Employing GPUs to accelerate exact 3D geometric computation

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The challenge:
- Fast and exact 3D geometric computation.
- E.g.: intersect two big triangular meshes.

Solution:
- Correctness:
  - Exact computation (rationals).
- Performance:
  - GPUs: good for (inexact) floats.
  - Interval Arithmetic (IA): inexact floats → accelerate exact computation.

Results:
- Comparing against sequential implementation (accelerated with IA):
  - 993x speedup in the intersection tests.
  - 99x total speedup.