KIDELTA LEARNING

Scalable AI for Automated Driving

Final Event | March 09, 2023

Automotive Suitability - Overview

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1

Motivation

Transferring AI from the Lab to the Car

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embedded system

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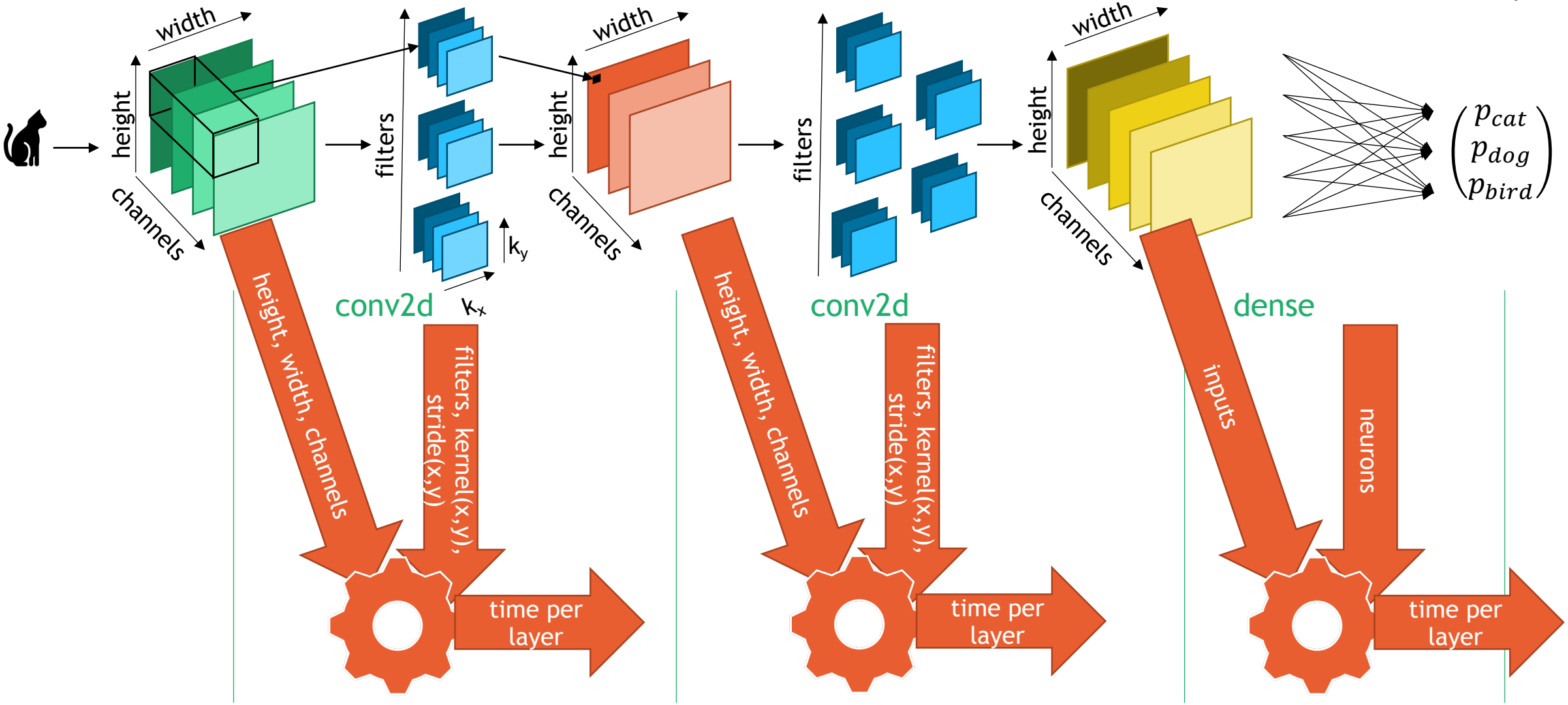
Jernej Furman, CC BY 2.0

