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## STEM + Art = STEAM

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## STEM + Art = STEAM

### Abstract

Science, Technology, Engineering and Math – the STEM subjects – alone will not lead to the kind of breathtaking innovation the 21<sup>st</sup> century demands...So what does it mean to add Art to turn STEM to STEAM?

### Keywords

STEM, STEAM, Art, 21st Century, Engineering, Education, Industry, Design

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*STEM + Art = STEAM*

John Maeda

Science, Technology, Engineering and Math – the STEM subjects – alone will not lead to the kind of breathtaking innovation the 21<sup>st</sup> century demands. Innovation happens when convergent thinkers, who march straight ahead towards their goal, combine forces with divergent thinkers – those who professionally wander, who are comfortable being uncomfortable, and who look for what is real. So what does it mean to add Art to turn STEM to STEAM? The problem solving, fearlessness, and critical thinking and making skills that I see every day across campus at the Rhode Island School of Design are the same skills that will keep our country innovating. Design creates the innovative products and solutions that will propel our economy forward, and artists ask the deep questions about humanity that reveal which way forward actually is.

Government agencies are beginning to acknowledge that art and science – once inextricably linked, both dedicated to finding truth and beauty – are better together than apart. RISD is the only art school named as a principle investigator on a National Science Foundation EPSCoR (Experiential Program to Stimulate Competitive Research) Grant, and we're working with Brown University and the University of Rhode Island on new ways to visualize oceanic data to see the impact of climate change on marine life. Case studies from EPSCoR and other art/science studios, like Professor Peter Yeadon's "nanovation" studio, based on nanoscience + art/design, can be found on: <http://expspace.risd.edu/>.

Much exploration and critical inquiry occurs in RISD's Nature Lab, a magical place where gourds, taxidermy, microscopy, and art/design/nature/science commingle. We also just completed year one of the [Maharam STEAM Fellowships in Applied Art and Design](#), where

students were funded to complete internships in local government and at places like the Mayo Clinic and NPR Science.

With global competition rising, America is at a critical juncture in defining its economic future. I believe that art and design are poised to transform our economy in the 21st century like science and technology did in the last century, and the STEAM movement is an opportunity for America to sustain its role as innovator of the world. You can sign a petition to support these efforts and join us at <http://stemtosteam.org/>

**John Maeda** is a leader who imagines how design can simplify technology and help leaders respond to new challenges in the era of social media. His work as a graphic designer, computer scientist, artist and educator earned him the distinction of being named one of the 75 most influential people of the 21st century by Esquire.

In June 2008, Maeda became president of Rhode Island School of Design, and in late 2012, Business Insider named RISD the #1 design school in the world. At RISD, Maeda is leading the movement to transform STEM (Science, Technology, Engineering and Math) to STEAM by adding Art. Called the “Steve Jobs of academia” by Forbes, he believes art and design are poised to transform our economy in the 21st century like science and technology did in the last century. Under Maeda's leadership, RISD has become a forceful advocate for art and design in the halls of Congress and the start-ups of Silicon Valley, and he has brought in a record number of six- and seven-figure gifts for scholarships.

Maeda serves on the boards of wireless HiFi company Sonos, global advertising firm Wieden+Kennedy, and design crowdsourcing start-up Quirky; he is also a member of the Davos World Economic Forum's Global Agenda Council on New Models of Leadership.

As a designer, Maeda's early work combined his expertise in software development with traditional artistic methods—laying the groundwork for the interactive motion graphics that are taken for granted on the web today. He has exhibited in one-man shows in Tokyo, New York and Paris, and his work is represented in the permanent collections of the Museum of Modern Art, the San Francisco Museum of Modern Art and the Cartier Foundation in Paris.

A former professor at Massachusetts Institute of Technology, Maeda taught Media Arts and Sciences for 12 years and served as Associate Director of Research at the MIT Media Lab. He has published five books including *The Laws of Simplicity* (2006), now translated into 14 languages. @johnmaeda was picked as one of the 140 Best Twitter Feeds of 2012 by TIME Magazine, and his latest book, *Redesigning Leadership* (2011, with Becky Bermont) expands upon this Twitter feed. Maeda also serves as a trustee of the Smithsonian's Cooper-Hewitt National Design Museum, a member of the TED Brain Trust, Kleiner Perkins Caufield & Byers' Design Council, and Proctor & Gamble's Design Advisory Board. He has designed commercial projects for corporations such as Cartier, Google, Philips, Reebok and Samsung, among others. In 2001 Maeda was awarded a National Design Award in the US; in 2002, the Mainichi Design

Prize in Japan; and in 2005, the Raymond Loewy Foundation Prize in Germany. In 2009 he was inducted into the New York Art Director's Club Hall of Fame and he received the AIGA Medal in 2010.

A native of Seattle, WA, Maeda earned a bachelor's and a master's degree in Computer Science and Electrical Engineering from MIT, followed by a PhD in Design Science from the University of Tsukuba Institute of Art and Design in Japan and an MBA from Arizona State University.