NeuroNexus

Radiens™ Analytics Software Suite

Radiens Analytics Software Suite

Elevate your laboratory with Radiens™ software: Designed to adapt to evolving experimental protocols, emerging technologies, and diverse system components. Radiens ensures seamless upgrades, user-friendly training, and intuitive navigation, making it ideal for neuroscience workflows and electrophysiology research. Suitable for technicians, students, post-docs, and scientists, Radiens provides a secure and reliable platform to advance your research with precision and efficiency.

Radiens Suite (Allego+Curate+Videre)

Includes both LIVE and SEEK to span the Ephys workflow

Highlights

- Interactive probe model visualization
- Automated probe mapping
- Digital brain models with ephys visualization
- Online/offline spike sorting
- Flexible referencing for quick optimization
- Cross-platform compatibility
- Expand functionality with Python/MATLAB API

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Radiens™ LIVE

(Allego & Curate Bundles)

NeuroNexus's flagship package for data acquisition system control, neural recording, and electrical stimulation

The Radiens LIVE package consists of two apps and a Python API:

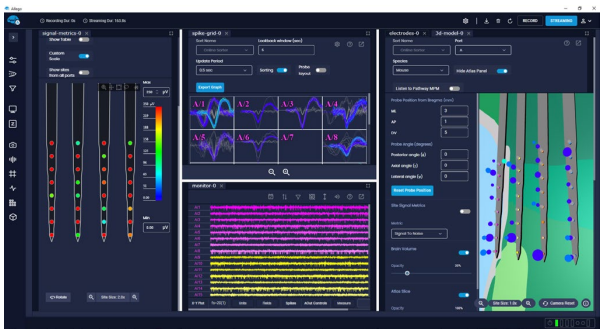
- ***Allego*** provides DAQ hardware control along with real-time analytics and visualization via an intuitive UI.
- ***Curate*** provides curation of Ephys big data sets via an intuitive UI.
- ***Radiens*** Python package provides (optional) full programmatic control and extension of the apps.

Radiens LIVE (Allego+Curate)

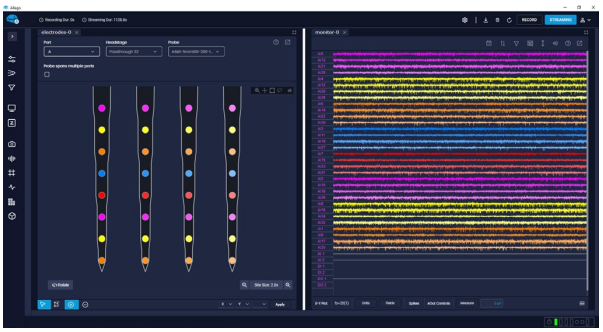
DAQ control, record, & stimulate, real-time analytics & visualization, fast, secure, cloud enabled

Allego Features

Probe-centric interface



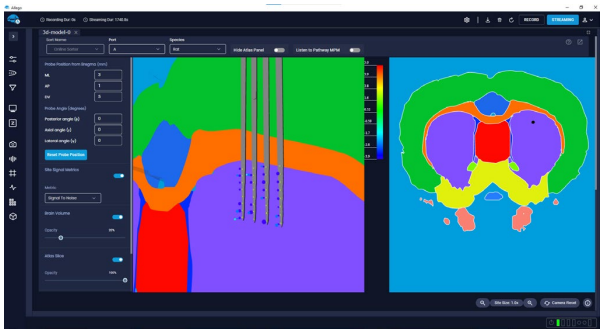
Plug-and-play (automated mapping)



