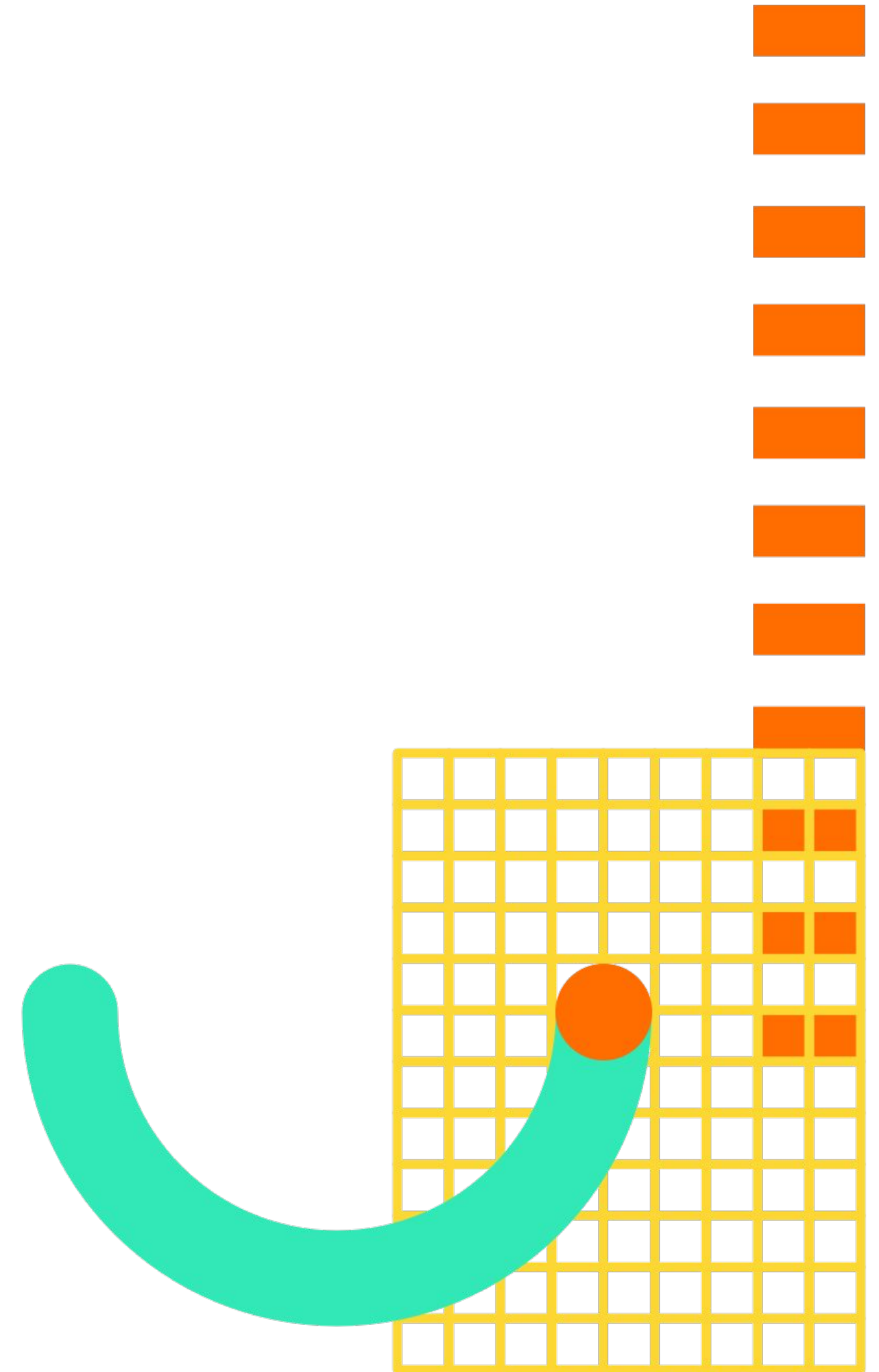




# Robotics

Vincent Vanhoucke



Yesterday's robots were  
about control and precision



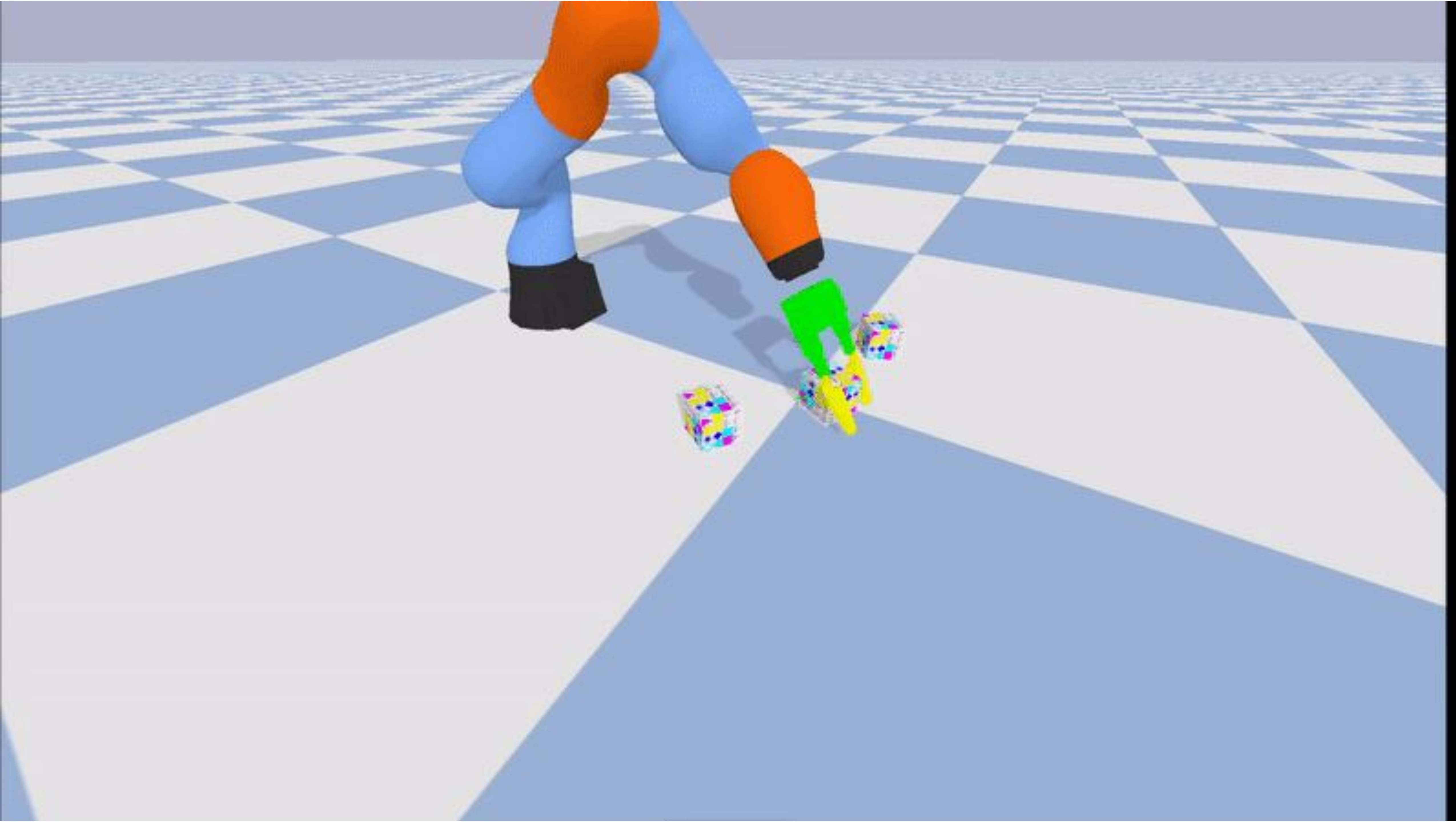
Today's robots are about people



# Learning Robots



Learning Hand-Eye Coordination for Robotic Grasping with Deep Learning and Large-Scale Data Collection  
Sergey Levine, Peter Pastor, Alex Krizhevsky, Deirdre Quillen



# Domain Adaptation



Using Simulation and Domain Adaptation to Improve Efficiency of Deep Robotic Grasping, Konstantinos Bousmalis, Alex Irpan, Paul Wohlhart, Yunfei Bai, Matthew Kelcey, Mrinal Kalakrishnan, Laura Downs, Julian Ibarz, Peter Pastor, Kurt Konolige, Sergey Levine, Vincent Vanhoucke

# Deep Reinforcement Learning

A quadruped robot with a black body and four white legs is positioned on a grey carpeted floor. The robot is facing towards the left side of the frame. In the background, there is a large blue curtain and a white wall with a window on the left. The overall setting appears to be a laboratory or training environment.

