Investigating Toxicity by Quantifying Images

Adding Machine Vision to Human Views

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Project Deliverables

Milestone 1: Q2 – 2009

Collected toxicity related measurements

Established data bases of 'numerical metadata'

Milestone 2: Q2 - 2010

Defined image related vocabularies for toxicity

Built 'meta taxonomies' for measurements and images

Milestone 3: Q2 – 2011

Fully tested system with toxicology images

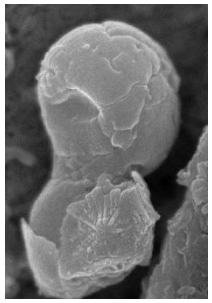
Produced web-based operation for end users.

The State of the Art

- Investigating cells
- Relevance to toxicity
- Current state of metrology
- Current state of vision technology

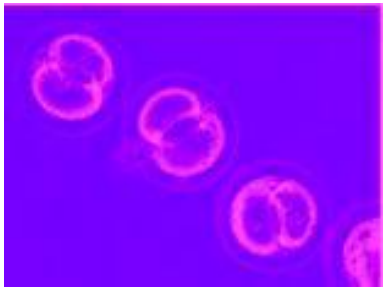
Comparison of Benefits

Conventional Analysis



- Non-quantitative
- Ill-defined variability
- Fixed time domain

3D Metric Software

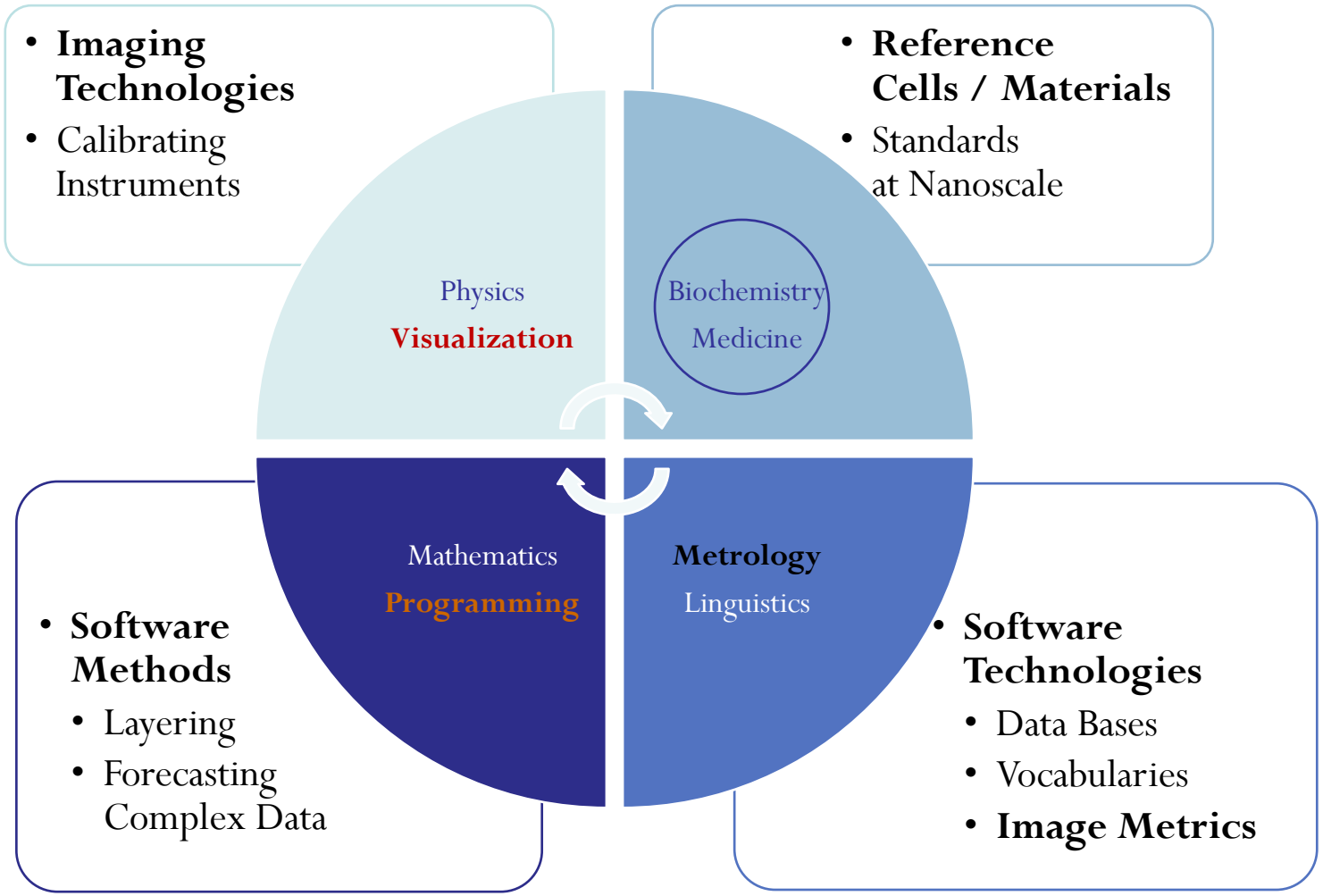


Precise categorisation of:

