

ABSTRACT

Explanatory note size – 137 pages, contains 7 illustrations, 23 tables, 6 applications, 43 references.

Topicality. Examines the problem of ...

The aim of the study. The main target is ...

The object of research:

The subject of research:

To achieve this goal, the **following tasks** were formulated:

- analysis of the problem and existing solutions;
- development of a traffic lane capacity estimation method;
- development of the corresponding software;
- conducting experiments and validation using real video data.

The scientific novelty of the results of the master's dissertation is the fact that a method for estimating traffic lane capacity based on video data has been further developed, using the TLCR indicator as an integral characteristic of the spatiotemporal occupancy of a traffic lane by vehicles. The result was achieved through the development of a traffic lane capacity estimation method based on TLCR.

The practical value of the obtained results consists in the development of a method and corresponding software implemented as a modular application that is convenient for independent use by end users as well as for integration into existing ITS solutions. This system may be used to measure the performance of road infrastructure, support real-time traffic decision making, plan transportation events of varying complexity, conduct academic research, integrate into existing ITS platforms, and perform long-term analytics and forecasting.

Relationship with working with scientific programs, plans, topics. Work was performed at the Department of Informatics and Software Engineering of the National Technical University of Ukraine «Kyiv Polytechnic Institute. Igor Sikorsky».

Approbation. The scientific provisions of the dissertation were tested at the IX International Scientific and Practical Conference of Young Scientists and Students “Software Engineering and Advanced Information Technologies (SoftTech-2025).”

Publications. The scientific provisions of the dissertation were published in:

- 1) Matsapura Y. M., Stelmakh O. P., Software for Measuring Traffic Parameters Based on Video Data. Proceedings of the IX International Scientific and Practical Conference of Young Scientists and Students “Software Engineering and Advanced Information Technologies (SoftTech-2025).” Section of the Department of Informatics and Software Engineering. November 26–28, 2025, Kyiv.

Keywords: TRAFFIC FLOW, TLCR, U-NET, ITS, TRAFFIC PARAMETERS, VIDEO DATA.