of additive manufacturing with the strength and homogeneity of material adhesion. To characterize the efficacy of targeted 3D printing repair for FFF plastics, repair configurations varying in shape, size, material, infill and loading type are tested in 3-point bending for structural strength and strain. We provide and summarize the collected data in addition to a structural analysis and optimization of parameters relevant to reparative 3D printing. The collected data found that 3D printed repairs were effective in replacing the strength properties of a damaged area.

Acknowledgements (Team thank yous for the program. Write in 1st person, 150 words maximum)

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**Please enter name and degree information for all team members. Submit names as they should appear in the program (first and last or first, middle/initial, and last).**

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