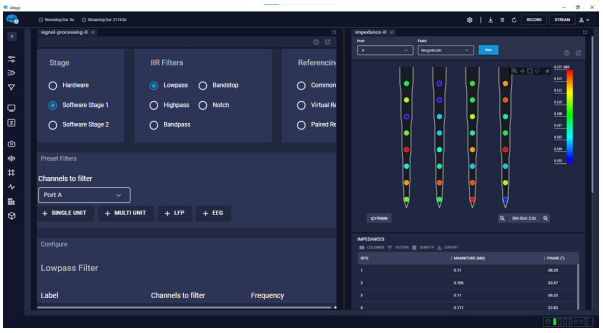
Real-time signal quality metrics

Real-time spike sorting

3D visualization of neural activity using interactive brain atlas-based models



Flexible referencing for quick optimization and impedance check



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Radiens™ LIVE

(Allego & Curate Bundles)

Radiens Allego saves primary time-series data sets (e.g., neural recordings) in a simple, open format, making data management effortless and efficient:

- **Three Easy-to-Read Files:**
  - Flat binary file with all sample values
  - Flat binary file with timestamps
  - JSON text file with enriched metadata
- **Seamless Compatibility:** Easily read and write XDAT files in Python, Matlab, and other programming languages.
- **High Speed:** Fast and efficient data handling.
- **Wide File Support:** Compatible with common electrophysiology file types, including NeuroExplorer, Plexon, Neurodata Without Borders, and Kilosort2.
- **Continuous Expansion:** Regularly adding support for more file types.

Compatibility

Radiens delivers robust performance and seamless compatibility across platforms. Key features include:

- **Cross-Platform Compatibility:**
  - Runs natively on Windows, MacOS, Linux, and Apple M1 computers.
- **Optimal Performance:**
  - 16 GB of memory
  - Fast solid-state drive
  - High-performance GPU
- **Allego DAQ Support:**
  - Out-of-the-box DAQ hardware support
  - Easy setup: launch Allego, connect via USB, and start working

Supported DAQ Hardwares

- **SmartBox Classic Hardware**
- **SmartBox Pro**
- **SiNAPS System**
- **XDAQ One System**
- **XDAQ Core System**
- **All generations of Open Ephys Systems, Intan RHD USB2 Interface Hardware**
- **Intan Recording Controller:**
  - 512 Channel Hardware
  - 1024 Channel Hardware

System Requirements

- **Storage: SSD. Traditional magnetic hard disks may not be fast enough in some recording configurations.**
- **USB 3.0**
- **256 channels and less:**
  - **16 GB RAM minimum**
  - **CPU: Intel i7-6700k 4-core or equivalent**
- **More than 256 channels:**
  - **32 GB RAM**
  - **CPU: Intel Xeon Silver 4214R, or equivalent**
- **Radiens platform performance is most impacted by single thread CPU performance.**

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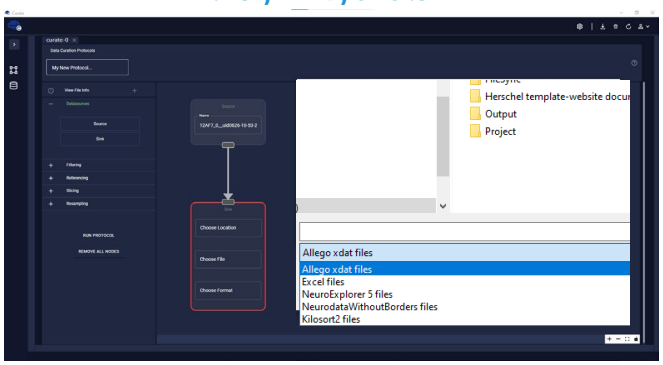
Radiens™ Curate

The Curate app offers a user-friendly solution for fast and secure early-stage data curation. Key features include:

