

## I. Personal and study details

Student's name: **Frána Lukáš** Personal ID number: **483787**  
Faculty / Institute: **Faculty of Electrical Engineering**  
Department / Institute: **Department of Cybernetics**  
Study program: **Open Informatics**  
Specialisation: **Artificial Intelligence and Computer Science**

## II. Bachelor's thesis details

Bachelor's thesis title in English:

**Artificial Intelligence for the Robust Analysis of Piezoelectric Biosensors**

Bachelor's thesis title in Czech:

**Umělá inteligence pro robustní analýzu signálu z piezoelektrických biosenzorů**

Guidelines:

- 1) Make a literature search for artificial intelligence methods usable for signal analysis of piezoelectric sensors.
- 2) Design and implement selected artificial intelligence methods for robust signal analysis of piezoelectric sensors.
- 3) Compare the selected methods and evaluate the proposed methods in terms of practical applicability.

Bibliography / sources:

- [1] Janshoff, Andreas, Hans-Joachim Galla, and Claudia Steinem. "Piezoelectric mass-sensing devices as biosensors—an alternative to optical biosensors?." *Angewandte Chemie International Edition* 39.22 (2000): 4004-4032.
- [2] Russell, Stuart, and Peter Norvig. "Artificial intelligence: a modern approach." (2002).

Name and workplace of bachelor's thesis supervisor:

**Ing. Vratislav Fabián, Ph.D., Department of Physics, FEE**

Name and workplace of second bachelor's thesis supervisor or consultant:

**Nicholas Scott Lynn, Jr., Ph.D., Institute of Physics of the Czech Academy of Sciences, Prague**

Date of bachelor's thesis assignment: **10.01.2021** Deadline for bachelor thesis submission: **21.05.2021**

Assignment valid until: **30.09.2022**

  
Ing. Vratislav Fabián, Ph.D.  
Supervisor's signature

  
prof. Ing. Tomáš Svoboda, Ph.D.  
Head of department's signature

  
prof. Mgr. Petr Páta, Ph.D.  
Dean's signature

## III. Assignment receipt

The student acknowledges that the bachelor's thesis is an individual work. The student must produce his thesis without the assistance of others, with the exception of provided consultations. Within the bachelor's thesis, the author must state the names of consultants and include a list of references.

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Date of assignment receipt

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Student's signature