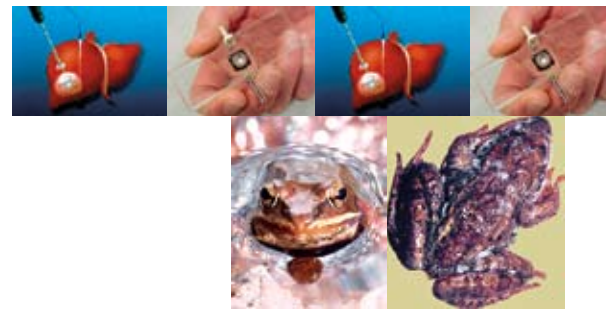


RESEARCH CENTER FOR BIOENGINEERING

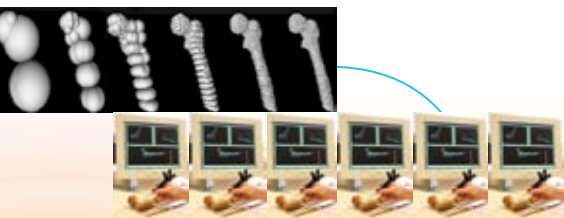
"in the service of humanity and society"

Bioengineering - a discipline that addresses fundamental and applied problems in life sciences and medicine through a combination of basic scientific knowledge from biology, molecular biology, genetics, physics, mathematics, chemistry, biochemistry, economics, and humanities along with knowledge of mechanical, computational and electrical engineering - has become one of the fastest growing disciplines in modern science and has become the basis for economical development near universities around the world. Due to the interdisciplinary nature of bioengineering and the outstanding quality of the faculty of the Hebrew University of Jerusalem in virtually every bioengineering-related field from mathematics to physics, from computer science to molecular biology, and from clinical medicine to ethics and philosophy, we have the opportunity to become a leading institution in this field. Our research will also address other important issues related to life sciences such as finding alternative energy sources through bioengineering-related and environmentally-safe means.



The purpose of this Research Center is to make advanced bioengineering technology available to everyone in the world at every socio-economic level, regardless of socio-economic status, religion or race, a mission unique among bioengineering centers in the world.

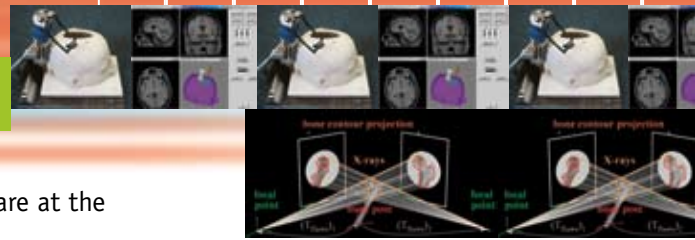
Using concepts of medical imaging, computer science and telecommunication, we are developing a technology which allows medical imaging, such as breast cancer detection, through the telephone with inexpensive electronics hardware. Also, using exterior electromagnetic fields we have developed a new and inexpensive technology that allows the non-invasive detection of internal bleeding from the exterior of the body. These are only a few examples of the vast expanse of exploration and development areas being pursued by the School of Engineering and Computer Science Bioengineering department for the betterment of all mankind.



We urgently need your assistance with this multidisciplinary Center. You can become a partner in this exciting research and continue to help the Hebrew University of Jerusalem maintain its strive for excellence in the field of Bioengineering.

Your support is required for the center's equipment, scholarships for qualified students and research.





Faculty members at HUJI have a world-wide reputation of excellence and are at the forefront of the world's most advanced aspects of bioengineering.

School of Engineering and Computer Science

Friedman, Nir - Computational statistical learning. Computational molecular biology. Artificial intelligence. Bioinformatics.

Joskowicz, Leo - Computer-assisted surgery; medical image processing. Computer-aided mechanical design; kinematics, dynamics, tolerancing, parametric design of mechanisms. Geometric and model-based reasoning. Motion and assembly planning: complex environments, tight fits.

Lewis, Aaron - Femtosecond lasers. Near-field 2D/3D optical imaging, nanochemical and nanomanipulation tools, SHG, non-linear optical imaging of membrane potential in neural networks, light energy transduction in photoreceptors, and biomedical instrumentation.

Peleg, Shmuel - Computer vision. Analysis of image sequences. Video mosaicing. Panoramic stereo.

Rubinsky, Boris - Bioelectronics and nano and micro bioengineering

Tishby, Naftali - Computational learning theory and applications; pattern recognition; signal analysis; computational neuroscience; computational biology. Information theoretic techniques. Statistical mechanics: applications to machine learning and non-linear dynamics. Analysis and applications to natural language processing and human-machine interaction. Bioinformatics.

Institute of Life Sciences

Benvenisty, Nissim - Molecular genetics in mammals; developmental biology, cancer research, regulation of transcription.

Hirschberg, Yossi - Plant molecular biology, Plant biotechnology. Carotenoid biosynthesis in plants and bacteria. Metabolic engineering of vitamins in plants. Photosynthesis. Plant genomics. Institute of Plant Sciences and Genetics in Agriculture

Shoseyov, Oded - Enzymes and proteins that modify and bind to polysaccharides. Plant cell wall synthesis. Plant biotechnology. Metabolic engineering of transgenic plants. Protein engineering. Nanotechnology.

Faculty of Medicine, The Hebrew University - Hadassah Medical School

Benita, Shimon - Microparticulate and nanoparticulate targetable drug delivery systems for enhanced oral bioavailability of poorly absorbed drugs using parenteral, ocular or oral route of administration. Investigation of innovative drug targeting systems using emulsion-monoclonal antibody conjugates for improved cancer treatment. Antisense oligonucleotide delivery by cationic emulsions for retina and cornea neovascularization treatment.

Gazit, Dan - Skeletal gene therapy and tissue engineering. Adult stem cell biology and plasticity. Novel gene discovery. Non-viral gene delivery.

Vaadia, Eilon - Neural computation; cortical mechanisms of sensorimotor control