



## Software validation services

Can you rely on AI? This is how you get your insights.

Software using Artificial Intelligence (AI) and Machine Learning (ML) is increasingly applied in measurements. While these innovations create new opportunities, they can also impact your results. By validating your software, you ensure that your conclusions are based on reliable outcomes. VSL supports you in meeting various ISO accreditation requirements by offering expertise in software validation.

### Software validation

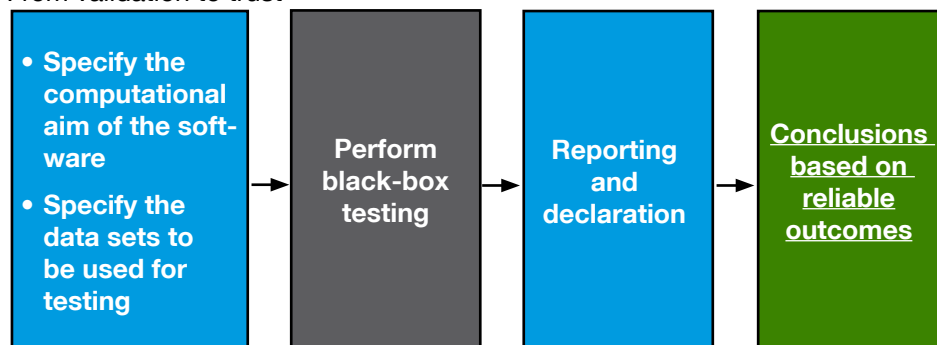
There are two common types of uncertainties and deviations in results caused by data-processing software:

1. An inherent uncertainty
2. Errors in the code

Therefore, it is important not only to validate the machine itself, but also to validate and create traceability for your software. Then you are able to estimate the uncertainties in your results as accurately as possible and comply with your sector's quality standards. Also, you can meet the expectations of your customers and/or regulators.

### Creating confidence:

From validation to trust



### Validation

We typically test software against multiple in-house developed reference datasets based on an internal standard (e.g., an ISO-standard) or based on the computational aim specified by the customer.

For AI/ML solutions we follow a custom made procedure, designed according to the needs of the customer, which can range from black-box testing to judging the pertinence of the training data and training process as well as designing adversarial attacks.

VSL can provide you with several datasets to validate parts of your software code or to validate specific algorithms. It is also possible to check and validate a larger share of your software code. Free datasets are available for download at our website [www.vsl.nl/en/services/data-science](http://www.vsl.nl/en/services/data-science).

### About VSL

VSL is a globally recognised metrology institute. Our knowledge and services provide a major contribution to the reliability, quality and innovation of products and processes in business and society.

We make measurement results from companies, laboratories and institutes directly traceable to national and international standards. We also calibrate measuring instruments on behalf of customers, produce reference materials, organise interlaboratory comparisons and transfer our metrology knowledge by providing training and consultancy.

VSL manages and develops primary measurement standards and primary reference materials on behalf of the Dutch government. These measurement standards are the foundation for reliable measurements in science, industry, fair trade and other areas. VSL also participates in research projects to develop newer and better measurement methods.

### Options

In order to gain even more confidence in your measurements results, the standard procedure can be expanded to meet your wishes.

VSL can assist with :

1. Source code review
2. Robustness assesment
3. Adversarial testing
4. Assesment of the distributions of training and test data
5. And custom made solutions to meet your wishes

### Declaration

After verification of your software or measuring instrument by VSL, we supply an original VSL declaration noting the accuracy and reliability of your product(s). This declaration can also be used as a part of your company's ISO 17025 accreditation.

### Experience

With years of expertise, VSL has validated its own software across various technologies, ensuring robust, internal standards. Beyond internal expertise, we've also supported clients in refining data analysis and conclusions, such as uncovering patterns after recalibrating measurements and analyzing diverse signal data to validate smart meters after grid disturbances, contributing a solid Data Science Measurement (DSM) component to these collaborative projects. In other words, VSL has had a solid contribution to the data analysis and software validation aspects in many of these collaborative projects.

### Contact

Let's talk about your software and your challenges. Please contact us to find out what we can do for you.

### VSL

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