Sim-to-Real: Learning Agile Locomotion For Quadruped Robots  
Jie Tan, Tingnan Zhang, Erwin Coumans, Atil Iscen, Yunfei Bai,  
Danijar Hafner, Steven Bohez, Vincent Vanhoucke

A street scene with a car and a depth map overlay. The scene shows a street with a car on the right, a sidewalk on the left, and buildings in the background. A semi-transparent purple box is overlaid on the scene, containing the text "Self Learning". Below the scene, a large, colorful depth map is shown, with colors ranging from purple (near) to yellow (far).

# Self Learning

Unsupervised Learning of Depth and Ego-Motion from Monocular Video Using 3D Geometric Constraints  
Reza Mahjourian, Martin Wicke, Anelia Angelova



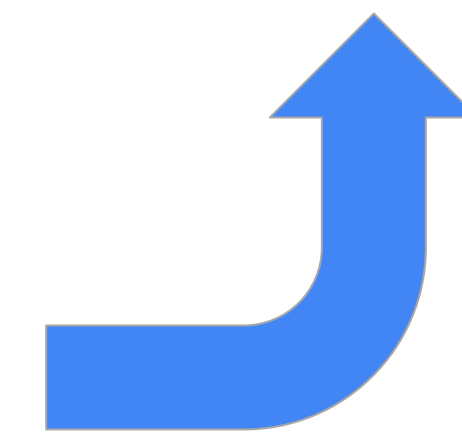
# Visual Imitation



You see  
me pour



I picture  
myself  
pouring



# Visual Imitation



# Learning robots

More information

[q.co/brain/robotics](http://q.co/brain/robotics)