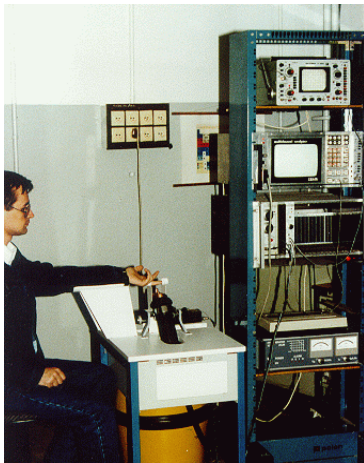


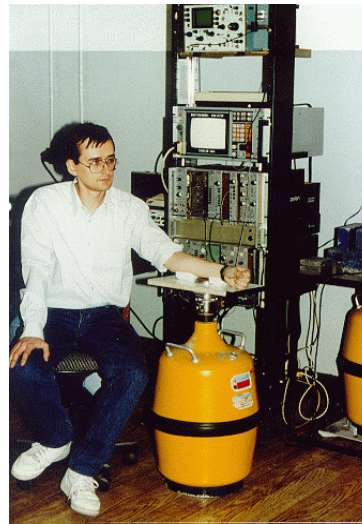
Research teams

- Biomedical and Nuclear Computer Systems
- Nuclear Detection and Spectroscopy
- Image Processing and Pattern Recognition
- Nuclear Medicine

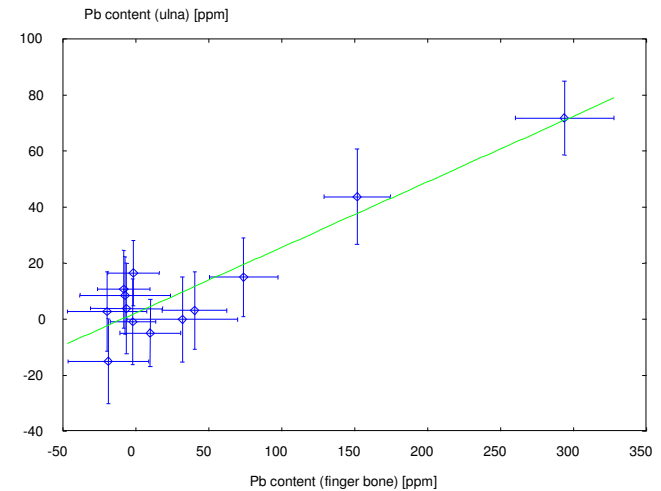
In Vivo X-ray Tissue Fluorescence Spectroscopy Analysis



Spectrometer for measurements lead (Pb) content in bones (L-series fluorescence)

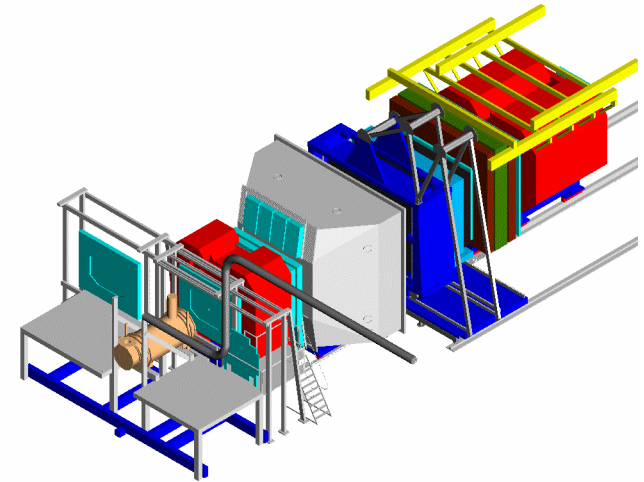


Spectrometer for measurements lead (Pb) content in bones (K-series fluorescence)



Correlation of Pb content in finger (cortical) and ulna (trabecular) bone

14 Years of Collaboration with High Energy Physics Experiments at CERN (Geneva)



- read-out electronics design
- construction of particle detectors
- applications of soft computing techniques for data analysis

Radiology Teleinformation System - MIMIDIS

- ✓ **Management of medical documentation:** registration, reports
- ✓ **Improved diagnosis:** CADD, visualization, enhancement
- ✓ **Management of medical images:** archiving & communication
- ✓ **Interactive consultations:** telediagnosis, error resilience, video streaming
- ✓ **Databases:** compression, retrieval and interfacing
- ✓ **Implementation:** experimental system at Wolski Hospital
- ✓ **Security:** multi – user hierarchical access control, authorization

