

Design Engine Community Project - Generate Quick Adhoc Inventions to Explore at SIGGRAPH and in the Studio

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ABSTRACT

Since its release, “The Design Engine” has been played by groups of students, teachers, and individuals looking to spark self-guided training. “The Design Engine” is a direct response to educators’ requests for better classroom tools surrounding inspiration and 3D printing. By prompting participants to create their own original, imaginative works—instead of using pre-selected examples—teachers can keep their students better motivated through the process of mastering desktop 3D printing. We are hosting a brand new SIGGRAPH-edition of “The Design Engine,” a constantly evolving series of challenges hosted within the Studio. Participants of all backgrounds can join for a short startup round, or stick around to design and develop their projects using the tools available in the SIGGRAPH Studio Workshop.

CCS CONCEPTS

• **Human-centered computing** → *Human computer interaction (HCI); Human computer interaction (HCI)*; • **Social and professional topics** → **Computer science education**;

KEYWORDS

Design Education; Human-Centered Design; Creativity; spark; springboard; imagination; out-of-the-box; empathy.

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1 INTRODUCTION

Why is it that so many 3D printing-powered education projects rely heavily on downloading and printing someone else’s creations?

Last September, Ultimaker’s Matt Griffin and Liz Arum released “The Design Engine,” a card game to provoke, inspire, and entertain students, educators, 3D designers, artists, and engineers of all experience levels. [Griffin 2017] The game, which can be played as a handy icebreaker or as a competitive, multi-session activity, is intended to generate ideas for new printing projects and fuel a deeper exploration into the use of desktop 3D printers.

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Figure 1: Caption for Figure 1 goes here.

Since its release, “The Design Engine” has been played by groups of students, teachers, and individuals looking to spark self-guided training. [Arum 2018a] The original version of this set of design tools was alpha-tested by community members at SIGGRAPH 2017. The resulting game has since been launched online for free print-and-play download, online play, and print-on-demand. [Arum 2018b] “The Design Engine” is a direct response to educators’ requests for better classroom tools surrounding inspiration and 3D printing. By prompting participants to create their own original, imaginative works—instead of using pre-selected examples—teachers can keep their students better motivated through the process of mastering desktop 3D printing.

We are hosting a brand new SIGGRAPH-edition of “The Design Engine,” a constantly evolving series of challenges hosted within the Studio. Participants of all backgrounds can join for a short startup round, or stick around to design and develop their projects using the tools available in the SIGGRAPH Studio Workshop. We want to see how attendees at SIGGRAPH 2018 will help translate their conference experiences and inspirations through “The Design Engine.” It is our hope that the SIGGRAPH community can help with the evolution of this game as a free tool for educators, students, and individuals, while the game helps attendees better pursue their individual projects and designs.

2 INSTALLATION REQUIREMENTS

As an intentionally low-tech design inspiration point of departure, used to trigger and guide deep exploration into digital design software tools and fabrication hardware, the basic physical installation requirements are extremely modest. Those participating in

the Starter Round need only access to the pens, pencils, and worksheets provided by the presenters to complete the sketches and notes to solve the design challenges. For further development of their ideas and to take advantage of the mentoring of the presenters, participants will need to provide their own laptop hardware. (Links for how to download free-to-use digital design software will be provided.)

At Table 1, a constant, evolving game of the Starter Round allows attendees to get their first taste of the Design Engine in a quick 5min sketch-and-pitch design exercise. Participants can walk away with their design to explore further on their own time, or join mentors at Table 2 (seated table) to begin to pursue their design as a project to test and experiment with design software and routes towards 3D printing and digital fabrication in the Studio.

Basic requirements: We need two tables either six feet or eight feet in length. Table 1, for standing access, used for completing the Starter Round. Table 2, for seated access (six to eight chairs) for further mentoring and development of design projects. At the seated table (Table 2), need power access for six to eight participants to plug in laptops. (Presenters can provide power strips if needed.)

Additional optional requirements: Should the opportunity be available, the presenters would like to provide access to an array of six to nine professional desktop 3D printers to offer participants a target for their 3D digital design work at the conference. (Free equipment access and materials to be sponsored by Ultimaker or local vendor Shop3D.ca in Vancouver, BC.)

3 FIELD NOTES AND FEEDBACK FROM BASE SET PARTICIPANTS

“The game promotes creativity and I believe it will be valuable not only for students, but for makers of all ages. Indeed, it was a diverse group at the play test session, which took place at NYU Tandon School of Engineering. It has even inspired me to come up with some new designs. And as an educator, I can see the value of adding the game to a class curriculum. ... It’s great for getting the creative juices flowing, and I’m certainly going to make great use of it.” Michael A Parker for 3DPrint.com. [Parker 2017]

“Having the parameters and modifiers forces you to think critically about what direction you might take your design. I would not have gone the direction I did with my challenge if I wasn’t forced to consider these elements, the constraints were very constructive.” Bon Ku, MD, Director, JeffDESIGN. August 2017. Design Engine launch event in Philadelphia, PA. [Griffin 2017]

“A great way to get your students in a designer’s mindset; the cards will elevate brainstorming to an even higher level.” Andrew Woodbridge, Grover Cleveland High School, Ridgewood, NY. August 2017. Design Engine launch event at NYU Tandon, Brooklyn, NY. [Arum 2018a]

“I could see so many applications for this activity, from icebreakers, to brain breaks, to brain stretches. There are no limits. There were so many ways to play.” Shawn Grimes, Executive Director, Digital Harbor Foundation. August 2017. Start Pack launch event in Baltimore, MD. [Griffin 2017]

“I am in love with your game! When the kids played the game the true dynamic possibilities shined through!” Jan Abernethy, East

Elementary, Greenville, PA. August 2017. Design Engine launch event at NYU Tandon, Brooklyn, NY. [Griffin 2017]

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