

# **Automated cell extraction** technologies utilizing Deep Learning

besidences ages High S/N automatic noise removal 🔤 Non-invasive measurement of label-High-speed cell recognition and extraction

Results as anticipated, brought about by deep learning

# Solutions tailored to your application

free cells

NIS.a

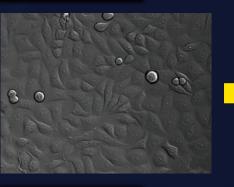




High S/N imaging with short/weak excitation

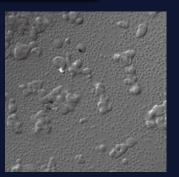


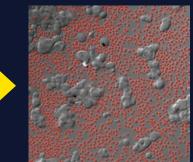
### Non-invasive cell counting





## **Customized object classification**





Low phototoxicity cell detection with unstained samples

Extraction of only the segments specified

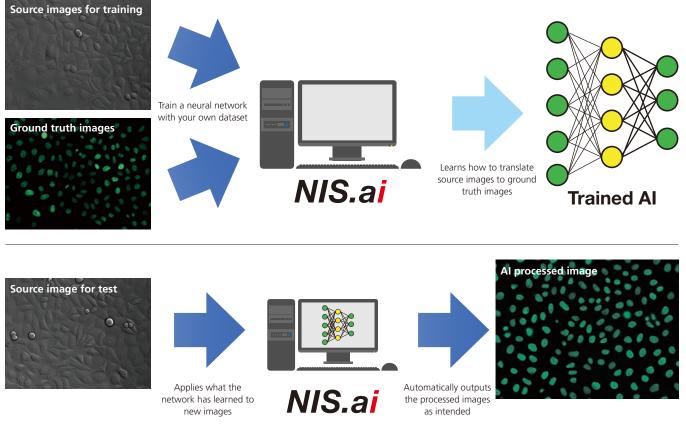
Images courtesy of: Dr. Yoshitaka Shirasaki, Graduate School of Science, The University of Tokyo and Dr. Kiyotaka Shiba, Cancer Institute JFCR (Enhance.ai) Dr. Kentarou Kobayashi, Nikon Imaging Center, RIES at Hokkaido University (Convert.ai) Dr. Simon C. Watkins, Signaling and Ion Channel Biology, University of Pittsburgh Department of Cell Biology (Segment.ai)

# Artificial intelligence: bringing a breakthrough to cell analysis

NIS.ai is an add-on module of NIS-Elements that enables tailored, "Only for Your Application", auto image processing/analysis, utilizing a deep learning model. By simply training the network with your own dataset for cells or noise you want it to recognize, the NIS.ai automatically extracts objects from new images by reasoning and by understanding the regularity of the dataset on its own. It requires no explicit instructions by the user.

Conventional cell extraction and noise removal requires huge amounts of time and effort, and results in inevitable photobleaching due to excitation light. There is also the problem of damage to samples caused by fluorescent staining. NIS.ai reduces variations in accuracy due to differences in the skill level of operators, and realizes high-speed, low-invasive cell analysis that matches the user's specific applications.

### Train once, use thousands of times



### Enhancing the efficiency of automated analysis

NIS.ai can be used with the GA analysis automation option, and enables high-speed and stress-free workflows such as processing, measurement, and analysis of images, and data output.



### NIKON CORPORATION

Shinagawa Intercity Tower C, 2-15-3, Konan, Minato-ku, Tokyo 108-6290, Japan phone: +81-3-6433-3705 fax: +81-3-6433-3785 https://www.healthcare.nikon.com/

#### NIKON INSTRUMENTS INC. 1300 Walt Whitman Road, Melville, N.Y. 11747-3064, U.S.A. phone: +1-631-547-8500; +1-800-52-NIKON (within the U.S.A. only) fax: +1-631-547-0306

https://www.microscope.healthcare.nikon.com/

NIKON INSTRUMENTS EUROPE B.V. Tripolis 100, Burgerweeshuispad 101, 1076 ER Amsterdam, The Netherlands phone: +31-20-7099-000 fax: +31-20-7099-298 https://www.microscope.healthcare.nikon.com/en\_EU/

 NIKON INSTRUMENTS (SHANGHAI) CO., LTD.

 CHINA phone: +86-21-6841-2050 fax: +86-21-6841-2060

 (Beijing branch) phone: +86-10-5831-2028 fax: +86-10-5831-2026

 (Guangzhou branch) phone: +86-20-3882-0550 fax: +86-20-3882-0550

NIKON CANADA INC. CANADA, phone: +1-905-602-9676 fax: +1-905-602-9953 NIKON FRANCE S.A.S. FRANCE phone: +33-1-4516-45-16 fax: +33-1-4516-45-55 NIKON GMBH GERMANY phone: +49-211-941-42-20 fax: +49-211-941-43-22 NIKON INSTRUMENTS S.p.A. ITALY phone: +39-55-300-96-01 fax: +39-55-30-09-93 NIKON GMBH SWITZERLAND SWITZERLAND phone: +41-43-277-28-67 fax: +41-43-277-28-61 NIKON UK LTD. UNITED KINGDOM phone: +44-208-247-1717 fax: +44-208-541-4584 NIKON CEE GMBH AUSTRIA phone: +43-1-972-6111 fax: +43-1-972-611-140 ISO 14001 Certified for NIKON CORPORATION

NIKON SINGAPORE PTE LTD SINGAPORE phone: +65-6559-3651 fax: +65-6559-3668 NIKON INSTRUMENTS KOREA CO., LTD. KOREA phone: +82-2-2186-8400 fax: +82-2-555-4415