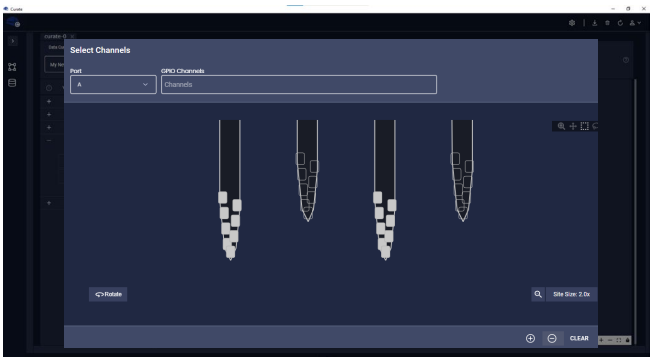
- **Intuitive Interface:** Build complex, sequential data management procedures easily.
- **Advanced Signal Processing:** Includes time-series filtering, virtual referencing, and more.
- **Powerful Data Slicing:** Slice datasets by time or signal.
- **Flexible Re-ordering:** Reorder signals in a data file effortlessly.
- **High Performance:** Handles datasets of all sizes, from short records to extensive big-data archives.
- **Python Integration:** Works seamlessly with the Radiens Python package for scripting and navigating complex file systems.

Curate Features

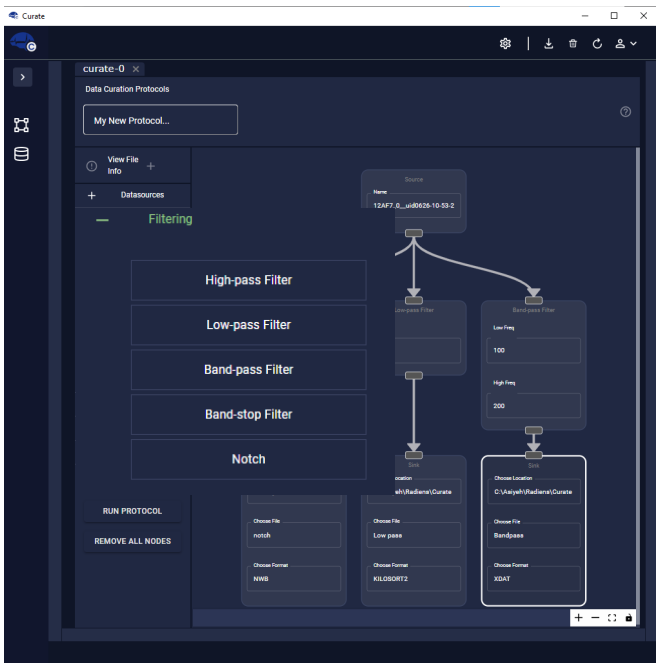
Easy file conversion to: .nex, NWB, and .bin



Slicing Channels and Time

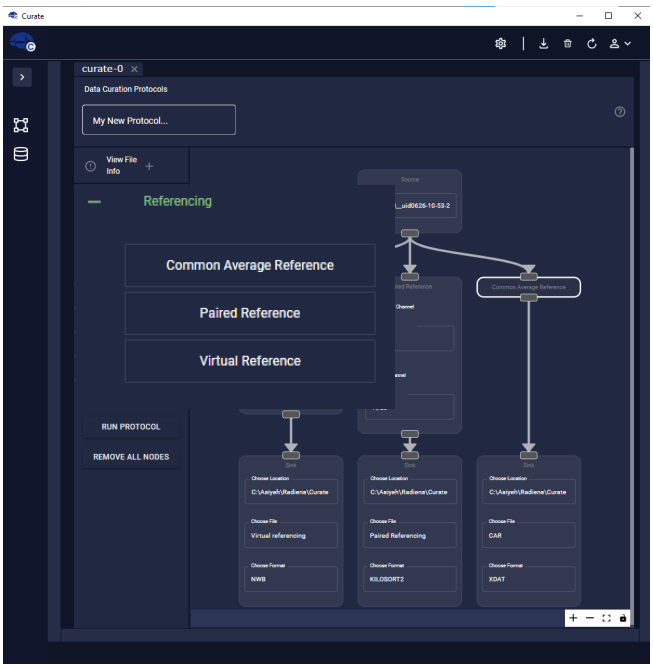


Filtering



Flexible Signal Conditioning

Referencing



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Radiens™ SEEK

(Curate & Videre Bundles)

Taking electrophysiology recording, stimulation, and analysis to the next level

The Radiens SEEK package includes two powerful apps and a Python API:

- **Videre:** Offers intuitive file-based analysis and visualization of electrophysiology big data sets.
- **Curate:** Provides intuitive curation of electrophysiology big data sets.
- **Radiens Python Package:** Enables full programmatic control and extension of the apps.