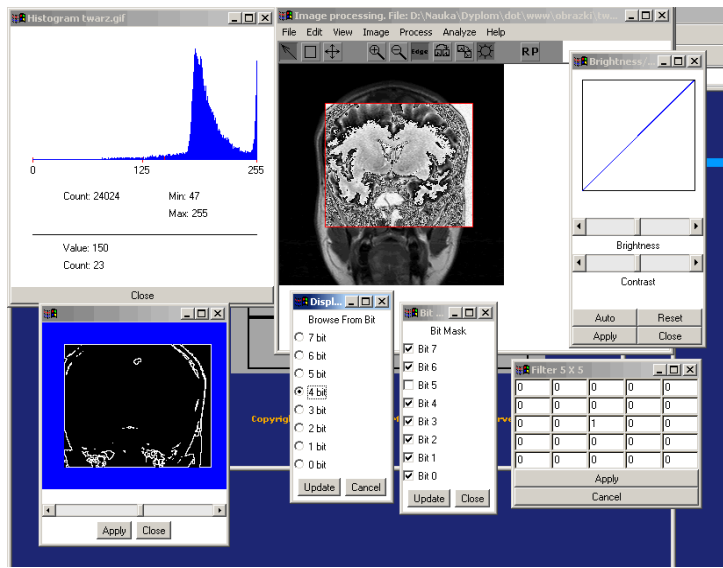
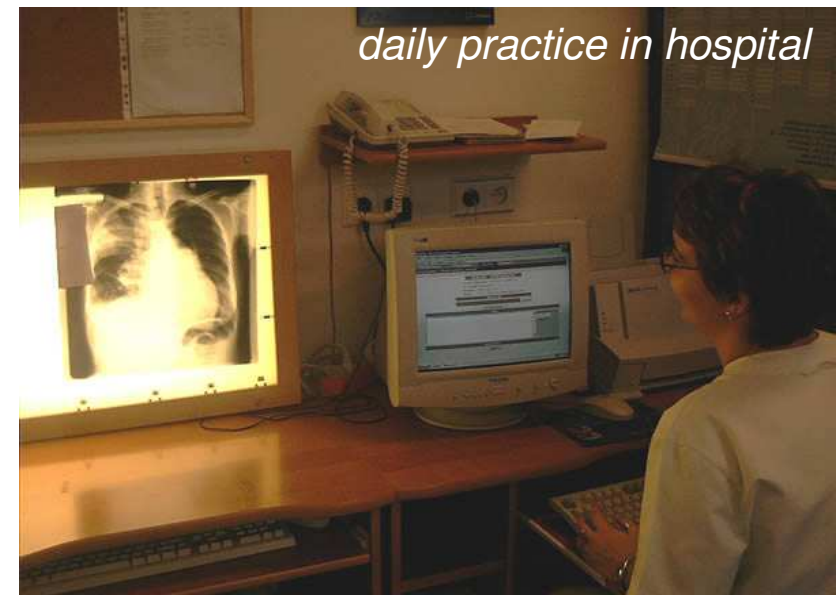
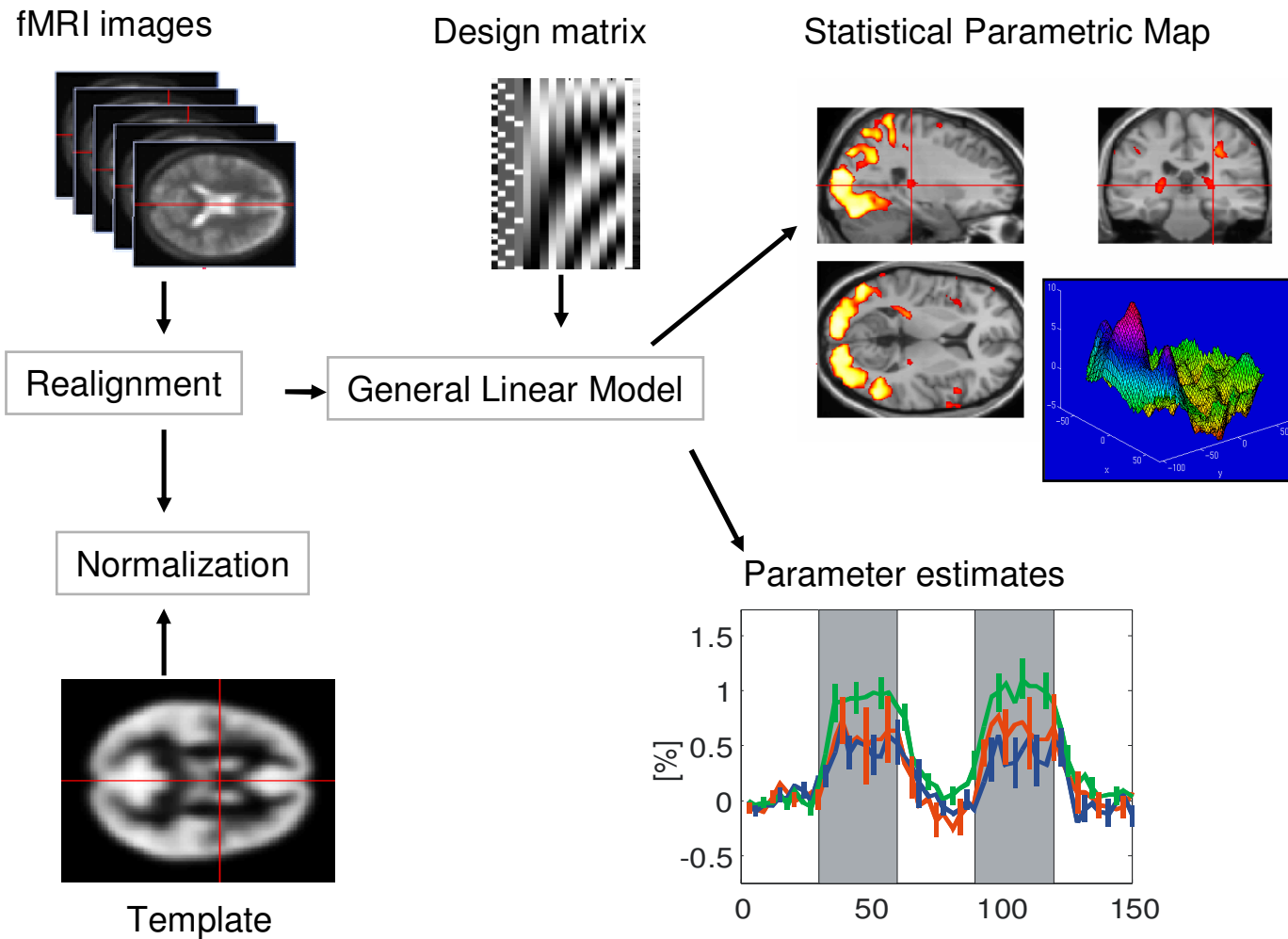


