



# VAVlab

Boğaziçi University, Electrical & Electronics Eng. Dept.  
Volumetric Analysis And Visualization Group

**VAVlab (Volumetric Analysis & Visualization Group)** is a multi-disciplinary research group founded within the Electrical & Electronics Eng. Dept. of Bogazici University, and is affiliated with the Bogazici University, Center for Life Sciences (as the coordinator of the Bioimage Analysis workgroup). The group conducts research on image and signal processing and analysis with emphasis on the medical domain. The highly dynamic collaboration network include Istanbul University (Capa) Medical School (TR), Koc University (TR), Yeditepe University Hospital (TR), Stanford University School of Medicine (USA), DKFZ - Medical and Biological Informatics Dept. (DE), Technical University of Munich (DE), University of Malaga (ES).

VAVlab's primary research fields are

- Medical Image Processing and Analysis
  - Image segmentation, registration, enhancement
  - Computer aided annotations
  - Computer aided decision support
- Medical IT and Big Data Analytics
  - Patient based search and retrieval in medical databases
  - Composite (Multi-modal) patient representations (image + non-image data)
  - Medical ontologies and semantic analysis
  - Structured and automated reporting
- Brain Research
  - Functional and structural brain network modeling
  - Brain network analysis
  - Diffusion MRI processing
  - Applications to neurodegenerative diseases (esp. Alzheimer)
- Simulations and Virtual Environments
  - Vision / Haptics based human computer interfaces
  - Virtual medical ultrasound simulator
  - Virtual colonography
- BioSensor Signal Processing (in collaboration with BioAFM labs at Bogazici University, EE)
  - Early cancer detection sensors
  - Food quality sensors

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