AI Univers

Internal data scientists cou

Course structure

AI University: Reasons

Todays IT development more and more require usage of AI methods for automation of processes and increasing level of automation.

AI is not a whim, AI is a demand!

Our mission – give best IT specialist a good base for working with AI modules on their projects.

AI University: Administrative team

Olg
a

Lomovtc
va

Aigeri
m

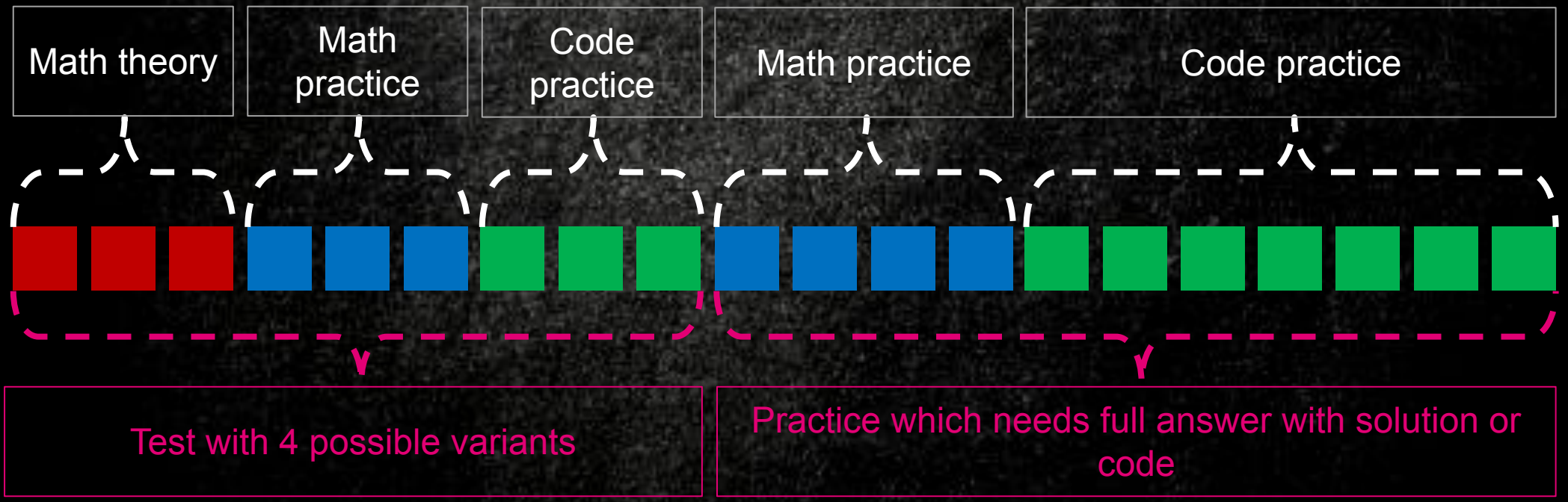
Sulimen
ova

AI University: Course entrance criteria and process

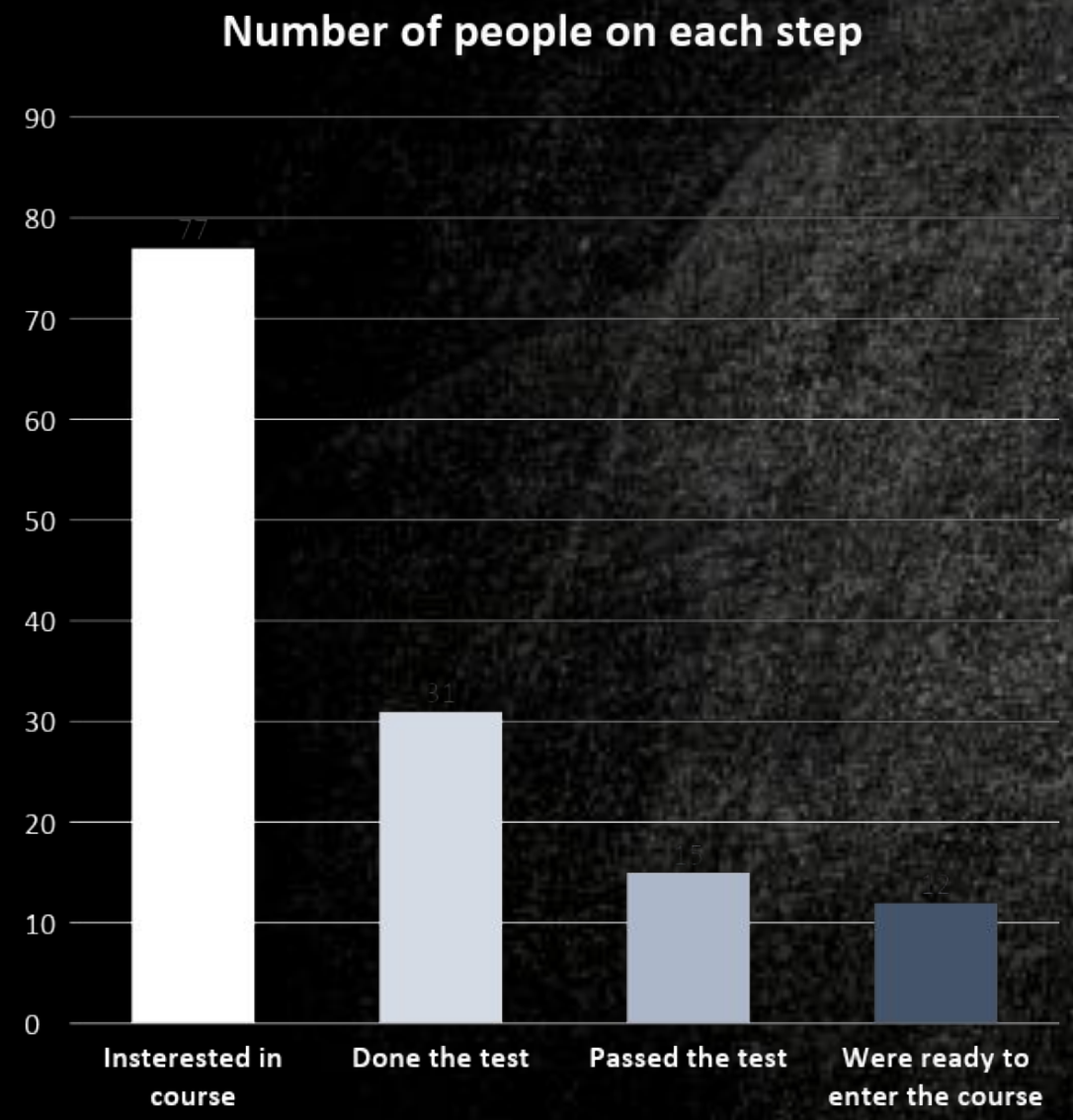
Have at least 3 hours a week for completing home tasks

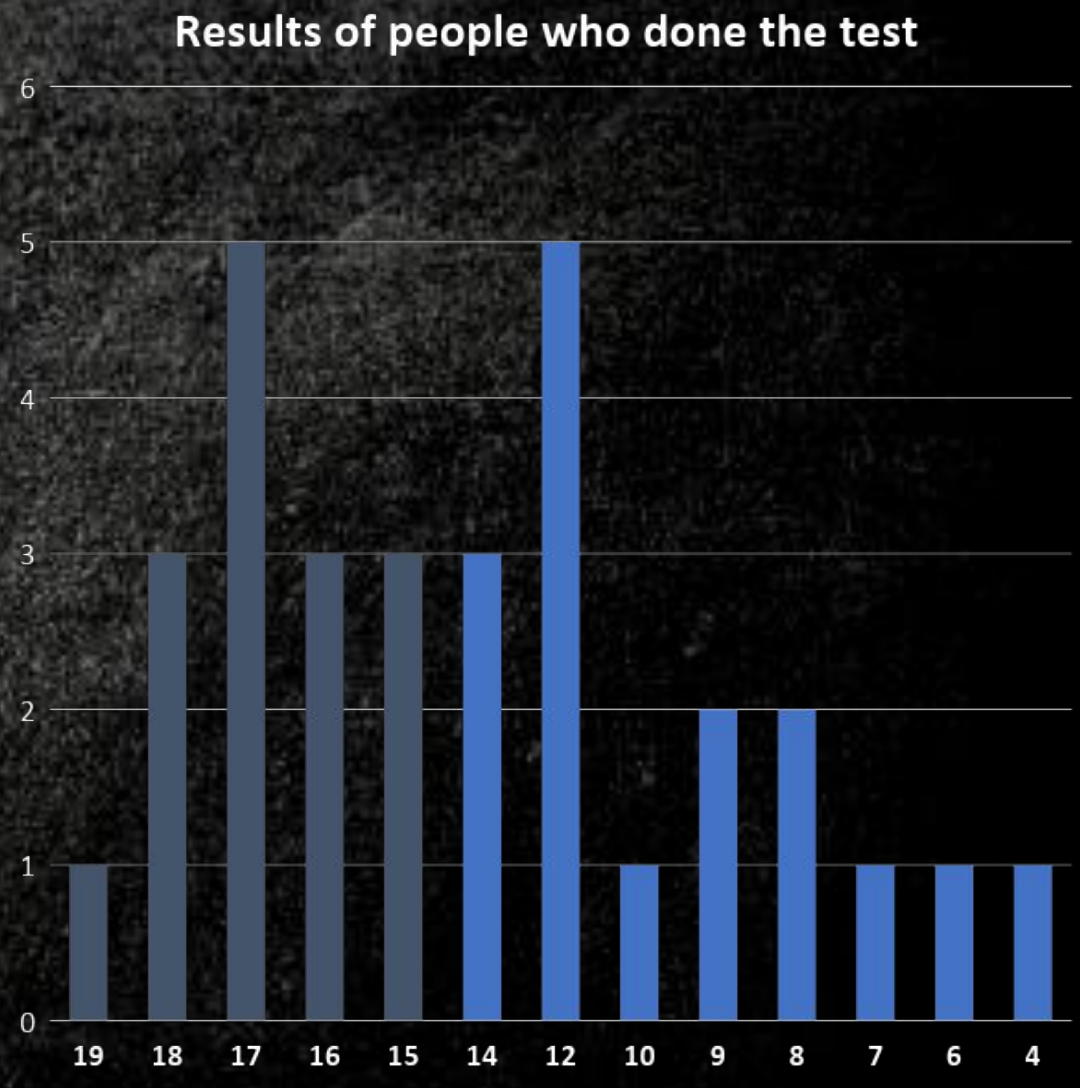
Have basics in math statistics, programming and probability theory