image processing tools

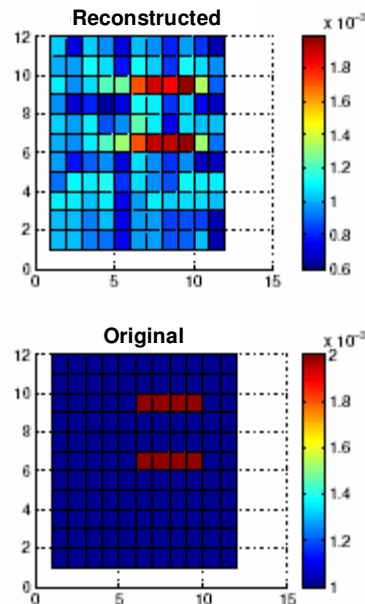


Functional Magnetic Resonance Imaging

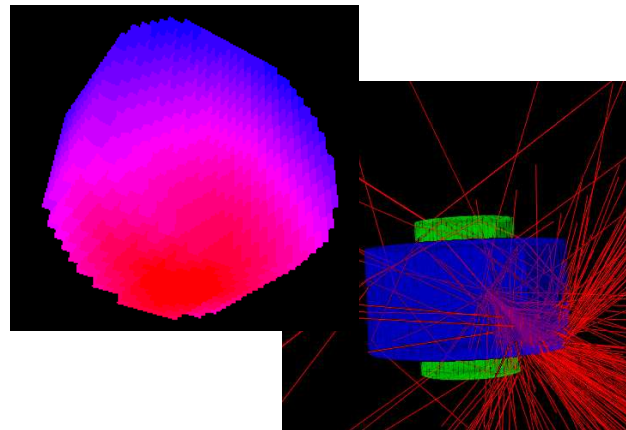


Diffusive Optical Tomography

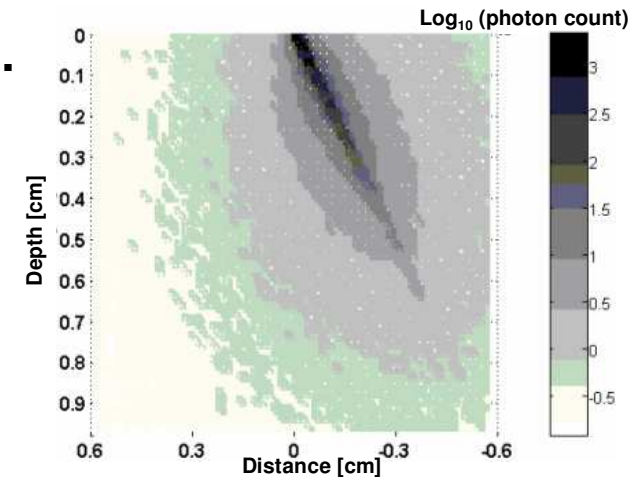
MR and CT aided determination of tissue optical properties for anatomical and physiological measurements i.e. perfusion, cancer detection.