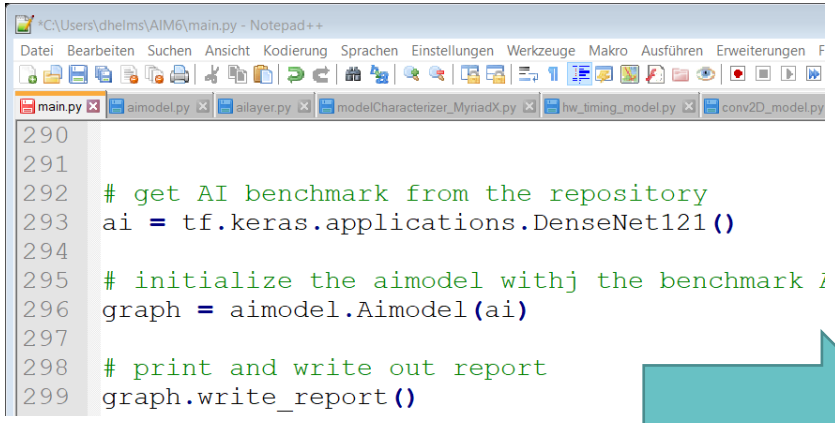
2

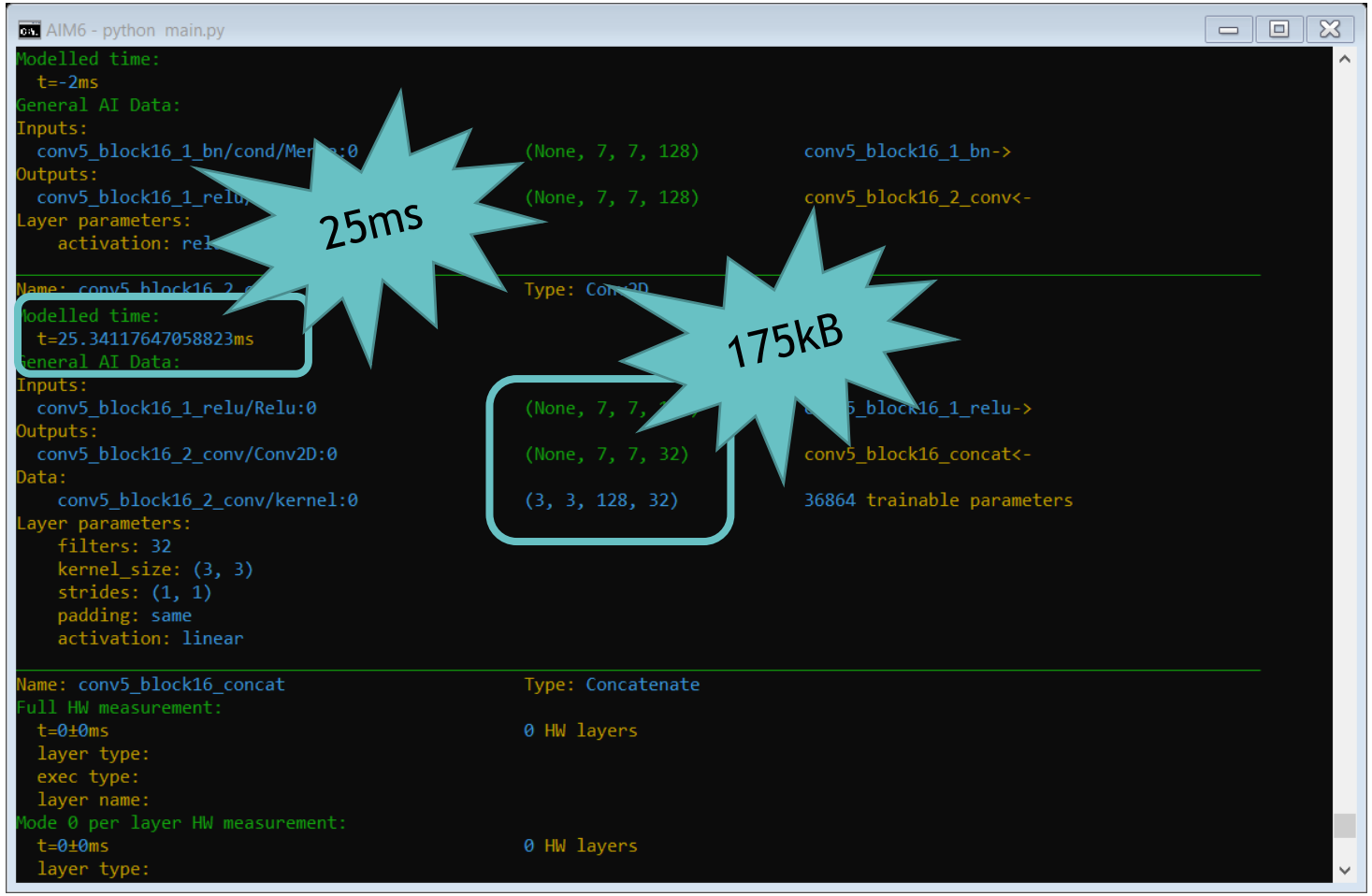
Prediction

Modeling idea

