

ADMISSION TO DOCTORAL STUDIES

Session September 2026

Field of doctoral studies: Forestry

Doctoral supervisor: Prof.dr. Stelian Alexandru Borz

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: *Use of modern technologies for the detection, identification, assessment, analysis, and interpretation of forest system components*

Main aspects to be considered:

- 1) Assessment and analysis of factors influencing the natural, technical, and digital diversity of the studied domains: components, classes, scenes, and combined elements such as (but not limited to) trees, shrubs, herbaceous cover, fungi, stumps, deadwood, water, moss, skid trails, harvested wood in various stages of processing and grouping, forestry tools and machinery, forestry workers, forest markings, forest roads, and forestry facilities/constructions.
- 2) Development of an experimental design and the protocols necessary for collecting and locating digital data, focusing on scene-level, class-level, entity-level, and combined analysis.
- 3) Creation of representative digital media datasets for the considered domains at both national and international levels.
- 4) Development of necessary protocols for documenting datasets through direct measurements, extracting technical characteristics from specialized literature/documentation, and utilizing dedicated databases.
- 5) Exploration and identification of tools and/or platforms for dataset annotation and the development of annotation protocols.
- 6) Identification, characterization, and evaluation of state-of-the art possibilities, techniques, and algorithms for detecting, identifying, assessing, analyzing, and interpreting datasets.
- 7) Exploration of possibilities for developing new techniques and algorithms.

Recommended bibliography:

- 1) Classical literature in the form of books and articles on issues of detection, identification, assessment, analysis, and interpretation using modern technologies in the fields of Artificial Intelligence, Deep Learning, and Computer Vision.
- 2) Dedicated databases containing annotated and labeled digital images.
- 3) Code archives/repositories.
- 4) Implementation libraries and software, such as (but not limited to) those operating on Python.

Prerequisites:

The candidate must demonstrate the existence of a preliminary set of collected data covering the subject matter by the date of the admission exam.

Scientific Doctorate

Professional Doctorate

without tuition fee (state budget funded)

Doctoral supervisor,

Prof. Dr. Stelian Alexandru BORZ

Signature

Coordinator of the field of doctoral studies,

Prof. Dr. Ovidiu IONESCU

Signature