

Abstract Submitted  
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**Seeing Fluid Physics via Visual Expertise Training** JEAN HERTZBERG, University of Colorado Boulder, KATHERINE GOODMAN, University of Colorado Denver, TIM CURRAN, University of Colorado Boulder — In a course on Flow Visualization, students often expressed that their perception of fluid flows had increased, implying the acquisition of a type of visual expertise, akin to that of radiologists or dog show judges. In the first steps towards measuring this expertise, we emulated an experimental design from psychology. The study had two groups of participants: “novices” with no formal fluids education, and “experts” who had passed at least one fluid mechanics course. All participants were trained to place static images of fluid flows into two categories (laminar and turbulent). Half the participants were trained on flow images with a specific format (Von Kármán vortex streets), and the other half on a broader group. Novices’ results were in line with past perceptual expertise studies, showing that it is easier to transfer learning from a broad category to a new specific format than vice versa. In contrast, experts did not have a significant difference between training conditions, suggesting the experts did not undergo the same learning process as the novices. We theorize that expert subjects were able to access their conceptual knowledge about fluids to perform this new, visual task. This finding supports new ways of understanding conceptual learning.

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