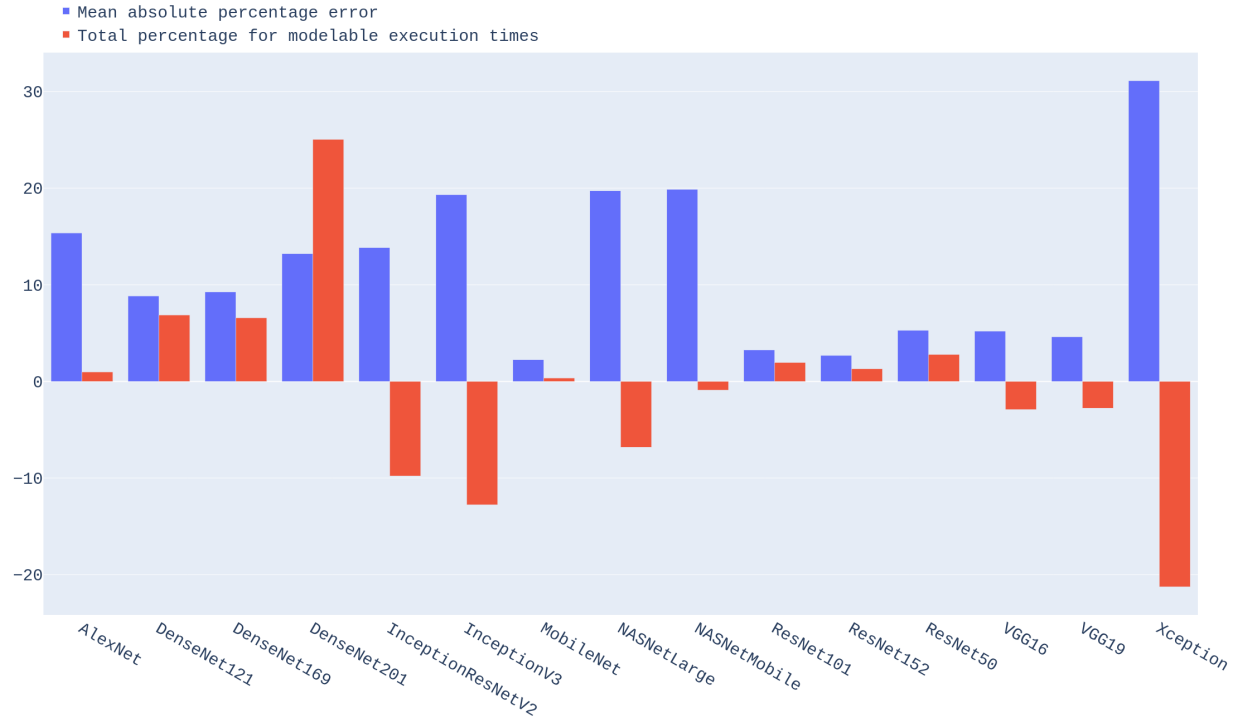


Prediction of AI Properties

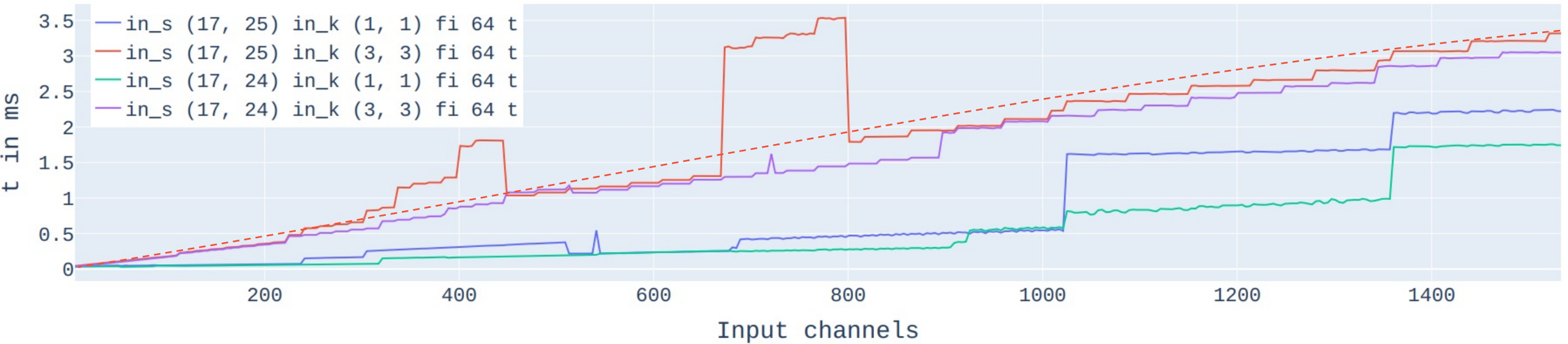




Benchmark results