Successfully complete tasks of the entry test



AI University: Course entrance results





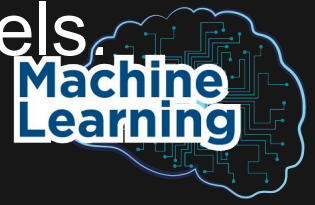
AI University: Course components

Python

Refreshing the knowledge in python and training skills of creating environments and using AI libraries. Learning to process data s...

Machine Learning

classes of ML tasks and main algorithms. Understanding how to choose metrics and how to train models



Neural Networks

Neural Networks architectures and train tuning process. How to choose metrics, optimizer, loss function...

Deployment

Learning to deploy build solutions to production

AI University: Curators and lecturers

Pavel Orlov

Vladislav Karbovskii

Vasily Boychuk

Stanislav Rastaturin

Kirill Bushuev

Artem Odintsov

Anton Zubarev

AI University: TimeTable

№	Lection theme	Main lecturer	Place of lecture	Date of lecture
	Python section			
1	Jupiter Notebook . Anaconda and environment set up. GPU usage for AI.	Kirill Bushuev	3.3.3R – ERFURT	July 4 16:00
2	AI libraries. Part 1: pandas, numpy, scikit-learn,	Artem Odintsov	3.3.3R – ERFURT	July 9 16:00
3	AI libraries. Part 2: tensorflow, keras, pytorch, opencv	Artem Odintsov	3.3.3R – ERFURT	July 11 16:00
	Machine Learning section			
4	Logical and metrical methods of classification	Anton Zubarev	3.3.3R – ERFURT	July 16 16:00
5	Linear methods of classification and quality metrics.	Vasily Boychuk	3.3.3R – ERFURT	July 18 16:00
6	Linear regression Support Vector Machine	Vasily Boychuk Kirill Bushuev	3.3.3R – ERFURT	July 23 16:00
7	Dimension decrement, PCA, composition of algorithms	Anton Zubarev	3.3.3R – ERFURT	July 25 16:00
8	Clustering. (Learning without teacher)	Kirill Bushuev	4.1.1 – CLASSROOM	July 30 16:00
	Neural Networks section			
9	Introduction of Neural Networks	Anton Zubarev	4.1.1 – CLASSROOM	August 1 16:00
10	FFNN. Metrics and evaluations of NN learning .	Kirill Bushuev	4.1.1 – CLASSROOM	August 6 16:00

AI University: Tasks for students

ML task (Pulsar search)

contain simple stars and pulsars. We need to train classifier for extracting correctly pulsars from whole amount of data

