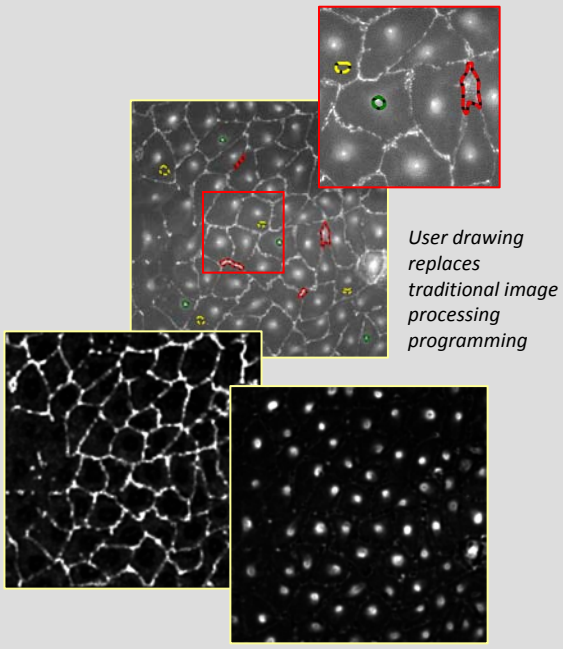
Teachable Image Analysis Software

NEW

SVCell

SVCell is a revolutionary solution platform for broad, high content, live cell image analysis. Its recognition learning technologies and "teach-by-example" interfaces called "Soft Learning™" make it possible for non experts to quickly create high performance novel image analytics. Soft Learning technologies consist of the following core modules:

- **Soft Matching**: teachable enhancement of image patterns of interest for object region segmentation;
- **Soft Fitting**: teachable separation of object boundaries for individual object partition;
- **Soft Tracking**: teachable kinetic models for multiple state heterogeneous moving object tracking;
- **Soft Classifying**: teachable discrimination rules for object classification.



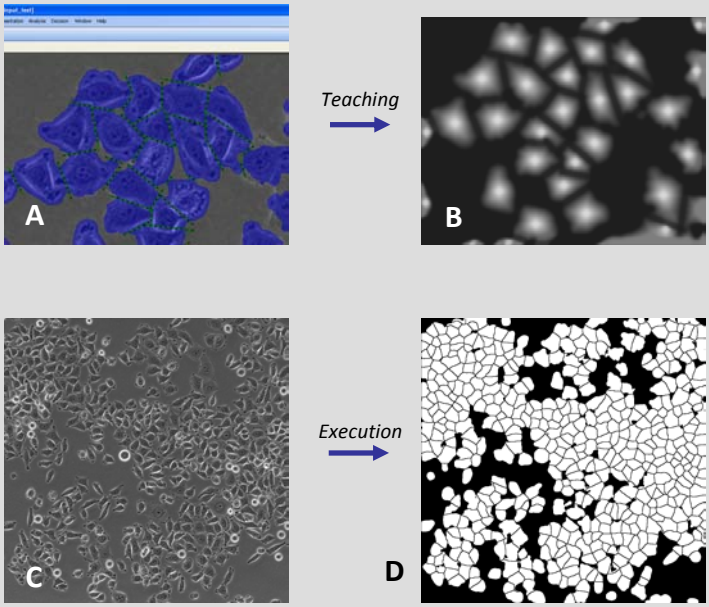
User drawing replaces traditional image processing programming

***Soft Matching** handles the most difficult aspect of advanced image analysis; transforming the original image into a pattern confidence map that can be easily thresholded to create an accurate segmentation mask for the patterns of interest. Images provided courtesy of the Grzybowski Group, Chemical Engineering, Northwestern University*