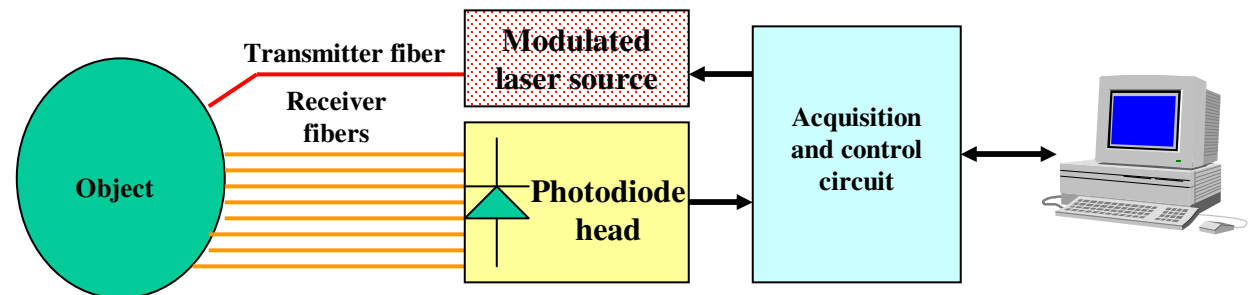
Light transport simulation using nodal method and least square reconstruction



3D nodal and Monte-Carlo simulation



Monte-Carlo simulation of photon transport in homogenous tissue-like object.



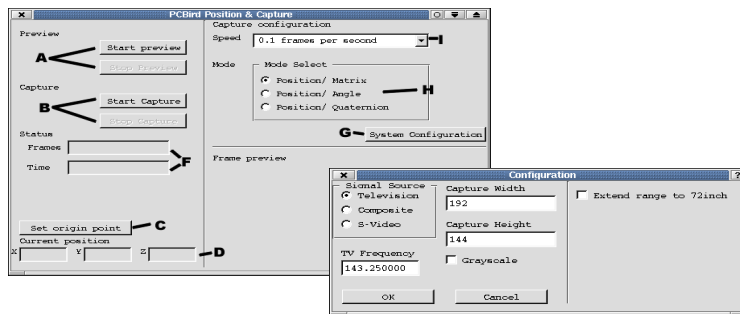
System for tissue perfusion measurement.

Visualization techniques in 3D ultrasound imaging

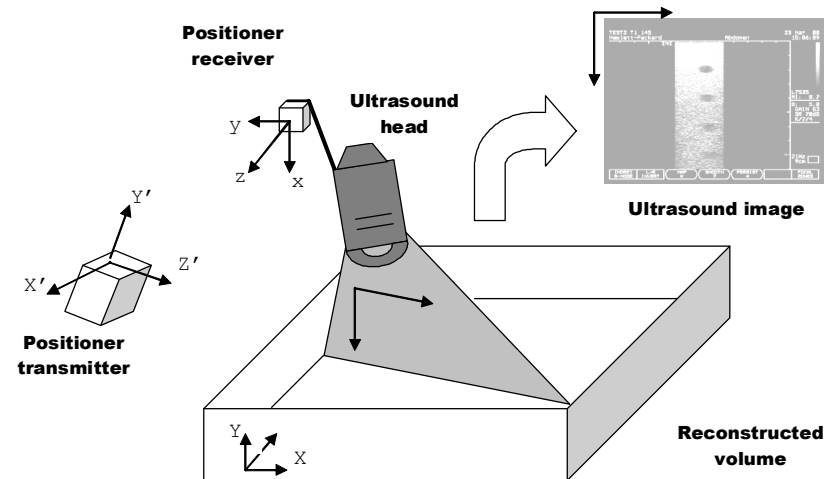
System for simultaneous position and B-projection image acquisition using pcBird positioner receiver mounted



Ultrasound head with pcBIRD positioning system receiver mounted



Device driver and acquisition software for Linux



Coordinate systems used in 3D image reconstruction