Budapest University of Technology and Economics
Faculty of Mechanical Engineering
Department of Fluid Mechanics
http://www.ara.bme.hu/

FINAL PROJECT ASSIGNMENT

Publicly Available

Identification			
Name: **Kustány Kálmán**			ID: **79286135893**
Code of the Curriculum: 2N-MW0		Specialisation: 2N-MW0	Document ref. number: GEÁT:2022-2:2N-MW0:HCEOJJ
Curriculum: Gépészeti modellezés mesterképzési szak			
Final Project issued by: Department of Fluid Mechanics		Final exam organised by: Department of Fluid Mechanics	
Supervisor: Dr. Kalmár-Nagy Tamás (71567010352), associate professor			

Project Description	
Title	**Classification of percolation clusters with artificial neural networks** Perkolációs klaszterek osztályozása mesterséges neurális hálózatok segítségével
Details	1. Literature review of artificial neural networks and percolation theory 2. Multi-layer perceptron (MLP) classification of the clusters and basic hyperparameter tuning on the network 3. Classification of the clusters with convolutional neural networks (CNN) 4. Compare the accuracy of the MLP and CNN networks 5. Examine the influence of non-uniform probability distribution on the sampling space 6. Document the results in an MSc thesis format
Advisor	Advisor's Affiliation: Dept. Telecommunications and Media Informatics, Faculty Electrical Engineering and Informatics, Budapest University of Technology and Economics 1117 Budapest, Magyar Tudósok krt. 2. Advisor: Gergely Hajgató, research assistant

Final Exam			
1st subject (group)	2nd subject (group)	3rd subject (group)	4th subject (group)
ZVEGEÁTNW02 Computational Fluid Dynamics	**ZVEGEÁTNW03** Fluid Mechanics Measurements	**ZVEGEÁTNW08** Building and Environmental Aerodynamics	**ZVEGEÁTNW19** Vehicle Aerodynamics

Authentication		
Handed out: 14 February 2022		Deadline: 20 May 2022
Compiled by: Dr. Kalmár-Nagy Tamás (71567010352) Supervisor	Verified by: *Dr. János Vad* (signed) Head of Department	Approved by: *Dr. Gábor Györke* (signed) Vice-Dean
The undersigned declares that all prerequisites of the Final Project have been fully accomplished. Otherwise, the present assignment for the Final Project is to be considered invalid. …….. *Kustány Kálmán*		