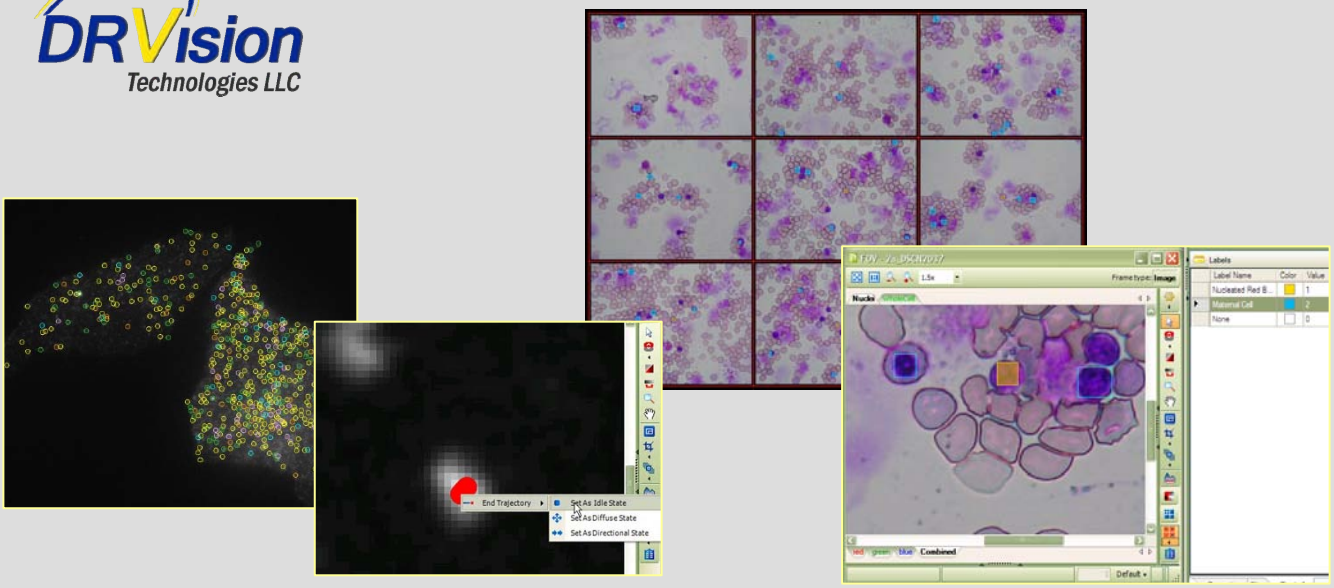
SVCELL CHANGES THE WAY IMAGE ANALYSIS IS DONE

Learning capability means that application recipes can be easily updated to optimize detection, tracking and classification performance for "your" applications. The Soft Learning core modules share the following key attributes:

- **Intuitive learning**: wizard based, teach-by-example interfaces;
- **Fast learning**: instant feedback of learning results;
- **Incremental learning:** error correction update;
- **Stable learning:** maintaining pervious outcomes while adding new examples;
- **Soft outcome**: output confidence values rather than binary data for flexible use.



***Soft Fitting for cell partition learning** (A) Input detection mask result from Soft Matching. Green lines drawn by user teach the desired partitioning of cellular region. (B) Membership image generated by Soft Fitting are used to accurately partition the input detection mask. (C) Input image in execution mode. (D) Partition mask result of the Soft Fitting based partition recipe*

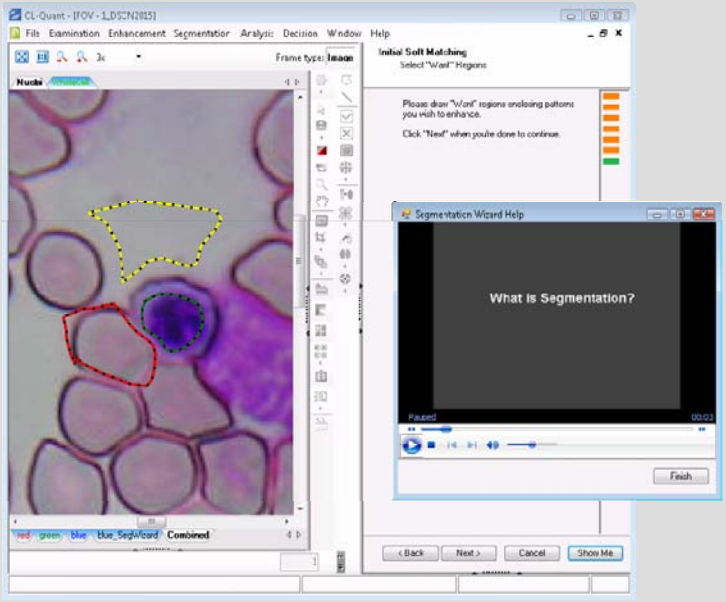


Soft Tracking *can be taught by manually tracking a few representative moving objects, and assigning a state ("idle", "directional", "diffusion"). Soft tracking recipes will automatically create internal states for tracked objects in execution mode, and apply different tracking models adaptively depending on the object state.*
Images provided courtesy of Department of Life Sciences, Graduate School of Arts and Sciences, The University of Tokyo

Soft Classifying *can be configured by labeling a teaching set of objects in the images (here fetal and maternal blood cells are labeled). The teaching will create soft classification rules on measurements which are encoded into the decision recipe. The recipe can be easily visualized for sanity check and then applied in automated high throughput mode for phenotype scoring.*
Images provided courtesy of Kanazawa Medical University

Wizard-based teaching

Recipe teaching or update is made easy by step-by-step wizards which guide you through the process. The wizard come with movies providing explanations and illustrating how to perform specific teaching steps.



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