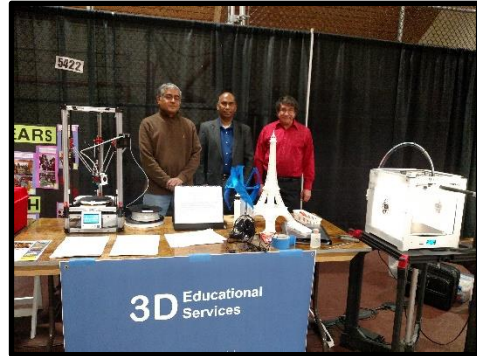


Teaching 3D Skills in K-12 Education: 3D Modeling, 3D Visualization and 3D Printing in the classroom

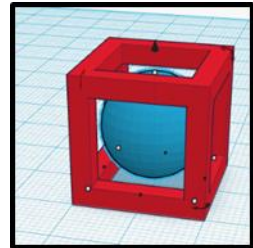
Teaching spatial intelligence skills in U.S. schools will help build interest in STEM subjects and supplement the math and science skills that are crucial for building the future STEM workforce. By investing in R&D to bring spatial training to the classroom we will be able to persuade more students to engage in STEM fields. Based on a research study, the number of students entering STEM fields can be approximately doubled by providing the proper spatial training at an early age. (Uttal and Cohen, 2013).



Programs/Workshops Offered

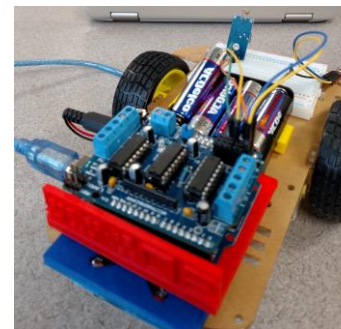
Introduction to 3D design & 3D printing [2 days] (Grades 3 – 12)

Introduction to 3D design; Objectives and preview of 3D objects; Computer representation of 3D Models, workflow: design – slice - print, introduction to Tinkercad, design 3D objects. Introduction to Cura slicer, prepare 3D object for printing. Experience printing of original objects, discussion of libraries, advanced tools, complete printing of original objects and feedback by classmates.



Introduction to 3D design, 3D printing & Robotics [5 days] (Grades 6 – 12)

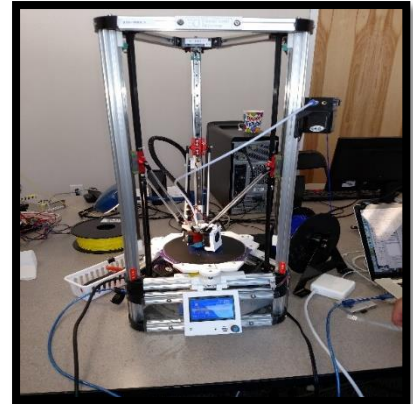
Includes - Introduction 3D Printing and electronics and overview of various electronic components, Introduction to Arduino microcontroller and its environment, Program Arduino microcontroller; Basic projects using Arduino & various electronic components and sensors, Design the mechanical components and plan for assembly of the robot, Assemble the mechanical and electronics on to the robot, Ensure everything is working correctly and program the robot to perform multiple challenges.



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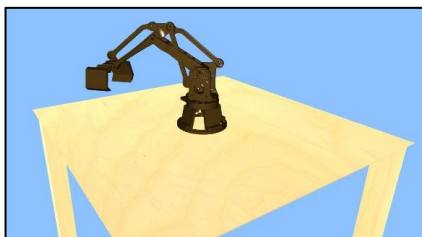
Build your own 3D printer [3 days] (Grades 9 through adult)

In this program participants will each build a 3D Printer to take back to their school. They will also take away beginner skills in 3D Design software (Tinkercad) as well as practical knowledge in using and maintaining the 3D printers they built. In addition to the ability to create their own original objects, they will also be provided with example projects for classrooms from K to 12 and helpful resources to find large libraries comprising more than a million objects.



Learn to program 3D rendering, simulation and interactive visualization [5 days] (Grades 8 – 12)

In this program participants will learn advanced programming skills using WebGL, Blender, and other libraries/utilities to develop web-based interactive 3D visualization, 3D rendering of complex objects (like robot arm) and simulation before 3D printing and assembling the robot.



Teaching 3D Skills in K-12 Education: 3D Modeling, 3D Visualization and 3D Printing in the classroom

Nurturing ‘Maker culture’ by facilitating programs and activities in Makerspaces

Consulting service offered around setup of makerspace – with 3D Printers and other digital fabrication equipment, necessary software, other tools and equipment needed for a makerspace to support the various activities. Activities include design projects and activities for students (Grades 6-10) and Teachers/Instructors. The projects will be based on basic electronics, 3D



printing and other digital fabrication equipment. Create content and curriculum of a list of projects focused towards problem solving. Train teachers to conduct/execute maker activities and projects. Advise school administration / teacher groups on programs to conduct. Periodic review of activities and address issues and challenges teachers and instructors are encountering. Advise school administration on hosting team based projects, weekend hackathons, summer / vacation maker workshops!

Please enquire with us via email or phone if you are interested in setting up makerspaces.

