Rechnerarchitekturen für Deep-Learning Anwendungen (RADL)

Dustin Heither, Maximilian Achenbach and Robert Kagan

Application

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- Application purpose: Classification
- Dataset: MNIST
- Kind of application: General purpose laptops and desktops

Targeted architecture

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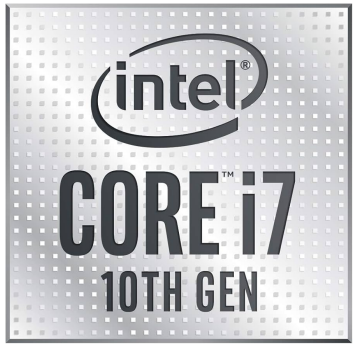
- Hardware: CPU vs. GPU
- Device:
  - Apple M3 Pro (ARMv8.6-A)
  - Intel Core i7 1065G7 (x86-64-v4)
  - Nvidia GeForce RTX 2080

Developer:

Dustin Heither

Robert Kagan

Maximilian Achenbach



Approach and responsibilities

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- The final result:
  - Deep Learning Framework with CPU-GPU switch
  - Possibly: Combination of Multithreading and SIMD
  - Evaluation of:
    - Performance gains
    - Resource consumption
    - Performance per watt
    - PCIe latency

Kind of optimization:	Developer:
Multithreading	Dustin Heither
SIMD (SSE vs. AVX2 vs. AVX-512)	Robert Kagan
CUDA tuning	Maximilian Achenbach