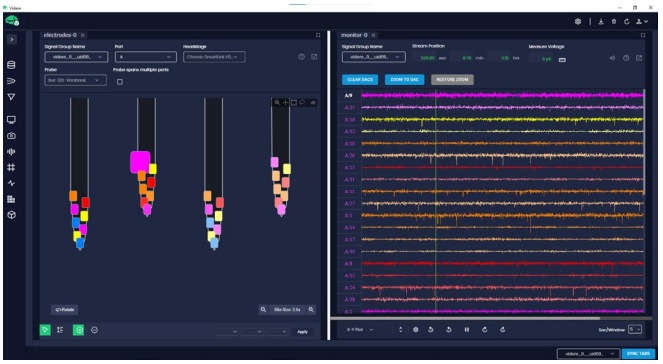
Radiens SEEK (Curate+Videre)

File-based analysis &visualization, fast, secure, big data, scalable & cloud-enabled

Videre Features

File-based visualization

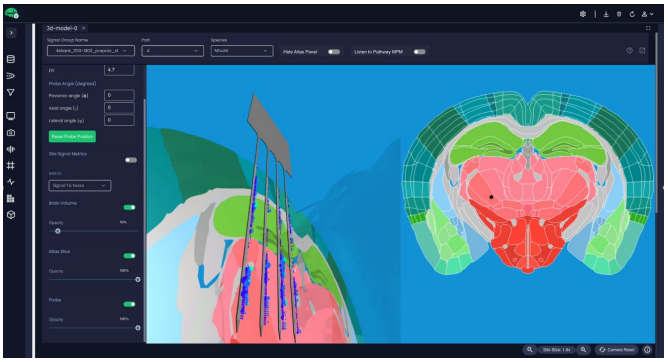
Color-coded channels



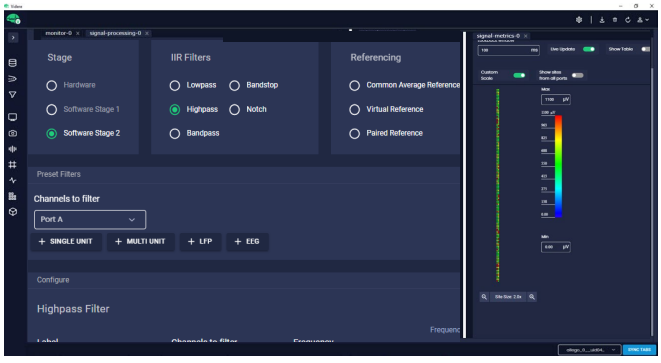
Signal quality metrics

File-based data analysis

3D visualization of recorded data



Powerful signal conditioning



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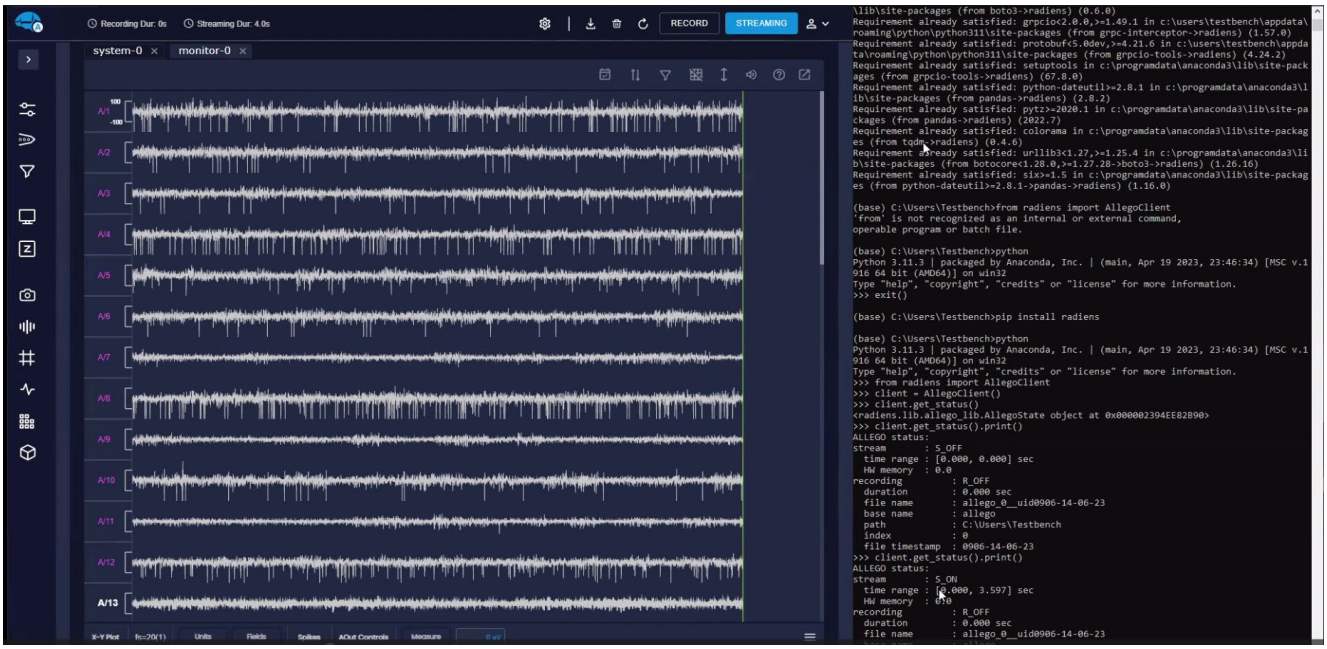
Radiens Python Package

The Radiens Python package offers professional-grade control and extension of UI-driven apps through Python and Matlab scripts. Key features include

- **Full Programmatic Control:** Seamlessly integrate Python (and Matlab) scripts with Radiens apps.