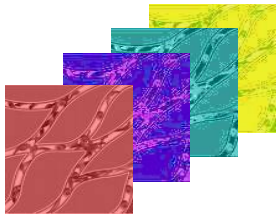
- Properties
- Time dependencies
- Populations of behaviour

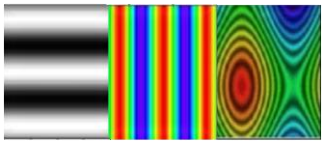
➢ Precision analysis link

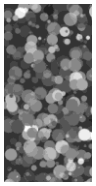
The 3D Metric Framework



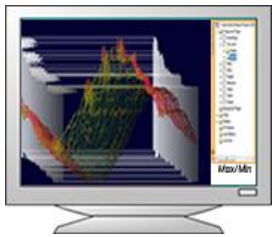
The System and its IP







Knowledge Tool



Standard Bodies
Big Pharma
Higher Education
Hospitals
Surgeries
Web Users

Data Base of Metadata, References & Standards

Measuring Terms relating to Toxicity

Image / Data Collections

Controlled Vocabularies

Core Processes

Menu Options
User Controls

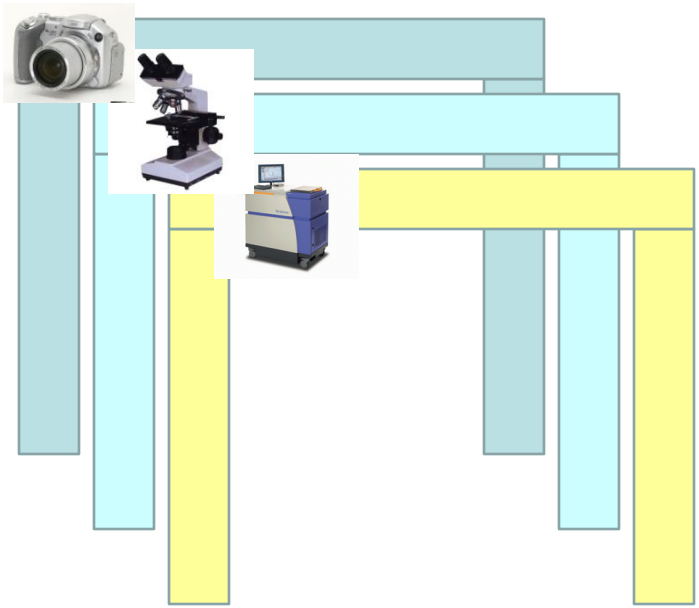
Software Infrastructure

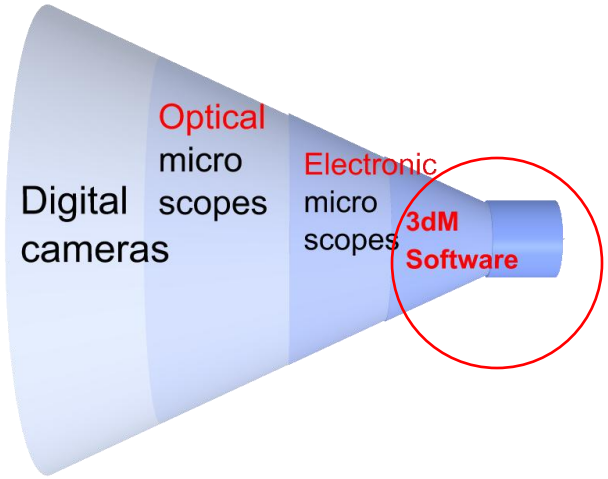
xx.xxx
32.454
32.453
32.452
32.451

xx.xxx
54.124
54.123
54.122
54.121

xx.xxx
17.564
17.563
17.562
17.561

Multi-Scale Toxicity Portals





The Proposed System

KNOWLEDGE

- **Predict** the Encounter with External Environment
- **Interrogate** multivariate data and multiscale images

Making Sense of 'Biological Noise'

INFORMATION

- **Multi-Layering** for Visual Comparisons
- **Temporal Elements** for studying Impact of Perturbations

Toxicity Related Taxonomies

DATA

Image Collections

Data Bases

The Teams

Toxicity
Discovery Network

Software
Development

Business Operations

Scientific and Technical Advisory Board

International Development

Risk Assessment

- State of the Art Research
- Competition
- Conceptual Framework
- Multi-Disciplinary Team
- Experts' Data Input
- Software System Development
- Sabine K McNeill

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