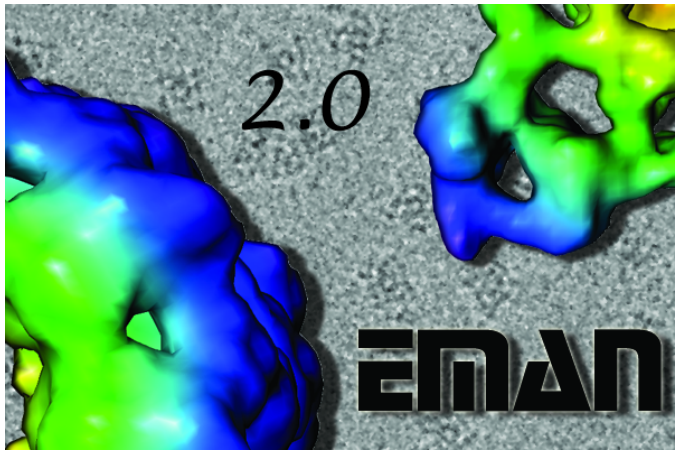

http://blake.bcm.edu

Applying EMAN2 to Difficult Problems

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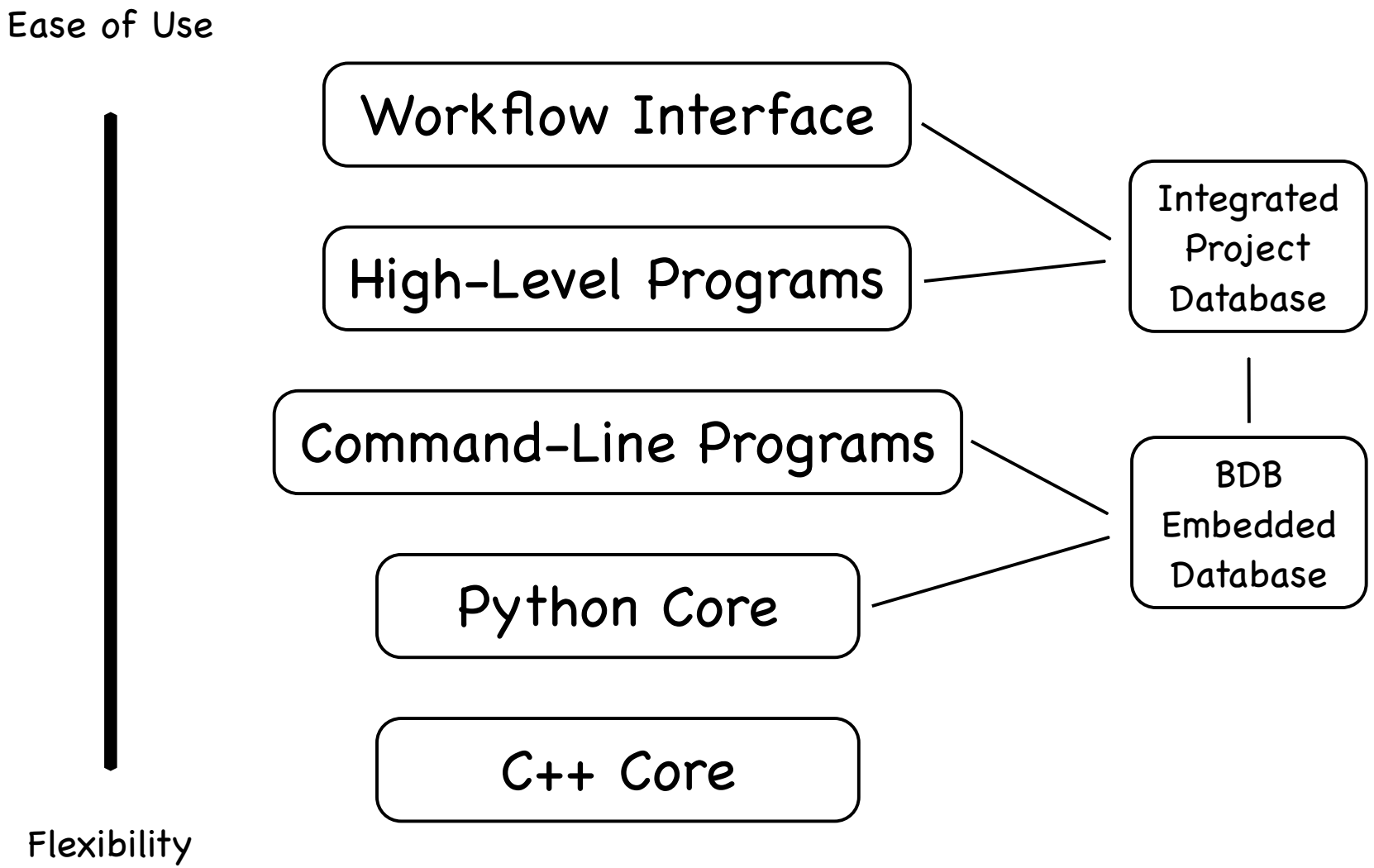
NIH Roadmap

EMAN2

NOW STABLE AND PRODUCING STRUCTURES

- Workflow infrastructure
- Complete logging/data management with embedded DB
- New openGL based GUI
- Improved CTF model
  - Automatic fitting, Energy filters, proper c-film handling
- Single particle cryoET
- Easily extensible modular core
- GPGPU support *
- SPARX Project !

EMAN2 Design



Difficult ?

- High resolution
  - With low/no symmetry
  - Nearly symmetric objects
  - Large objects
- Structural heterogeneity
- Small Objects

Asymmetric Object with Pseudosymmetry at 4.7 & 4.0 Å

- Unpublished results excluded from handout

Structural Heterogeneity

- 2-D Iterative Reference Free Classification
- 3-D Multi-model refinement
- Single particle cryo-ET

Small Objects

- Hardware, not software (phase plates)
- More careful image processing

Examples

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