



软件学院 杨伟光

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# Heterogeneous Parallel Computing



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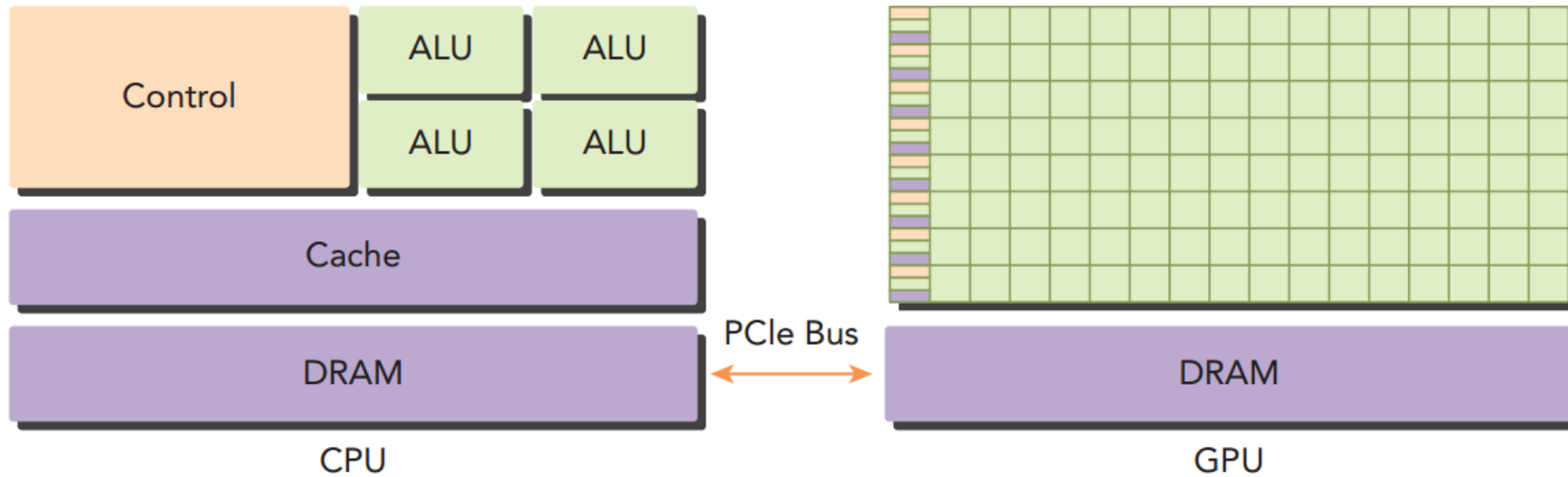
**Heterogeneous Architecture**