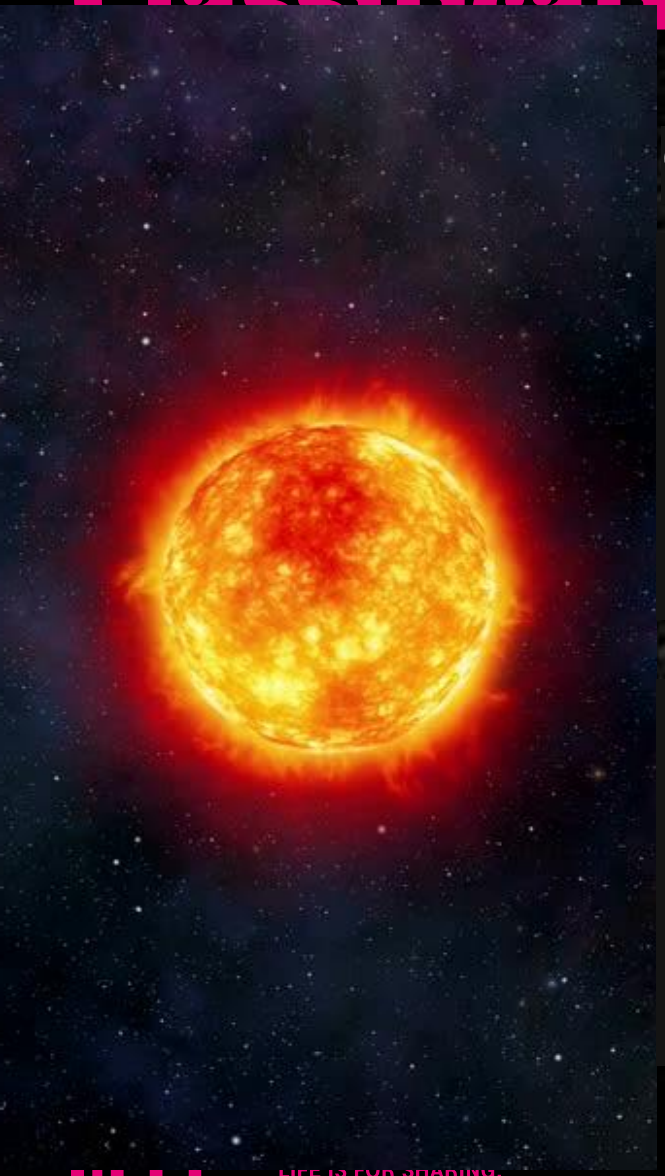
NN task (Pneumonia)

We have an amount of x-ray photos of human chest. We need to understand if a person has a pneumonia or not

Final Exam

Student need to prepare their results in a form of a presentation and try to make us «trust» and «buy» their solution

AI University: Tasks for students
Classification of stars: Task structure



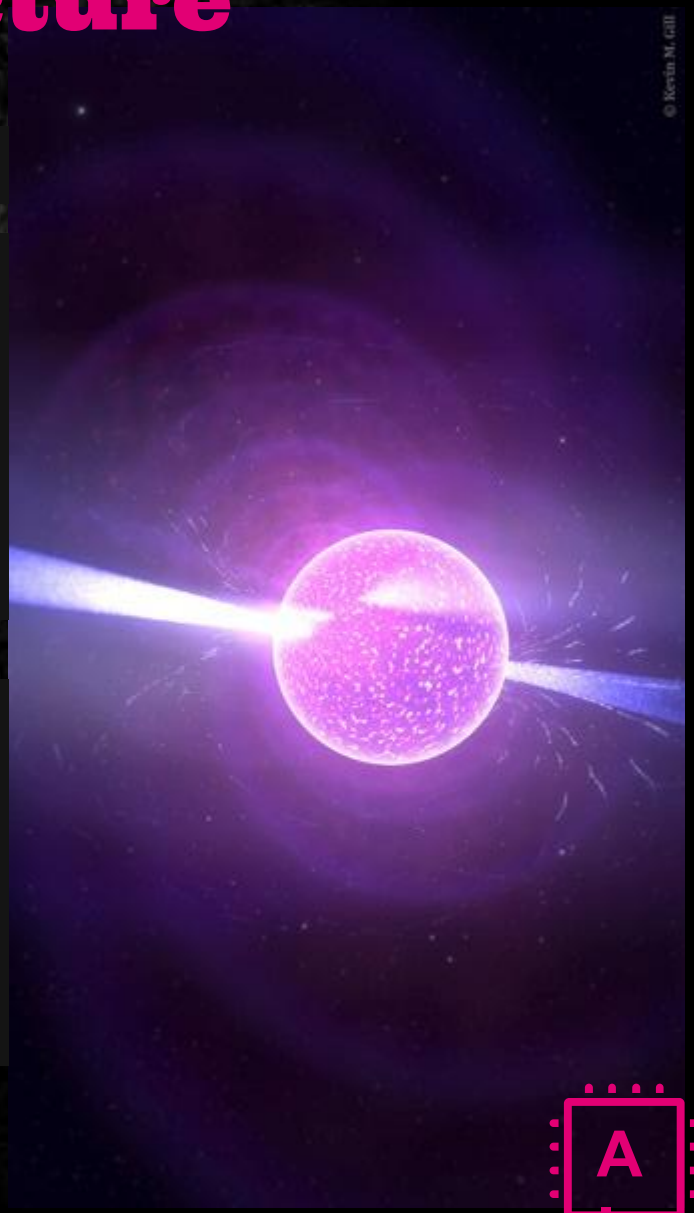
Goal: classify star as a pulsar or a regular star

