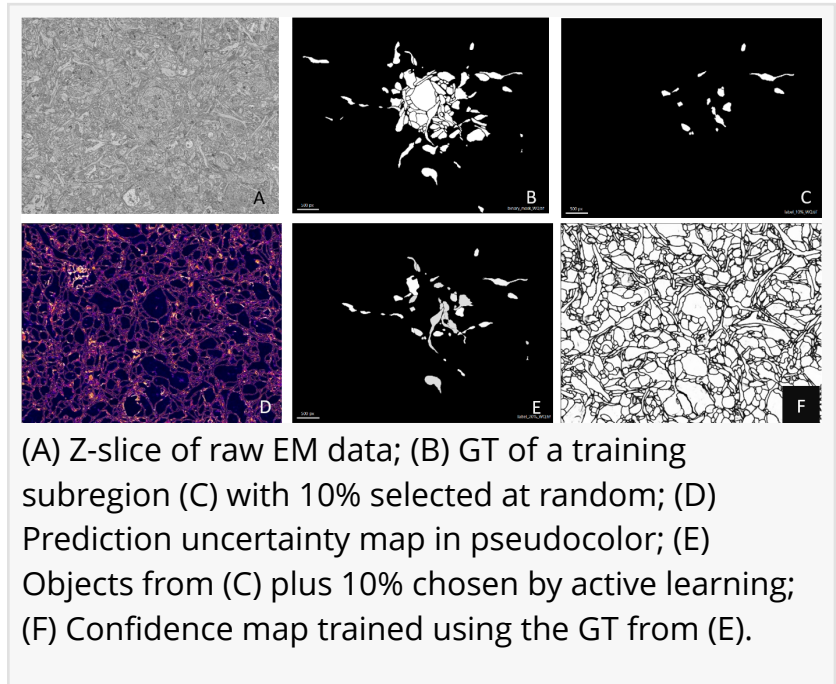


DRVISION is awarded two new patents in the field of AI microscopy bringing the total to 52

BELLEVUE, WA, US, July 28, 2020 /EINPresswire.com/ -- DRVISION Technologies LLC, a pioneer in computer vision, the world's leading AI microscopy software company and the creator of Aivia has been issued two new US patents covering novel methods to train and apply machine learning models.

AI based solutions continue to revolutionize all aspects of life including image-based discovery. Over the last two decades the scientists and engineers at DRVISION have created a wide range of novel AI based methods and technologies – some of which are covered in 52 issued US patents including 18 highly impactful machine learning focused patents.



(A) Z-slice of raw EM data; (B) GT of a training subregion (C) with 10% selected at random; (D) Prediction uncertainty map in pseudocolor; (E) Objects from (C) plus 10% chosen by active learning; (F) Confidence map trained using the GT from (E).

In April 2017 DRVISION launched Aivia 5 featuring its machine learning Object Classifier which leverages the innovative methods and workflows covered by 20 issued patents (including 9,152,884, 6,941,288, 7,096,207, 7,849,024, 9,196,038, 9,286,681 and 7,263,509, etc.). With this tool scientists can train the software to recognize and classify objects (e.g. human cells infected by a virus) by their phenotype and/or response to a therapeutic agent. Later that year, Aivia 6 was released including the first commercially available pre-trained deep learning model to segment neurons as imaged by Electron Microscopy. This development significantly increased the rate at which neuroscientist can map the brain's wiring. In early 2018 the same team at DRVISION introduced Aivia's machine learning Pixel Classifier for image enhancement and segmentation. This revolutionary technology and toolset allow users to quickly train (by painting a small number of examples of the regions/objects of interest) and apply a fast machine learning solution which can accurately segment 2D to 4D data sets. Aivia's Pixel Classifier is based on the inventions covered by 11 issued US patents including 7,203,360, filed in 2003 and 8,014,590, 7,974,464, 7,430,320, 9,122,951, etc. In late 2018 the Aivia team introduced the first hybrid local-cloud platform to easily train and apply deep learning models for microscopy applications. In

2019 several additional pre-trained deep learning models were introduced via Aivia Cloud for image denoising and restoration tasks. The cloud and deep learning related Aivia developments are covered by 4 issued patents including the two newly issued patents as well as several pending patents.

"In the last 5 years the world entered the Era of AI Implementation, nearly 80 years after Alan Turing introduced the concept of "machines that can learn from experience". Scientists at DRVISION have been exploring machine learning approaches to computer vision since the late 90s and have invented a wide range of solutions along the way. In the last four years the Aivia team and I have focused on solving some of the biggest image analysis challenges the life sciences' community faces. We have found that many of DRVISION's inventions efficiently address those challenges and have worked to implement easy to use workflows and tools that anyone can use. In the process, we have also created additional innovative solutions such as the two patents announced today. We are happy to offer Aivia users unique and powerful solutions based on our sustained R&D efforts." stated Dr. Luciano Lucas, DRVISION's Executive Vice President and Director of Aivia Development.

"DRVISION has been pioneering machine learning innovations and applications for over two decades. Among our 52 issued US patents, 18 are machine learning focused. The patents have broad claims supporting high performance solutions on deep, fast machine learnings and explainable AI. The technologies enable Aivia's teach by example tools for pixel classification, object classification, parameter free recipes and deep model training and deployment. In a recent study of EM dense neuron semantic segmentation based on our innovation in the recent patent 10,691,978 we found the results from our active learning invention using 20% Ground Truth (GT) outperform the training using 100% GT." stated Dr. James Lee, DRVISION's Founder, President and CEO, an inventor of 89 issued US patents and the Key inventor of the new patents.

Details of newly issued patents:

The most recent inventions are covered in the newly issued US patents, 10,691,978 (June 23rd 2020) and 10,719,780 (July 21st 2020), and join a family of 18 patents covering powerful methods for machine learning systems. In total DRVISION now holds 52 US patents covering inventions in image analysis, pattern recognition, data mining, phenotypic discoveries, and machine learning. The [full list](#) of patents issued to DRVISION and its CEO can be inspected at the USPTO website.

Optimal and efficient machine learning method for deep semantic segmentation, [10,691,978](#), June 23rd 2020

This patent covers a deep semantic segmentation learning method using partially annotated ground truth (GT). This is followed by active learning for optimal and efficient learning outcome.

Efficient machine learning method, [10,719,780](#), July 21st 2020

This patent covers an efficient machine learning method for classification of data including semi-supervised learning and active learning. The invention also covers an efficient machine learning

method including semi-supervised learning and new class discovery.

About DRVISION

DRVISION works with scientists and engineers at the technological frontier, and pioneers image-based decision technologies that propel major breakthroughs in the life science, electronics and materials industries. DRVISION is a technological innovator with 52 issued US patents, and commercial interests in X-ray inspection, survey, search / alignment, video inspection and life sciences. DRVISION makes and markets Aivia microscopy image analysis software. Aivia development is partially funded by the National Institutes of Health (NIH) under multiple Small Business Innovative Research (SBIR) programs worth over \$16 M. For more information, visit www.drvttechnologies.com.

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