

Evaluating the Work Quality of Optical Character Recognition Libraries

A.P. Bobryshov¹, FSAEI HE St. Petersburg State University of Aerospace Instrumentation (FSAEI HE SUAI),
ap.bobryshov@mail.ru

S.V. Solenyy², FSAEI HE SUAI, Assoc. Prof. PhD (Tech.), ssv555ssv@yandex.ru

V.P. Kuz'menko³, FSAEI HE SUAI, PhD (Tech.), mr.konnny@gmail.com

¹ Senior Lecturer of Department, St. Petersburg, Russia. Orcid: 0009-0009-6220-8206, SPIN-code: 2630-5787, Author ID: 1126665

² Head of Department, St. Petersburg, Russia. Orcid: 0000-0002-7919-3890, SPIN-code: 3957-5891, Author ID: 910148

³ Associate Professor of Department, St. Petersburg, Russia. Orcid: 0000-0002-0270-4875, SPIN-code: 3159-4202, Author ID: 1111872

Citation: Bobryshov A.P., Solenyy S.V., Kuz'menko V.P. Evaluating the Work Quality of Optical Character Recognition Libraries, *Kompetentnost' / Competency (Russia)*, 2025, no. 7, pp. 10–18. DOI: 10.24412/1993-8780-2025-7-10-18

key words

control and measuring instruments,
measuring devices, machine
learning, neural networks, quality,
optical cameras

The process of automation of verification of electrical control and measuring instruments implies the performance of instrumentation certification without full or partial participation of the operator, to a greater extent through the performance of operations by the instrumentation. With digital devices the speed of display and reproduction of the measured value is much higher than with analog-arrow devices, but in the case of automation and for devices without communication protocols with information systems the stage of fixation of values becomes much more complicated. The solution to this problem is the use of machine learning technology in the field of optical recognition. In this case, in the issue of recognition, recording and processing of results, the key parameters are speed, accuracy, complexity of adjustment and the proportion of recognized data. The purpose of this study is to study the existing technological methods of recognizing values from the screens of digital devices, evaluation and determination of the most optimal methods that provide the highest level of quality assurance automation of the process of verification of electrical control and measuring instruments.

References

1. Global electronic measuring instruments market by type (signal generator, voltage measuring instrument), application (household appliances, electrical equipment), geographical volume and forecast; <https://www.verifiedmarketreports.com/ru/product/electronic-measuring-instrument-market/> (acc.: 20.07.2025).
2. Baryshev Yu.A., Vostroknutov N.N., *Kompetentnost'*, 2019, no. 6, pp. 50–54.
3. Petrov I.S., Shelomentseva I.G., *Vestnik nauki*, 2025, vol. 1, no. 6, pp. 1534–1543.
4. Solov'ev B.A., Gamisoniya G.K., Sayduloev R.Sh., *Elektricheskie i informatsionnye komplekсы i sistemy*, 2023, vol. 19, no. 2, pp. 145–159.
5. Rapakov G.G., Malygin L.L., Pchelkina O.S., *Vestnik Cherepovetskogo gosudarstvennogo universiteta*, 2022, no. 6, pp. 79–88.
6. Saoji S., Singh R., Egbal A., Vidyapeeth B., *Journal of Interdisciplinary Cycle Research*, 2021, vol. XIII(VII), pp. 1674–1679.
7. Roopa M. J., Chaitra Y. L., Gopalakrishna M. T. Text detection and recognition from scene images using RCNN and EasyOCR, 7th Int. congress on ICTIS, 2023; https://www.researchgate.net/publication/371874542_Text_detection_and_recognition_from_scene_images_using_rcnn_and_easyocr (acc.: 19.07.2025).
8. Wu C., Luo Q., Shou D., *Mechatronics and Automation Technology*, 2022. DOI: 10.3233/ATDE221146.
9. Bobryshov A.P., Solenyy S.V. Research of factors affecting the quality of data recognition of control and measuring instruments using computer vision technology, XXXII Int. sc. and tech. conf.: Modern technologies in control, automation and information processing tasks, Moscow, 2023, 110 P.
10. Kuz'menko V.P., Solenyy S.V. Mathematical analysis of light scattering and glare from street LED lighting fixtures, III Int. forum: Mathematical methods and models in high-tech production, St. Petersburg, 2023, 309 P.

**ПОЛИГРАФИЯ
АСМС**

(499) 175 42 91

верстка и дизайн
полиграфических изданий,
полноценная цифровая печать,
ч/б копирование