# CUDA-driven Bullet Hell Shooter

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Veteran "Hardcore Professional"
Record: 0 / 2
LUNATIC
Death Count: 14
Captured: 1 / 20
ALL STAR RUSH
Boss
FPS: 60

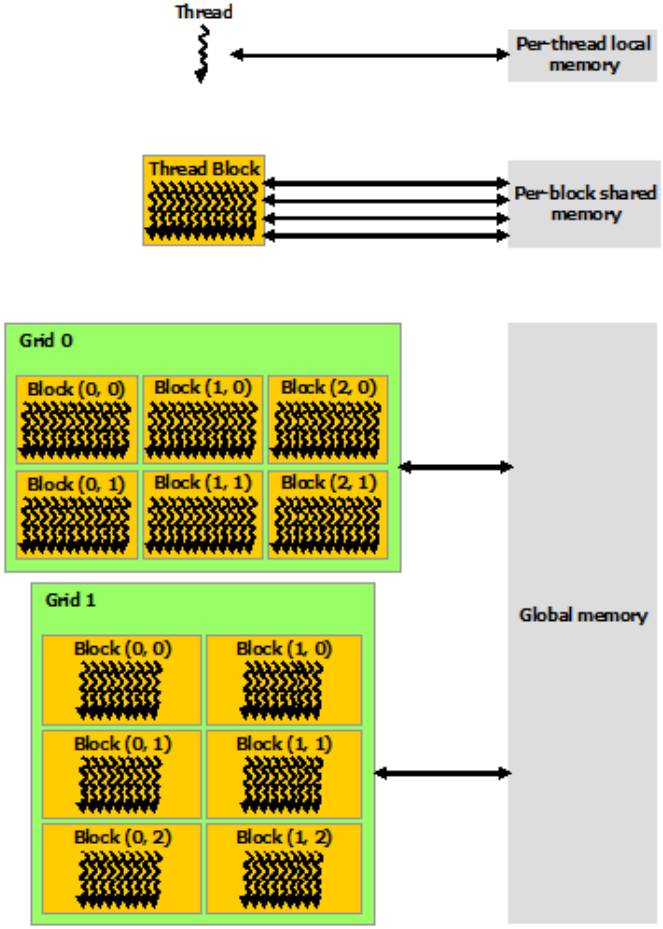
# Features

- 2D Top Down Bullet Hell Shooter
- C++/CUDA Language
- CPU/GPU synchronization
- Bullet Processing on GPU
  - Creation, Deletion
  - Movement, Collision Detection

# Schedule

- March 25: Proposal
- April 1: GPU/CPU Data Transfer Prototype
- April 8: CUDA Optimization – Design review
- April 15: Minimal Game Engine
- April 22: Additional Features
  - GPU rendering, game mechanics, etc.
- April 29: Final Presentation

# Global Memory




- Pros
  - Persistent
  - Relatively Large
  - Global across Threads
  - Easy
- Cons
  - Slower
  - Boring

http://docs.nvidia.com/cuda/cuda-c-programming-guide/index.html

# Design Alternatives

- Shared/Thread Memory
  - Pro
    - Faster
    - Allows 1 thread per bullet architecture
  - Con
    - Thread Synchronization
    - Smaller Memory
    - Disappears after Thread/Warp lifetime
- Thrust
  - Pro
    - More complex algorithms available
    - Still allows for memory management
  - Con
    - Less control of threads

# Next Steps

- Tech talk: CUDA GPU / CPU synchronization
- Design review: CUDA Optimization
- Tech talk: Thrust Algorithms (tentative)
- Final Presentation: Full system demo!