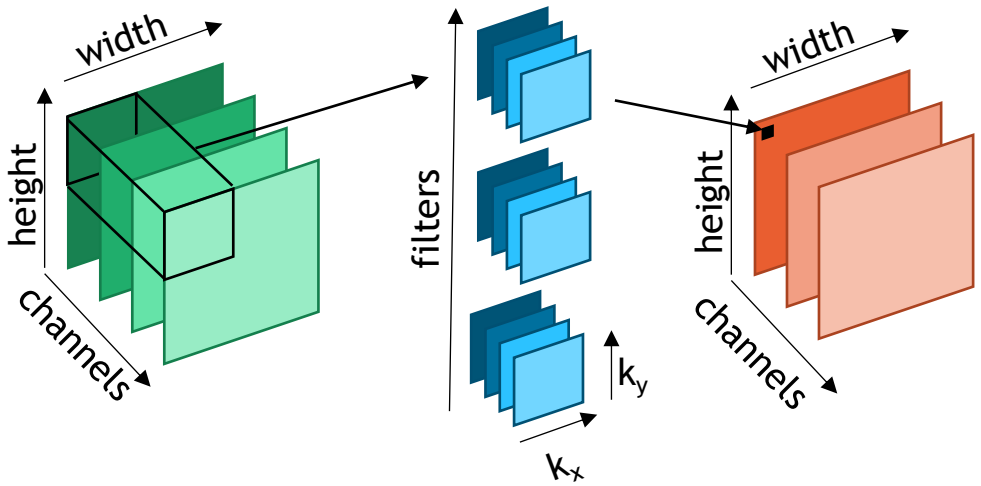
in_s ([17, 17], [24, 25]), in_c [5, 1533], k [(1, 1), (3, 3)], fi [64, 64], st (1, 1)



