Jesse Wolfson gets NSF CAREER grant that will help him understand equations, and merge math and dance

Friday, March 13, 2020
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There are some problems in the field of mathematics that have been around for a long time, and which no one has ever been able to solve. One of the them, proposed in 1900 in Paris at the International Congress of Mathematicians by mathematician David Hilbert, is one that Department of Mathematics Assistant Professor Jesse Wolfson wants to solve. He plans to solve it by proving that the reason mathematicians haven't found a simple answer yet is that simple answers to the problem do not exist; his idea is why he applied for — and just won — an NSF CAREER grant. The grant, awarded to early-career faculty who have made strides in their field, and who show strong potential to make more strides, will give Wolfson the resources he needs to work the problem.

"The type of thing I think about is how to formulate a math problem spatially, so, for example, I try to visualize the solutions of an equation as dancers moving around some room, and writing down a formula would require choreographing them in some intricate movement. What I'd like to show is that as the equations get more complicated, so does the dance required to write a formula, until, eventually, it's just not possible to do it," Wolfson said.

Wolfson’s CAREER grant will also augment his long-running interest in the intersection of math and dance. Reggie Wilson/Fist and Heel Performance Group is a modern dance group based in Brooklyn, New York, and since 2012 Wolfson has been their “math consultant.” That is, he helps them interpret and construct their dance routines from a mathematical vantage. Wolfson plans to bring the group to UCI starting in the spring of 2021, because he wants to partner with UCI’s MathCEO program to use dance as a way to teach math to students who regularly visit the university from nearby Santa Ana middle schools.

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