Asa Brown
Rewire Neuro, Inc.
us@rewireneuro.com

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Neurescence, Inc. and Rewire Neuro, Inc. Partner to Bring Powerful Machine Learning to Calcium Imaging Analysis

Rewire Neuro and Neurescence are partnering to bring cutting edge neuronal segmentation and analysis capability to the field of fluorescence calcium imaging of the nervous system.

Toronto, CA: Neurescence, Inc., maker of the Chromatone system, the only complete solution for *in vivo* calcium imaging and optogenetics, announces their development partnership with Rewire Neuro, Inc., provider of artificial intelligence software development services ("AI-a-a-S"). Working to optimize neuroscientists' analysis workflows, this integration maximizes deep learning to rapidly improve detection and quantification of neuronal activity while reducing the intensive data processing of data-dense brain recordings. Videos that previously took more than two weeks to process and return accurate results can now be returned to users within 30 minutes.

Calcium Imaging for Neuronal Research

Calcium imaging is a microscopy technique to optically measure the calcium (Ca^{2+}) status of an isolated cell, tissue, or medium. Calcium imaging utilizes calcium indicators, molecules that fluoresce in response to the binding of Ca^{2+} ions. In neurons, electrical activity is accompanied by an influx of Ca^{2+} ions. Thus, calcium imaging can be used to monitor the simultaneous electrical activity in hundreds of neurons in cell culture or in living animals, allowing researchers to dissect the function of neuronal circuits.[1]
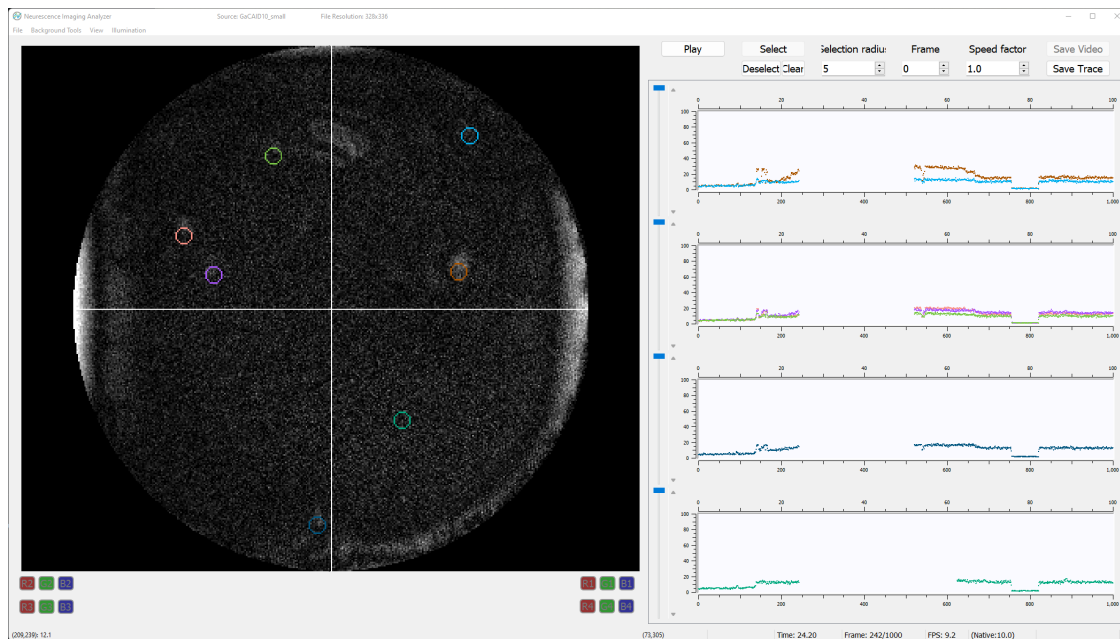
While this microscopy technique is vastly superior for collecting meaningful functional insights, it is highly time consuming and data intensive. Current methods to detect and process these calcium flashes can take more than two weeks to process due to the size and complexity of the

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[1] de Melo Reis, Ricardo Augusto et al. "Cell Calcium Imaging as a Reliable Method to Study Neuron-Glial Circuits." *Frontiers in neuroscience* vol. 14 569361. 2 Oct. 2020, doi:10.3389/fnins.2020.569361

resulting video files (terabytes of data) and the remedial algorithms to sift through meaningful signal and reduce noise in these lengthy videos.

Enter Neurescence's *nresens* Calcium Imaging Platform, the new imaging software developed by Neurescence, in partnership with Rewire Neuro to dramatically improve researchers' calcium imaging workflow. This superior imaging system enables users to track their brain videos in a single interface and accurately detect, quantify, and measure calcium signaling with enhanced speed and accuracy.

Screenshot of Neurescence Graphic User Interface with Cellular Detections by Rewire's AI Engine

Why Neurescence ImageAnalyzer is Better

- **Brain Videos Analyzed in Minutes, not Weeks** – With Rewire's powerful integrated machine learning system, users can analyze their video samples in less than 30 minutes rather than several weeks to turn around a fully processed video sample. an order of magnitude decrease in processing time.

- **Secure Cloud-Based Processing** – Your data is secure in our cloud-based storage system.

- **Streamlined Research and Development** – By processing more data quickly and accurately, your lab can expand into answering more research questions and close the time gap between experiments.

Learn More About our Partnership at the Society for Neuroscience Conference in San Diego, CA

We will be at the Society for Neuroscience meeting from November 12 - 16th at the San Diego Convention Center. Come learn more about our partnership and sign up for our beta user limited release. Rewire Neuro, Inc. booth #2933 & Neurescence, Inc. booth #1834

About Neurescence, Inc.:

We are a team of scientists, engineers, and entrepreneurs. We believe research on understanding how the brain works will be a significant step in finding better assessment tools for brain diseases and developing effective therapeutics.
Our goal is to help accelerate this work and make a significant contribution to the effort to create a better living for people with mental illnesses and their family members.

For more information on Neurescence, Inc, please visit our website, www.neurescence.com, or follow us on social media @neurescence.

About Rewire Neuro, Inc.: Rewire Neuro, Inc. develops and sells custom AI software for image analysis and cell detection. Founded in 2019 by Dr. John Harkness, Rewire Neuro is an emerging technology company based in Portland, Oregon applying novel AI solutions to solve efficiency and human error problems within the biotech industry. Their mission is to make scientific discovery more accessible and efficient through the use of computer vision AI.

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