3

Optimization

Tucker decomposition



$$y_f = \sum_{k_x,k_y,c} a_{k_x,k_y,c} \cdot w_{k_x,k_y,c,f} = A \times_4 W$$

$$W \in \mathbb{R}^{k_x \times k_y \times c \times f}$$

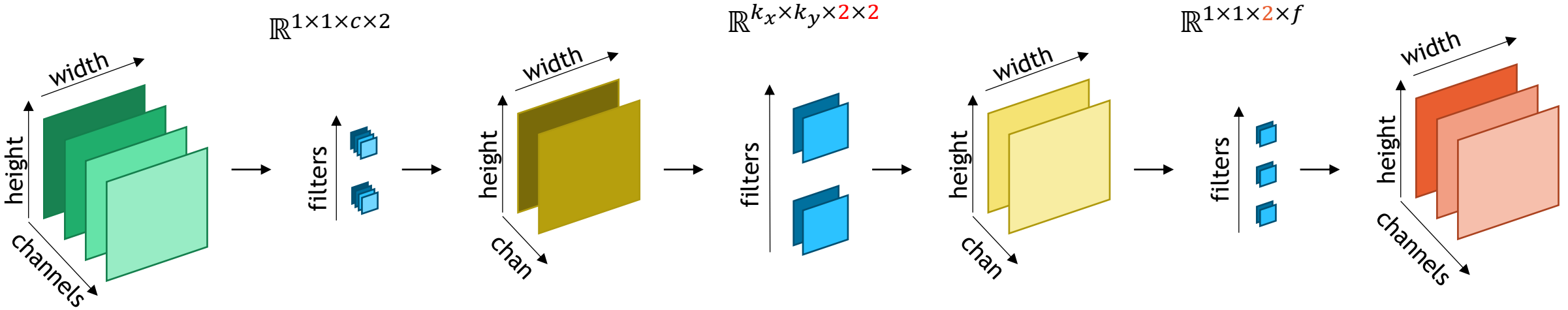
$$\text{Tucker(p,q)} \rightarrow W \approx C \times_3 G \times_4 F$$

$$G \in \mathbb{R}^{k_x \times k_y \times p \times q}$$

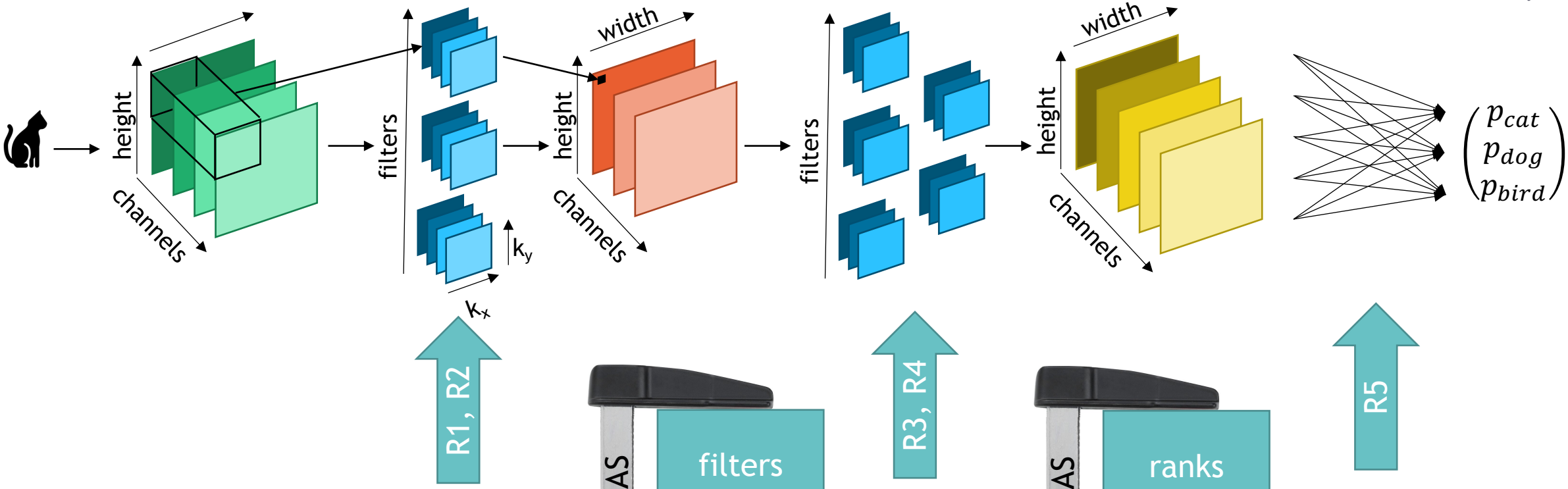
$$C \in \mathbb{R}^{1 \times 1 \times c \times p}$$