**Paradigm of Heterogeneous Computing**

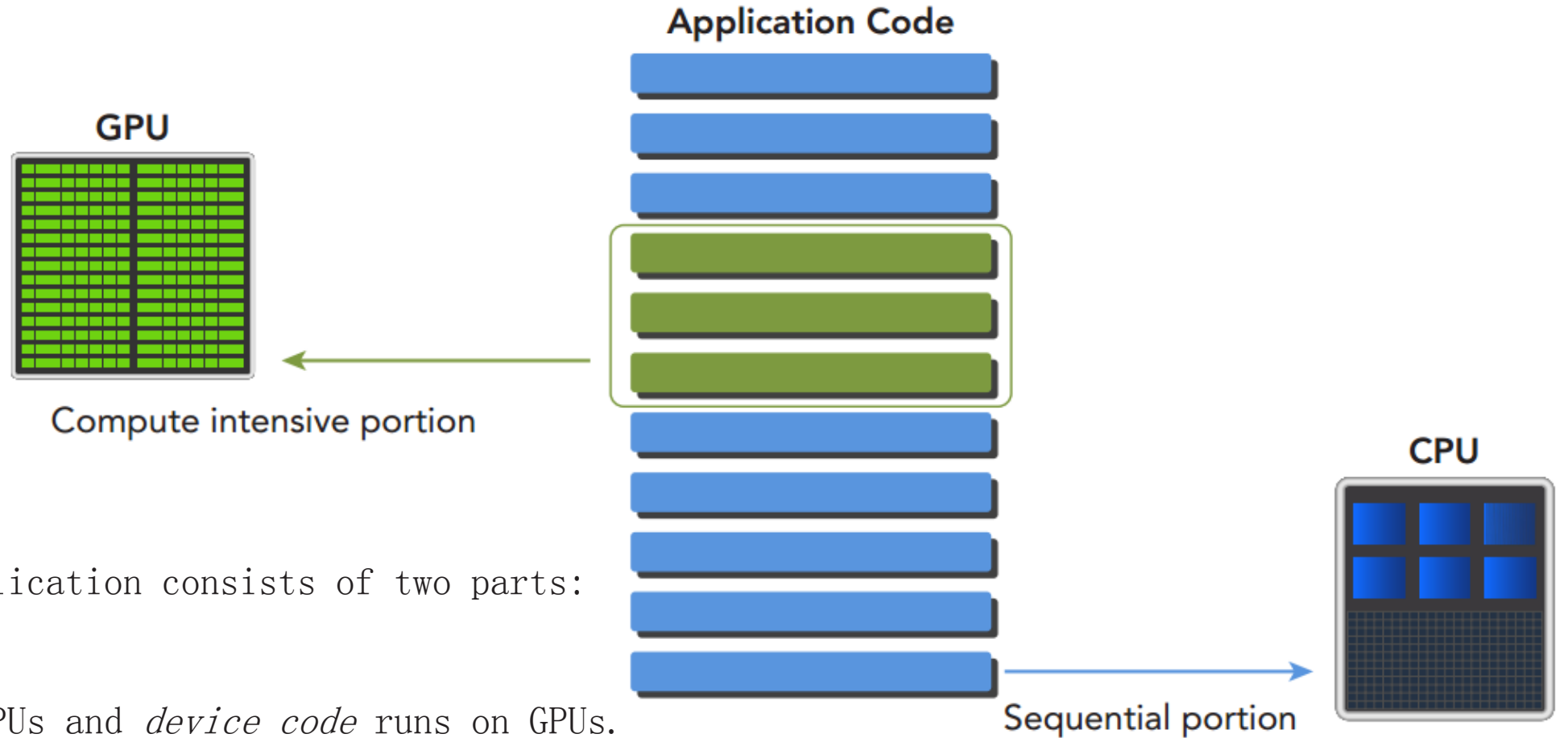
**Platforms for Heterogeneous Computing**

