

My Last Dance -- Development and Applications of a Memory-Traffic-Efficient Convolutional Neural Network

Youn-Long Lin

National Tsing Hua University, Taiwan

E-mail: ylin@cs.nthu.edu.tw

Abstract

In this presentation, I will introduce the design of the HarDNet, an efficient and accurate convolutional neural network architecture. The fundamental idea behind its design is to minimize DRAM access, considering the slower speed and higher energy consumption of DRAM compared to fast and cost-effective arithmetic operations. HarDNet architecture has undergone optimization for speed and energy efficiency, making it an ideal choice for various applications, including object detection, semantic segmentation, and medical image segmentation. HarDNet is open-source, allowing anyone to use and modify it. The success of HarDNet has been significant in various fields and countries, such as autonomous driving, industrial automation, vehicle safety, environmental monitoring, colonoscopy polyp segmentation, and MRI imaging.