

## ABSTRACT

The master's thesis on the topic "Automated Camera Stabilization System" consists of an introduction, five chapters, conclusions summarizing the entire work, and a bibliography. The dissertation comprises 86 pages of main text, 44 illustrations, 31 tables, and 12 references, with a total volume of 99 pages.

**Research Object:** Video camera stabilization process

**Research Subject:** Automated camera stabilization system

**Research Objective:** Enhancing the accuracy of video camera stabilization

**Research Tasks:**

1. Analysis of stabilization methods
2. Analytical overview of stabilizers:
  - single-axis gyroscopic stabilizers;
  - three-axis gyroscopic stabilizers.
3. Mechanical and mathematical model of gyro-stabilizer, features, and operating principles:
  - problem formulation;
  - description of the device's working principle and construction;
  - structural diagram;
4. Experimental investigations of gyroscopic stabilizer characteristics:
  - selection of design elements;
  - calculation of transfer functions of the device;
  - transient process;
  - frequency characteristics;
  - system stability determination using the Hurwitz criterion;
  - construction of logarithmic frequency characteristics;
  - study of the impact of design parameters on the device's performance speed.
5. Startup project development
6. Conclusions
7. Bibliography

**The master's thesis includes the following scientific research:**

- investigation of transient processes
- study of frequency characteristics
- analysis of system stability
- study of stability using the Hurwitz criterion
- examination of logarithmic frequency characteristics
- investigation of the impact of design parameters on device speed.

**Recommendations for using the research results:**

The materials of the master's thesis can be utilized for further research in the field of stabilization systems for automated devices and systems.

**Keywords:** stabilization system, video camera, gyroscopic stabilizer, stabilization accuracy.