**CUDA Platforms for Heterogeneous  
Computing**

# Heterogeneous Architecture



# Heterogeneous Architecture

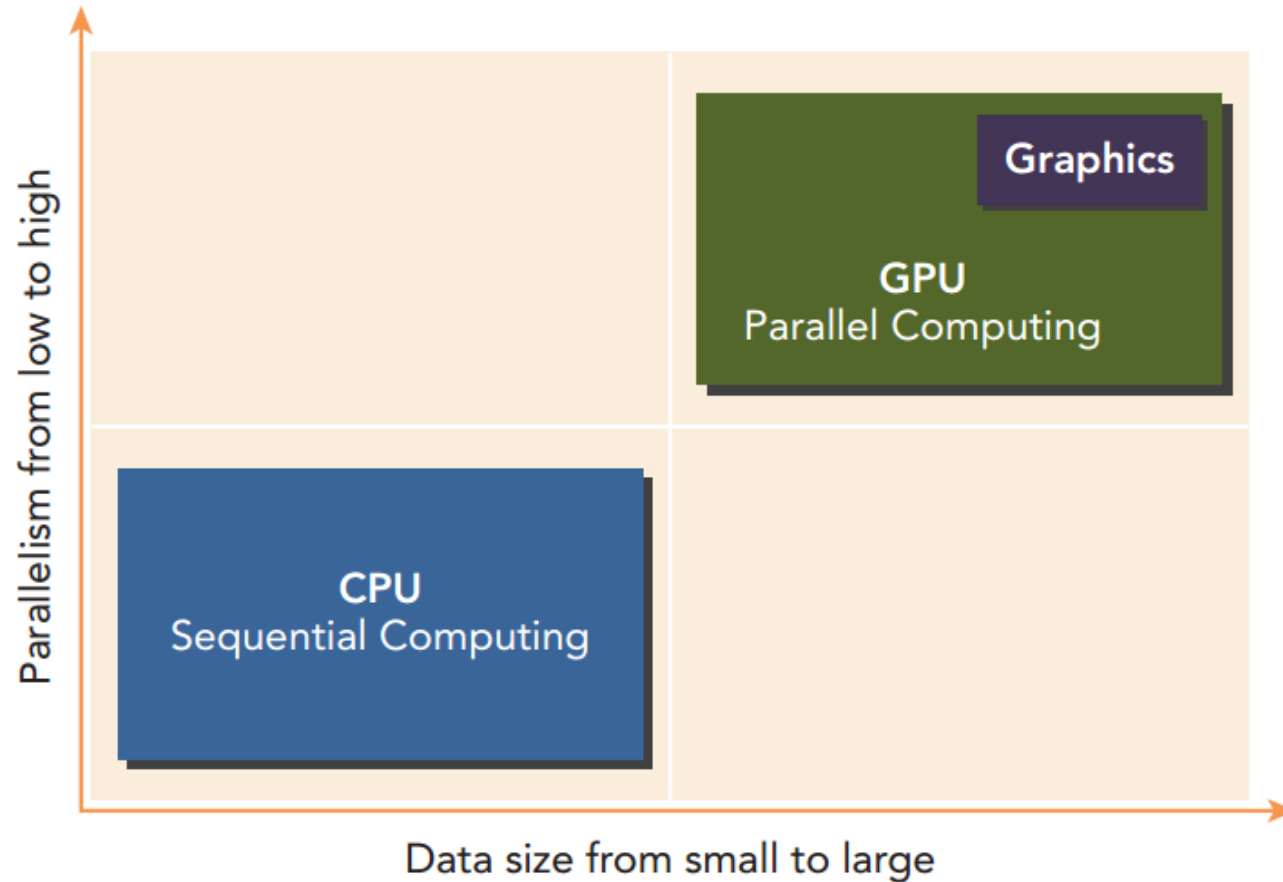


A heterogeneous application consists of two parts:

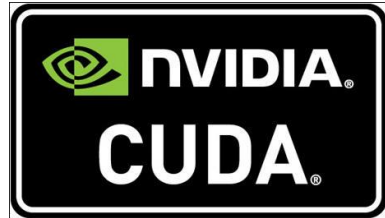
- Host code
- Device code

*Host code* runs on CPUs and *device code* runs on GPUs.