- **Matlab Compatibility:** Enjoy full programmatic control of the apps via Matlab's built-in Python support.
- **High-Quality Pythonic API:** Ideal for both beginners and advanced users, enabling simple yet powerful scripts for complex functions.
- **Efficient and Reliable:** Keeps scripts 'thin' for reliable, high-performance code.
- **Free Download:** Available on PyPI, requiring an active Radiens license for system connection.

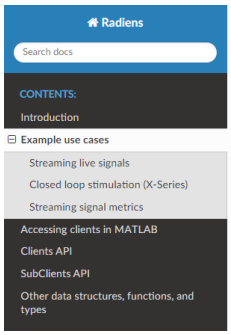
Enhance your workflow with the Radiens Python package for superior flexibility and performance.

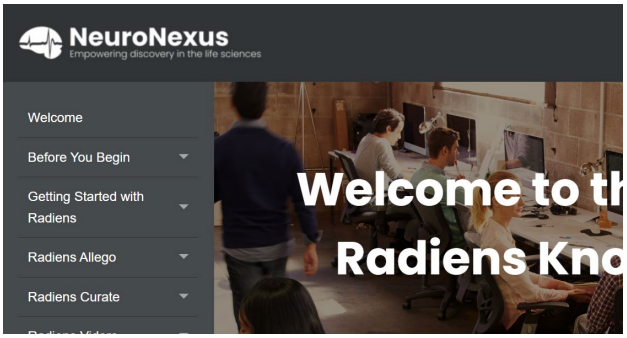


For more info, check our online documentations:

https://neuronexus.github.io/intro.html

https://nnx.mcoutput.com/1376106/Content/Home-Radiens.html





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