

# ABSTRACT

**Title:** Experimental motion analysis of human locomotion

**Objectives:** The aim of this work is verification of the hypothesis that it is possible to identify humans using measurement of parameters of their gait taken from surveillance camera's records.

**Methods:** In our thesis we used the method of comparison. The aim of the experiment is comparison of parameters measured in different trials of each subject under different conditions (different walking speeds, with or without clothes on, and using either 2D or 3D record), as well as comparison across different subjects.

**Results:** We found that using a 3D record of human gait, it is possible to improve our capability of identifying them. We also found that it is necessary to compare either dressed subjects strictly among themselves or stripped subjects strictly among themselves, because otherwise the comparison is not meaningful. Furthermore, we found that using our geometrical methods, it is possible to deduce gait parameters from a 2D camera record when it comes to height of the subject, but not so for length of their step.

**Keywords:** gait, identification, kinematic analysis, forensic biomechanics