# Paradigm of Heterogeneous Computing



# Platforms for Heterogeneous Computing



# Platforms for Heterogeneous Computing



# Platforms for Heterogeneous Computing



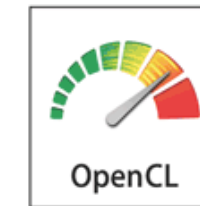
**Ecosystem**



**OpenCL**



**Implementers**  
Desktop/Mobile/Embedded/FPGA



**Core API and Language Specs**



**Working Group Members**  
Apps/Tools/Tests/Courseware





# Platforms for Heterogeneous Computing



**How to choose?**



OpenCL



## How to choose?



OpenCL



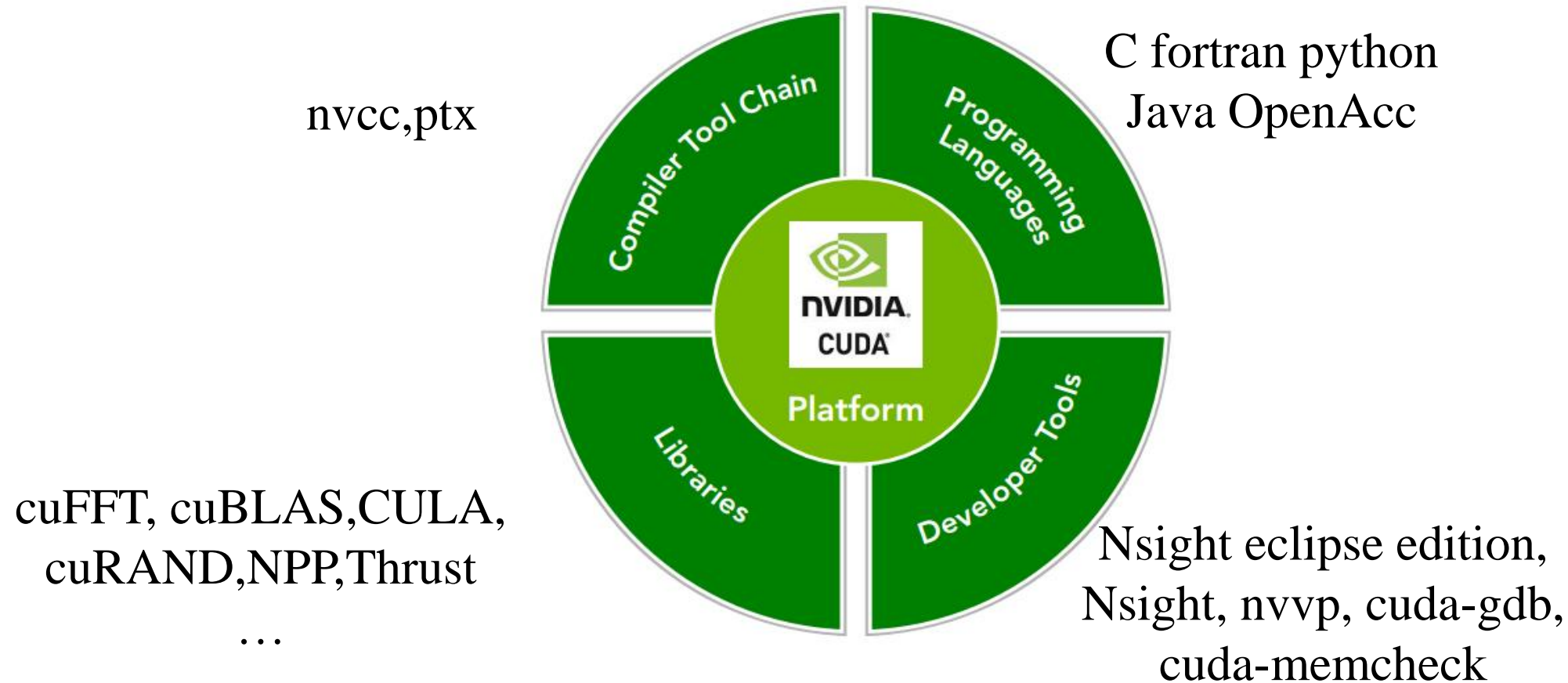
performance



portability

ANDROID

# CUDA Platforms for Heterogeneous Computing HPCC&IP



# CUDA Platforms for Heterogeneous Computing

- GeForce → GTX The ultimate GPU for gamers
- Tesla → supercomputing solutions
- Quadro → Quadro Professional Workstation Solutions
- Tegra → The World's Fastest Mobile Processors

NVIDIA Processors and how to choose GPU?

# CUDA Platforms for Heterogeneous Computing HPCC&IP

- GeForce → GTX The ultimate GPU for gamers

Inexpensive

High  
Performance

Disadvantages

NVIDIA Processors and how to choose GPU?

**Thanks**