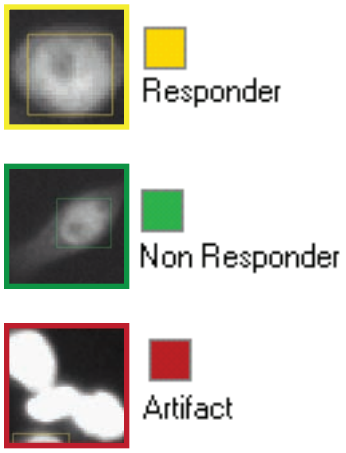
SVCell

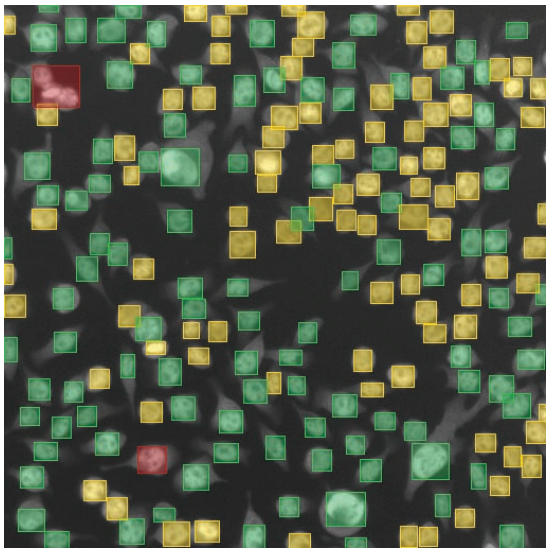
Teachable Image Recognition and Data Analysis Software

Teaching SVCell

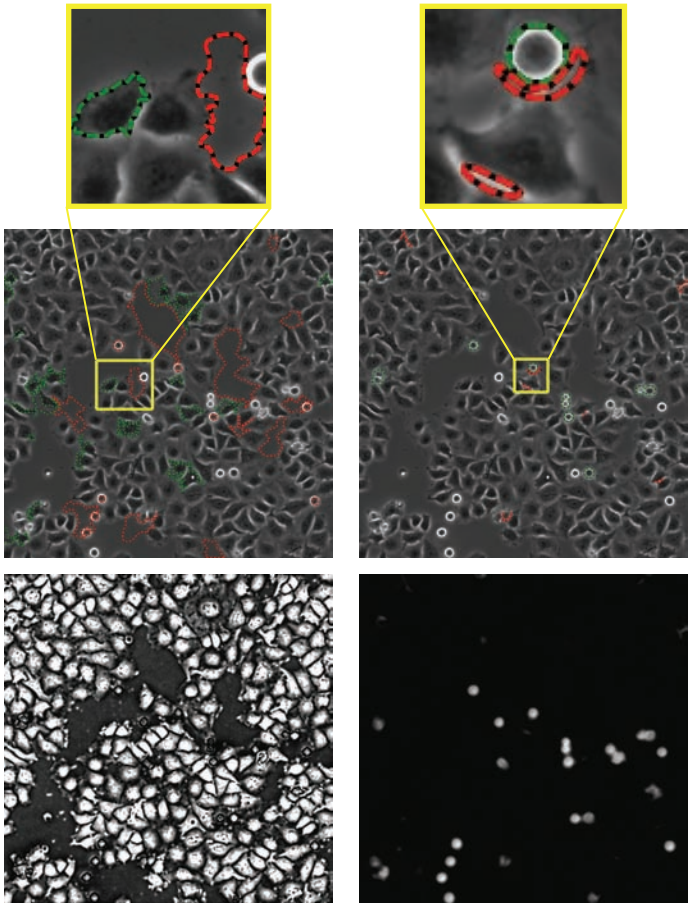
SVCell is teachable, automated image recognition and data analysis software for microscopy imaging. It has advanced, patented learning technologies and teaching interfaces that enable scientists and technicians to quickly and easily create automated analyses with performance on par with custom written software, using a simple "teach by example" interface – guided by their biological knowledge rather than image processing expertise.

Decision Teaching





Segmentation Teaching



Flat cell pattern teaching

Rounded cell pattern teaching

Why SVCell?

SVCell is an innovative platform for the development of image recognition analyses for a broad range of microscopy imaging applications. Novel, high performance applications can be developed with low cost, minimum risk, and limited time and effort. SVCell and its analysis "recipes" can be easily integrated with other components to deliver a complete imaging solution.

Learning Technology

Application teaching in SVCell is powered by SVision's patented and proven learning technologies. Unlike other learning systems, SVCell provides fast teaching and execution, predictable learning outcome, and stable update learning. Learning enables SVCell to be easily customizable.

