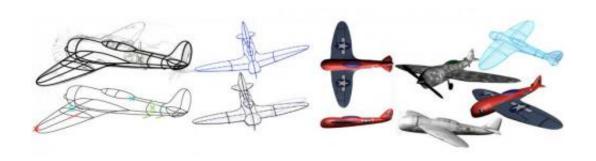# Powerful math creates 3-D shapes from simple sketches (w/ Video)

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True2Form uses powerful mathematics to interpret artists' strokes automatically lifting drawings off of the page.

A new graphics system that can easily produce complex 3-D shapes from simple professional sketches will be unveiled by University of British Columbia computer scientists at the SIGGRAPH 2014 Conference in Vancouver, Canada this week.

The technology has the potential to dramatically simplify how designers and artists develop new product ideas.

Converting an idea into a 3-D model using current commercial tools can be a complicated and painstaking process. UBC researchers developed True2Form, a software algorithm inspired by the work of professional designers, effectively communicating ideas through simple drawings.

"In line-drawings, designers and artists use descriptive curves and informative viewpoints to convey the full shape of an object," says Alla Sheffer, a professor in UBC's Dept. of Computer Science. "Our system mimics the results of human three-dimensional shape inference to lift a sketch curve network into 3-D, while preserving fidelity to the original sketch."

True2Form uses powerful mathematics to interpret artists' strokes automatically lifting drawings off of the page (see video). It produces convincing, complex 3-D shapes computed from individual sketches, automatically corrected to account for inherent drawing inaccuracy.

The software is designed to render a wider range of geometric complexity than current sketch-based modelling frameworks.

Sheffer, her team from UBC, and colleagues from the University of Toronto and INRIA France will present a technical paper on True2Form on Wednesday, August 13 at the Vancouver Convention Centre as part of SIGGRAPH 2014.

Provided by University of British Columbia

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