SpotDSQ: Protein Spot Detection, Segmentation and Quantification in 2D-gel images

Version for Windows (64-bit)

SpotDSQ is a novel software for 2D-gel electrophoresis image analysis. It can be utilized for protein spot detection, segmentation and quantification in 2D-gel images. All these tasks are fundamendal in evaluating protein expression levels but demand computationally intensive algorithms that usually need manual tuning. SpotDSQ offers an easy-to-use graphical interface that allows the user to start the image analysis by loading the image and pressing a button. Nevertheless, it offers to the advanced user the option to modify parameter values in order to cope with images exhibiting unusual characteristics.

Installation Instructions:

1. Run **SpotDSQ_web_installer.exe**

2. The installer will download and install the necessary MATLAB runtime

3. Use the SpotDSQ shortcut from the desktop or the Start Menu to run the program

4. Sample 2D-gel images can be found inside the SpotDSQ installation directory

{{spotdsqdown}}

ATTENTION: This software is part of a research paper submitted for publication and is currently available only for the reviewers and the editorial office of the journal. SpotDSQ will be available for download after final acceptance of the paper. If you are a reviewer/editor and cannot download SpotDSQ, please contact us at rtsimage [-at-] di.uoa.gr or through the submission system.

MIGS-GPU: Microarray Image Gridding and Segmentation on GPU

Version for Windows 7 (32-bit)

An NVIDIA graphics card with compute capability 3.0 or above is required!

MIGS-GPU is a software package for gridding and segmenting cDNA microarray images. MIGS-GPU addresses two stages of microarray image analysis: Firstly, it implements a genetic algorithm in order to efficiently perform the gridding even in poor quality microarray images. Then, it implements a grow-cut algorithm in order to segment the microarray images. Computations for both the gridding and segmentation stages are performed on the graphics processing unit (GPU) in order to achieve fast performance and increase the utilization of available system resources.

Installation Instructions:

1. Run **MIGS-GPU_1.0_setup.exe**

2. Use the MIGS-GPU shortcut from the desktop or the Start Menu to run the program

3. Sample microarray images can be found inside the "Samples" folder at the MIGS-GPU installation directory

4. In case MIGS-GPU is unable to write and modify temporary files at the installation directory, right-click on the executable file and select "Run as administrator"

{{migsgpudown}}

Please do not forget to cite the following paper:

S. Katsigiannis, E. Zacharia, D. Maroulis, “MIGS-GPU: Microarray Image Gridding and Segmentation on the GPU”, IEEE Journal of Biomedical and Health Informatics, 2016.

2D-GE ACTIVE CONTOUR ANALYSIS

Version for Windows XP/Vista/7/8 (64-bit)

2D-GE ACTIVE CONTOUR ANALYSIS is a novel active contour-based scheme for unsupervised detection and segmentation of 2D-GE images. The proposed scheme exploits the attractive merits of the active contour formulation in order to cope with crucial issues in 2D-GE image analysis, including the presence of noise, streaks, multiplets and faint spots.

Installation Instructions:

1. Install the **Matlab Compiler Runtime (MCR)**

2. Run **2D-GE AC Analysis (64-bit).exe**

Download 2D-GE AC Analysis (64-bit).exe

Download MCR (64-bit)

Please do not forget to cite the following paper:

M.A. Savelonas, E.A. Mylona, D. Maroulis, "Unsupervised 2D gel electrophoresis image segmentation based on active contours," Pattern Recognition, vol. 45, pp. 720-731, 2012. [pdf]

ANGELI: Analyzing 2D Gel Electrophoresis Images

Version for Windows 98/ME/NT/XP/Vista/7

Angeli is an automatic novel appoach to the detection and segmentation of spots on 2D-Gel images. The proposed approach is based on the 2D histograms of the aforementioned images as well as on the 3D spots morphology.

Installation Instructions:

1. Unzip the program in a temporary folder.
2. Run ANGELI.exe.
3. Click File, and subsequently “Open Image”. Examples of 2D-PAGE images for testing ANGELI are included in the subfolder (Data images) of the temporary folder.
4. Click Start.

{{angelidown}}

M^{3}G Software

Fully functional GNU/Linux version (i686 and x86_64 architectures)

Download

TND: Thyroid Nodule Detection System

Demonstration Version for Windows 98/ME/NT/XP

TND is a prototype explanatory analysis software system implementing an original scheme for the detection of nodular tissue in longitudinal ultrasound thyroid images and videos. Hereby a demo version is available for downloading here.

Please don't forget to cite these preliminary studies:

Download

Fuzzy Local Binary Patterns - FLBP

Version for Windows 98/ME/NT/XP

Fuzzy Local Binary Patterns - FLBP is a novel LBP-based feature extraction approach that provides an improved texture representation for noise resistant discrimination of textures. This is achieved by incorporating fuzzy logic into the well known LBP methodology. Hereby a fully-functional windows version is available for downloading here.

Please don't forget to cite these preliminary studies:

Preliminary Studies:

- E. Keramidas, "Ultrasound Image Processing and Analysis Framework", MSc thesis, Department of Informatics & Telecommunications, University of Athens, May 2007. (Extented_Abstract)

(Fulltext)
- D.K. Iakovidis, E. Keramidas, D. Maroulis, "Fuzzy Local Binary Patterns for Ultrasound Texture Characterization", Proc. Image Analysis and Recognition, 5th International Conference (ICIAR 2008), Lecture Notes in Computer Science 5112, Springer, 750-759, 2008. (Fulltext)

Download

Microarray-MD

Demonstration Version for Windows 98/ME/NT/XP

Microarray-MD (Microarray Medical Diagnosis) is a novel microarray data analysis software system which utilizes gene expression data for medical diagnosis. It implements a combination scheme of multiple Support Vector Machines,

which integrates a variety of gene selection criteria and allows for the discrimination of multiple diseases or subtypes of a disease. The system can be trained and automatically tune its parameters with the provision of pathologically characterized gene expression data to its input.

Installation Instructions:

1. Run Microarray-MD.exe to unzip the installation program in a temporary folder.
2. Run Setup.exe to install it on your computer. A colon cancer testset of microarray data will also be included in the subfolder "Data" of the installation directory.
3. Double click on Microarray-MD's desktop icon to start the program.

Download

Colorectal Lesions Detection System

Demonstration Version for Windows 98/ME/NT/XP

CoLD is an innovative detection system to support colorectal cancer diagnosis and detection of pre-cancerous polyps, by processing endoscopy images or video frame sequences acquired during colonoscopy. Hereby a demonstration version of CoLD system, is available for downloading. This version aims to the presentation of CoLD's detection capabilities from a strictly technical point of view. It incorporates the algorithms of the original full version, but most of the visualization options, I/O operations and user-friendly characteristics that are provided in the original version for clinical use, have been disabled.

Installation Instructions:

1. Run CoLD.exe to unzip the installation program in a temporary folder.
2. Run Setup.exe to install it on your computer. A set of colonoscopy video frames will also be included in the subfolder "Images" of the installation directory.
3. Double click on CoLD's desktop icon.

Download