CHIPMINDS

**Chipminds Technology Sàrl**
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# Spectral Imaging Software Engineer

Scientific and spectral imaging software development for multispectral and hyperspectral acquisition, calibration, quantitative analysis and instrument integration.

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| **JOB TYPE** | Full-time |
| **LOCATION** | Luxembourg |
| **DEPARTMENT** | Scientific Imaging / Software |
| **REPORTS TO** | Engineering Management / Technical Lead |

## Company Overview

Chipminds Technology is a technology-driven company focused on advanced imaging, scientific instrumentation, intelligent software, and practical system integration. The company develops and supports high-performance imaging platforms and software workflows for scientific, industrial, and custom OEM applications, including solutions related to microscopy, bioimaging, visual data analysis, and specialized optical systems.

## Position Summary

The Spectral Imaging Software Engineer is responsible for the development and validation of software workflows for spectral, multispectral, and hyperspectral imaging systems. The role focuses on imaging data acquisition, calibration, reconstruction, quantitative analysis, visualization, and software integration with cameras, optical modules, illumination systems, and scientific instruments.

## Main Responsibilities

• Develop and maintain software tools for spectral, multispectral, and hyperspectral image acquisition, processing, analysis, and visualization.

• Build and optimize imaging pipelines for raw data ingestion, dark correction, flat-field correction, non-uniformity correction, wavelength registration, and reflectance or intensity normalization.

• Support spectral cube generation, band alignment, spectral reconstruction, and quantitative extraction of spectral signatures from imaging datasets.

• Develop software functions for calibration, validation, and performance verification of spectral imaging systems, including radiometric, geometric, temporal, and spectral consistency checks.

• Support integration between imaging software, scientific cameras, optical systems, filters, tunable illumination, motion stages, synchronization modules, and external instruments.

• Work with camera SDKs, acquisition APIs, and hardware interfaces to implement reliable control, triggering, streaming, and data capture workflows.

• Contribute to application-specific workflows for microscopy, bioimaging, life science research, industrial inspection, or custom scientific instrumentation.

• Collaborate with hardware, optics, imaging, and application teams to translate experimental or customer requirements into usable software functions.

• Prepare technical documentation, validation reports, calibration procedures, user guidelines, and engineering records.

• Support troubleshooting of spectral data quality, calibration drift, integration issues, and software behavior in laboratory or customer environments.

## Required Profile

• Bachelor’s degree or above in Computer Science, Imaging Science, Optical Engineering, Biomedical Engineering, Electronic Engineering, Physics, Applied Mathematics, or a related technical field.

• Practical experience in imaging software development, scientific software, spectral data processing, machine vision, or instrument control.

• Strong programming skills in Python, with hands-on experience in scientific or technical software development.

• Good understanding of image processing fundamentals, including sensor data handling, preprocessing, filtering, registration, correction, and quantitative analysis.

• Familiarity with spectral, multispectral, or hyperspectral imaging concepts, including spectral bands, calibration logic, wavelength-dependent behavior, and data cube structures.

• Experience with numerical and scientific computing tools such as NumPy, SciPy, OpenCV, scikit-image, matplotlib, or equivalent libraries.

• Good understanding of data formats and workflow handling for scientific imaging datasets.

• Ability to work with Linux and Windows environments in development or test settings.

• Strong analytical thinking, structured troubleshooting ability, and good technical documentation skills.

• Ability to work independently while collaborating effectively with cross-functional engineering teams.

## Preferred Qualifications

• Experience with hyperspectral or multispectral camera systems, microscopy imaging, fluorescence imaging, or scientific instrumentation software.

• Familiarity with radiometric calibration, spectral correction, flat-field workflows, or instrument validation methods.

• Experience with camera or instrument SDKs, device control APIs, trigger synchronization, and hardware-software integration.

• Knowledge of C++ for performance-critical modules or device-level integration.

• Familiarity with image acquisition interfaces and industrial/scientific connectivity environments such as GigE Vision, USB3, Camera Link, CoaXPress, CSI-2, or related frameworks.

• Experience with data visualization, quantitative reporting, and reproducible analysis workflows.

• Exposure to algorithm implementation for spectral unmixing, classification, segmentation, or feature extraction is an advantage.

• Experience supporting OEM, laboratory, or research-facing imaging products is a strong plus.

## Application

Please send your CV or application materials to admin@chipminds.lu. For company information, please visit www.chipminds.lu.