

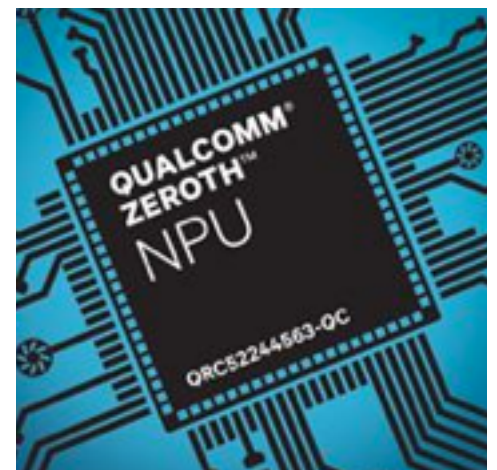
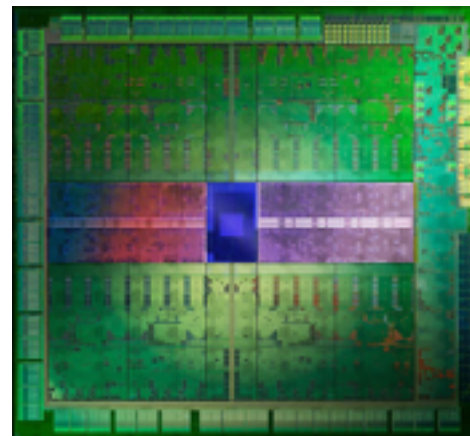
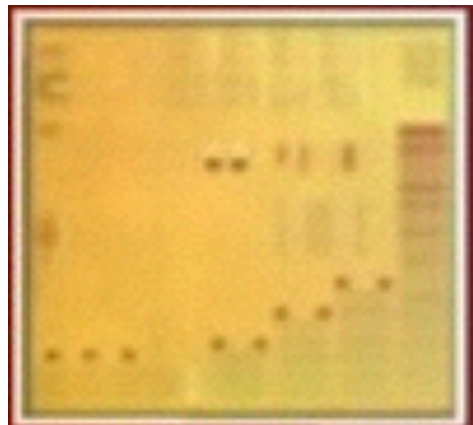
The Human Processing Unit (HPU) as a New Approximate Computing Substrate

Yuhao Zhu

UT Austin

with Matt Lease, Matthew Halpern, and Vijay Janapa Reddi

Computing Device

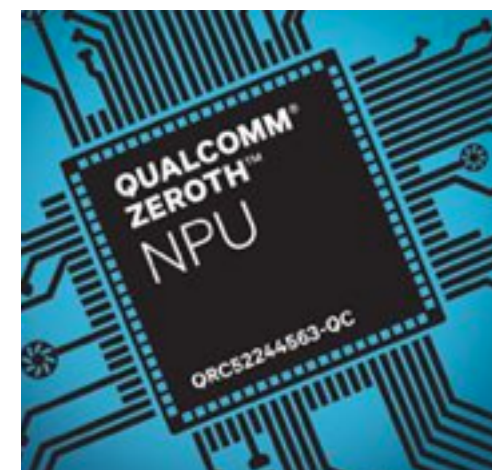
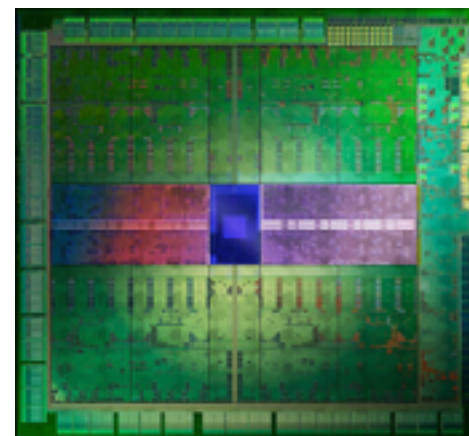


Problem

Image
Compression

Edge
Detection

Computing
Device



Problem

Image
Compression

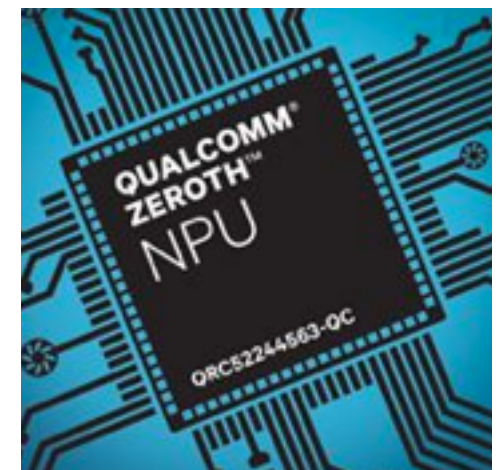
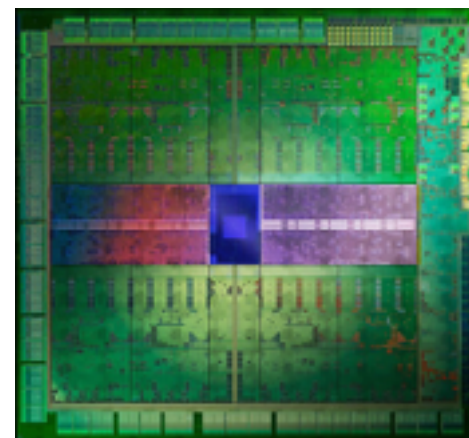
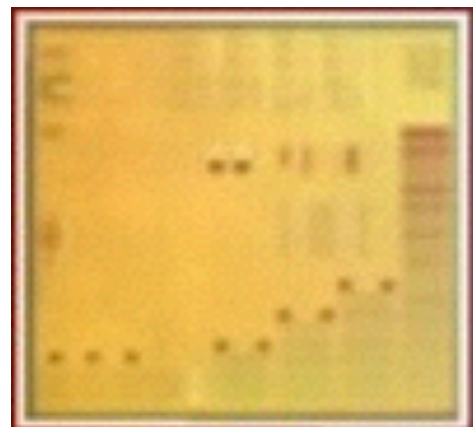
Edge
Detection

Algorithm /
Application

JPEG 2000

Sobel

Computing
Device



Problem

Algorithm /
Application

Computing
Device



HPU

Problem

What approximate problems
can be mapped to HPU's?

Algorithm /
Application

Computing
Device



HPU

Problem

What approximate problems
can be mapped to HPU's?

Algorithm /
Application

How do we program HPU's
while ensuring quality?

Computing
Device



HPU

Problem

What approximate problems
can be mapped to HPUUs?

Algorithm /
Application

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Computing
Device