Innovative Teaching Interfaces

SVCell's teach-by-example interfaces provide users with a simple and intuitive way to access SVision's image based decision technologies to create novel and high performance image recognition analyses. The segmentation teaching interface replaces traditional image processing programming and sophisticated filtering methods. Teaching result is encoded in an SVCell recipe, which enables seamless and complete application execution with a single click.

Key Features

Segmentation Teaching

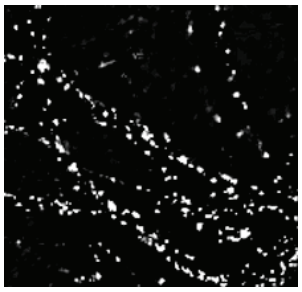
Through drawing the user specifies image patterns for enhancement and suppression. This taught specification, combined with SVCell's image based decision technologies, produces an enhanced image called a confidence map. The confidence map encodes high values for patterns of interest, and low values for patterns to be suppressed. The confidence map can be easily thresholded and post-processed to create segmentation masks. Multiple masks can be created for each image channel. The segmentation teaching is encoded into a segmentation recipe that can be used for automated segmentation. The recipe can be updated at any time with teaching on additional images. Update teaching can make the recipe robust for real world application variations and challenges.

Application Automation Using Recipes

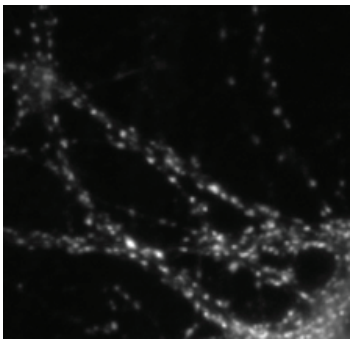
SVCell recipes encode the processing rules for the application. SVCell provides recipes for import, enhancement, segmentation, measurement and decision automation. Recipe lists provide a mechanism to chain and order individual recipes for complete and seamless application process. Individual recipes teaching data and processing rules can be reviewed and updated in the SVCell RecognitionFrame.

Using SVCell

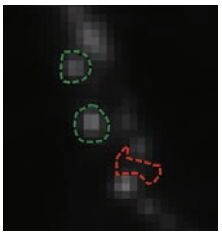
Specialized spot segmentation teaching normalizes background variation and perserves small structures



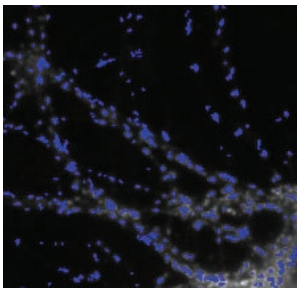
Confidence map



Teaching image



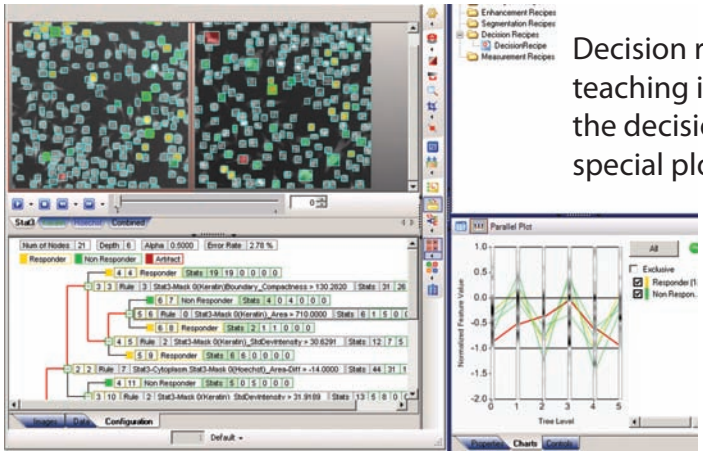
User teaching



Segmentation Mask Overlay

Decision Teaching

Working directly in the images, the user labels a teaching set of objects for phenotype classification. The teaching set, together with SVCell's image based decision technologies automatically create a regulated decision tree that provides accurate classification of image based phenotypes. The decision teaching result is encoded into a decision recipe that can be used for automated classification. Just like SVCell segmentation recipes, the teaching can be updated at any time by adding labeled objects to the teaching set.



Decision recipes contain teaching images, objects, the decision tree, and special plots for tree analysis

Image-based Decision Technology and Products

SVision LLC

3633 136th Pl SE Suite 300
Bellevue, WA 98006, USA
www.svisionllc.com
www.svcell.com

SVision LLC is an emerging leader in the application of learning technologies to practical imaging applications. SVision is an innovator with 30 issued and 18 pending U.S. patents. SVision software is deployed in advanced semiconductor wafer inspection systems that can be taught for new applications without technical intervention. SVision staff have over 140 years of practical imaging solution experience, 152 technical publications, 82 issued U.S. patents, and a history of technical breakthroughs.