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Bug - Squashing - Seminar
ITK4 Overview

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What has changed?

- Versioning is now *git*

- License: Apache 2.0 (was BSD like MITK)

- Deprecated Compilers
  - Visual Studio 6.0 and 7.0, GCC < 3.4, Borland 5.5, Sun CC < 5.9, SGI CC, MWORKS, Cygwin

- Modularization (12 groups, 110 modules)
  - GPU implementations

ITK 4 Overview

- Framework refactoring for
  - Level-Sets
  - Registration
  - Statistics
  - FEM
- Simple ITK v0.6.1 (http://www.simpleitk.org/)

What has changed?

Integration of ThirdParty products

- DICOM -> GDCM + DCMTK, but itkDicomImageIO + Factory deprecated

- Interface for Import/Export of VTK images

- IO for HDF5 (for big data management) (cf. BSS 13.04.2011)

- IO for Meshes (Freesurfer, Gifti, VTKPolyData)

What has changed?

Video Integration:

- New Data Object (itkVideoStream)
- New Process Object (itkVideoSource, itkVideoToVideoFilter)

- Basic video filtering (decimate frames, frame difference/average)

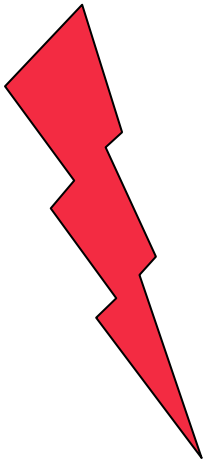
- OpenCV + VXL video capturing

- IO for IplImage and CvMat, (OpenCV)

What has changed?

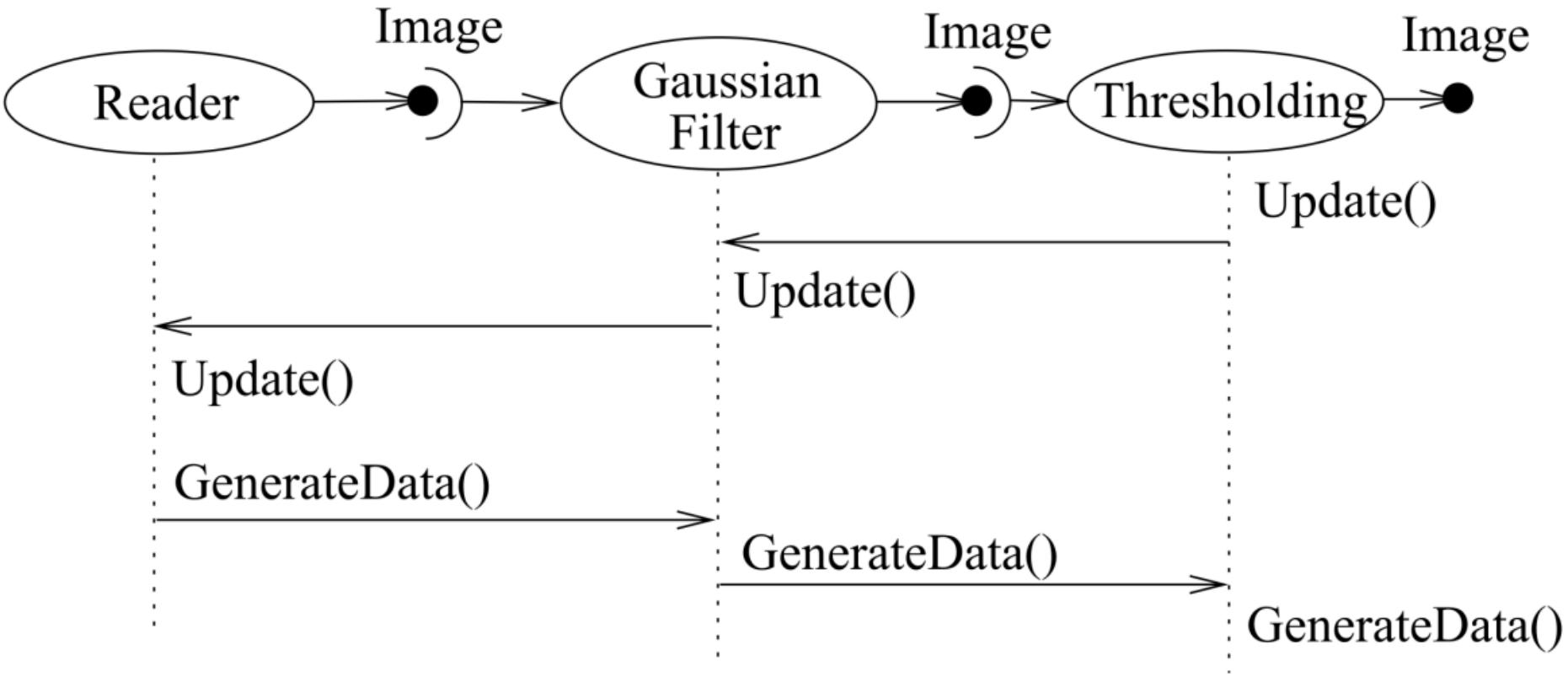
- 32 classes „Deprecated“ and another
- 22 classes for „V3Compatability“
  (have a look @ ..\ITK-src\Modules\Compatibility\..)

- Removed „Patented“ folder
  - itkActiveShapeModelCalculator
  - itkActiveShapeModelGradientSearchMethod
  - itkSimpleFuzzyConnectednessImageFilterBase
    - itkSimpleFuzzyConnectednessRGBImageFilter
    - itkSimpleFuzzyConnectednessScalarImageFilter
    - itkVectorFuzzyConnectednessImageFilter



- Reduced „Review“ folder content (~300 classes -> 60 classes)

ITK 4 Pitfalls in Filter-Pipeline Processing



ITK 4 Pitfalls in Filter-Pipeline Processing

Itk::ProcessObject	ITK V3	ITK V4
m_Outputs	std::vector< DataObjectPointer>	std::map< DataObjectIdentifierType, DataObjectPointer, NameComparator >
m_Inputs	std::vector< DataObjectPointer>	std::map< DataObjectIdentifierType, DataObjectPointer, NameComparator >
m_NumberOfIndexedInputs; m_NumberOfIndexedOutputs;	--	Set/GetNumberOfIndexedInputs() Set/GetNumberOfIndexedOutputs()
m_PrimaryInputName; m_PrimaryOutputName;	--	Set/GetPrimaryInput() Set/GetPrimary(Output)

ITK 4 Pitfalls in Filter-Pipeline Processing

Assume a filter with 3 inputs / outputs

```
void mitk::XXXFilter::CreateOutputsForAllInputs()
{
 this->SetNumberOfOutputs(this->GetNumberOfInputs());  // create outputs for all inputs
 for (unsigned int idx = 0; idx < this->GetNumberOfOutputs(); ++idx)
   if (this->GetOutput(idx) == NULL)
   {
     DataObjectPointer newOutput = this->MakeOutput(idx);
     this->SetNthOutput(idx, newOutput);
   }
   this->Modified();
}
```