

# Bachelor's Thesis Assignment



140508

Institut: Department of Computer Graphics and Multimedia (UPGM)  
Student: **Nováková Mária**  
Programme: Information Technology  
Specialization: Information Technology  
Title: **Automatic Speech Detection for VHF Channel**  
Category: Signal Processing  
Academic year: 2022/23

## Assignment:

1. Get familiar with very high frequency channel (VHF), artificial neural networks (NN), and data augmentation.
2. Propose a NN architecture for automatic voice detection and push-to-talk (PTT) detection on provided data.
3. Augment the training data, train and evaluate the NN.
4. Experiment with various approaches and NN architectures. Track the accuracy gains.
5. Draw a conclusion and propose further approaches.
6. Create A2 poster or ~30 seconds long video presenting your work.

## Literature:

- Park, D.S., Chan, W., Zhang, Y., Chiu, C.-C., Zoph, B., Cubuk, E.D., Le, Q.V. (2019) SpecAugment: A Simple Data Augmentation Method for Automatic Speech Recognition. Proc. Interspeech 2019, 2613-2617
- Pellegrini, T., Farinas, J., Delpech, E., Lancelot, F. (2019) The Airbus Air Traffic Control Speech Recognition 2018 Challenge: Towards ATC Automatic Transcription and Call Sign Detection. Proc. Interspeech 2019, 2993-2997
- ATCO2 project, <http://atco2.org>
- According to supervisor's recommendation.

Requirements for the semestral defence:  
Steps 1 - 3 of the assignment.

Detailed formal requirements can be found at <https://www.fit.vut.cz/study/theses/>

Supervisor: **Szőke Igor, Ing., Ph.D.**  
Head of Department: Černocký Jan, prof. Dr. Ing.  
Beginning of work: 1.11.2022  
Submission deadline: 10.5.2023  
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