$$F \in \mathbb{R}^{1 \times 1 \times q \times f}$$

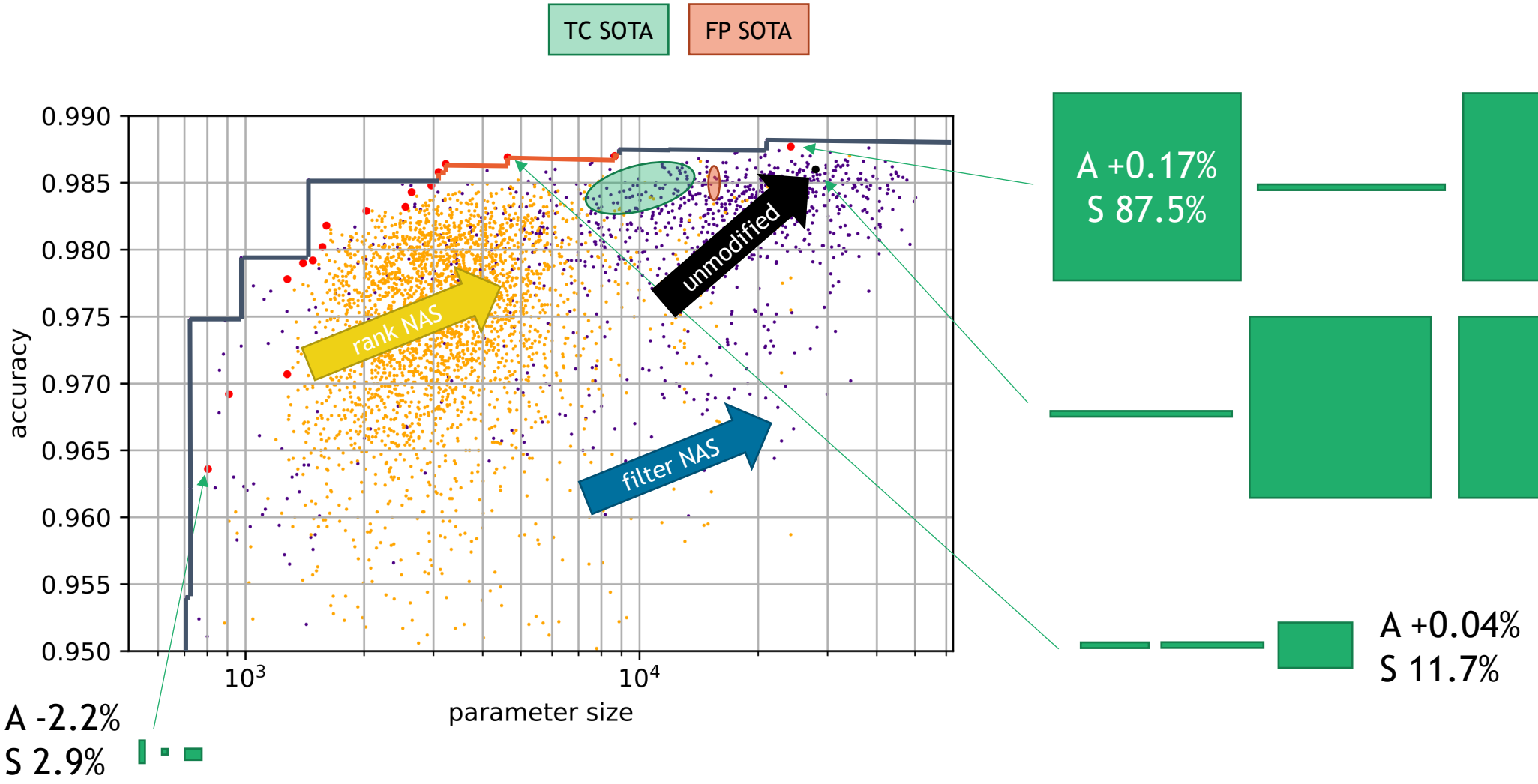
Tucker(2,2)



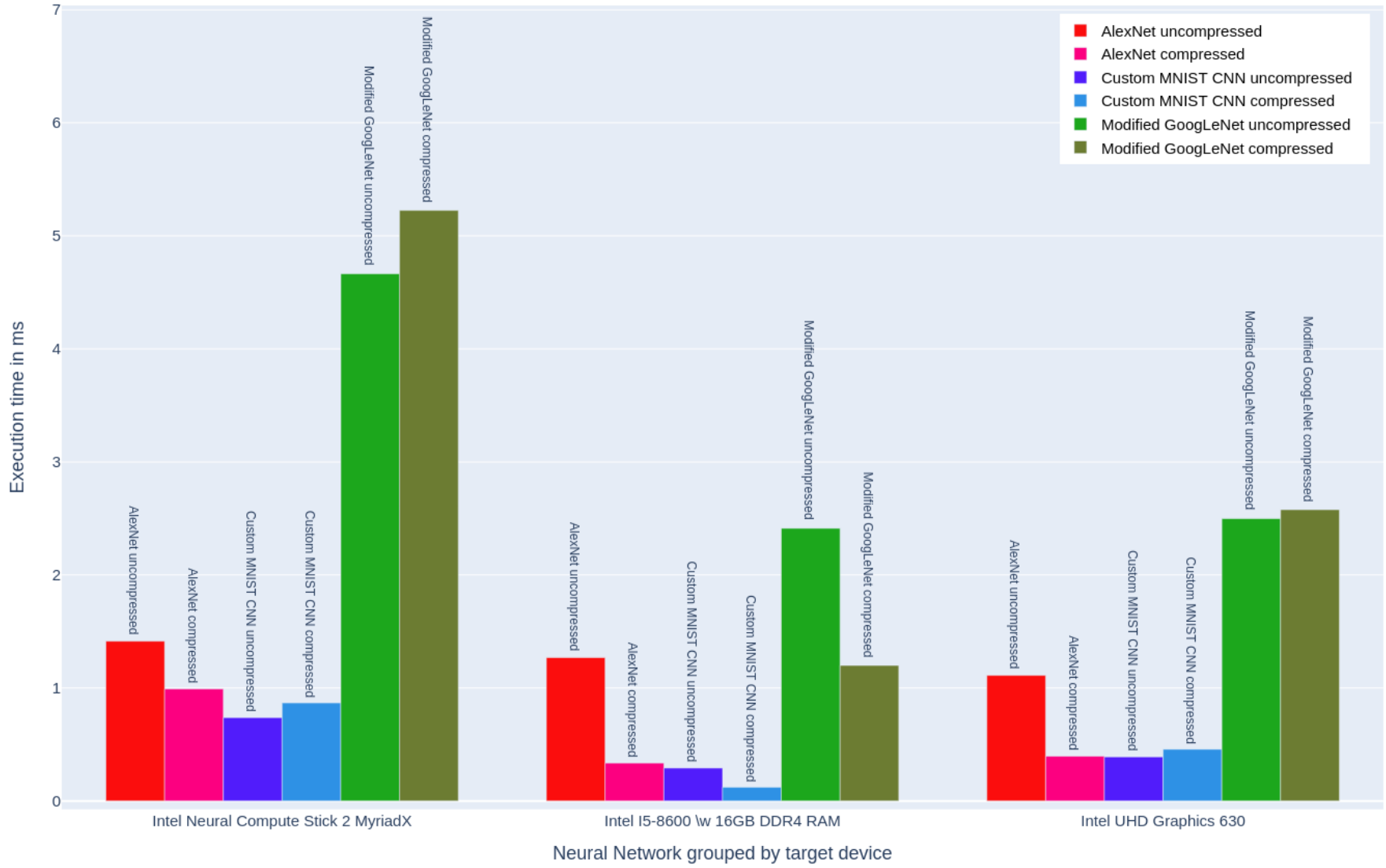
Introducing NAS



Combining TC and NAS



Execution time on various HW platforms



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KI FAMILIE

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