Data set:

- Number of stars: 17 898
- Number of features: 8 features and class of star
- 1 639 pulsars
- 16 259 usual stars

Challenges for students:

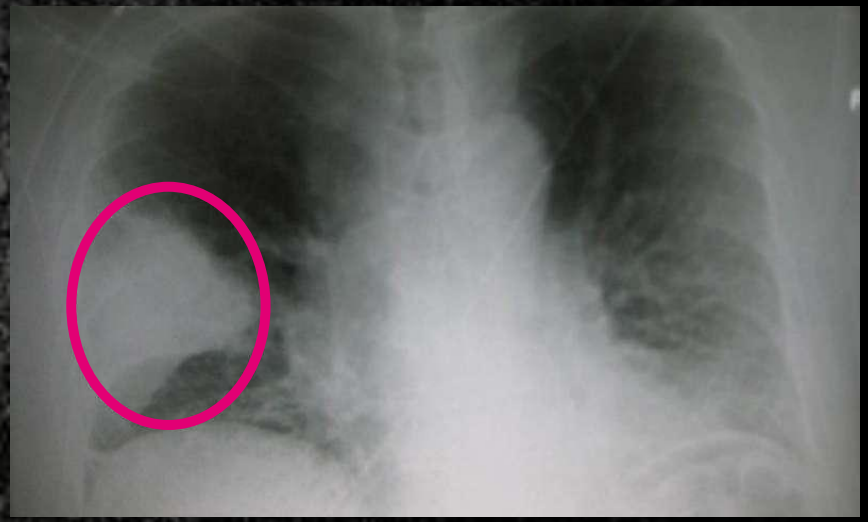
- Define important features and understand the meaning of each of them
- Find way to use all given data in learning process
- Choose the best model for the classification

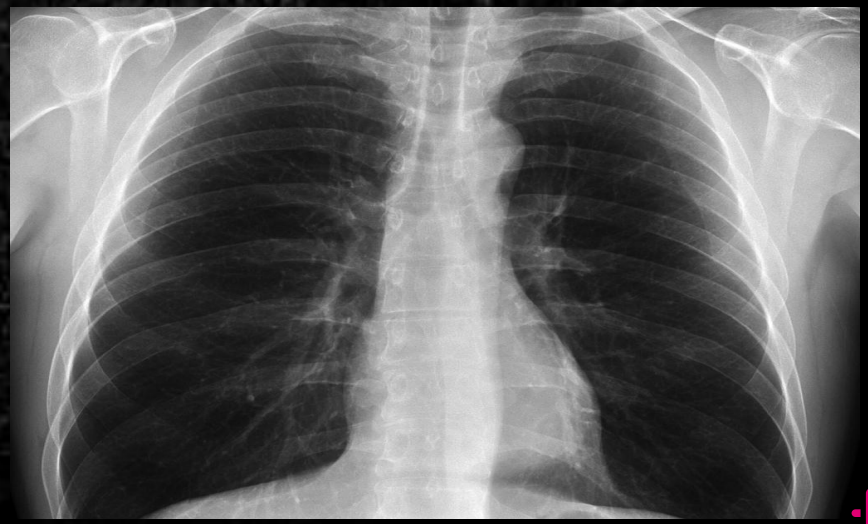


LIFE IS FOR SHARING.

AI University: Tasks for students
Classification of Pneumonia: Task Structure

Goal: classify x-ray of the lungs and say person is healthy or has pneumonia





Data set:

Number of x-rays: 5 863

1 583 healthy lungs

1 493 lungs with virus pneumonia

2 780 lungs with bacteria pneumonia

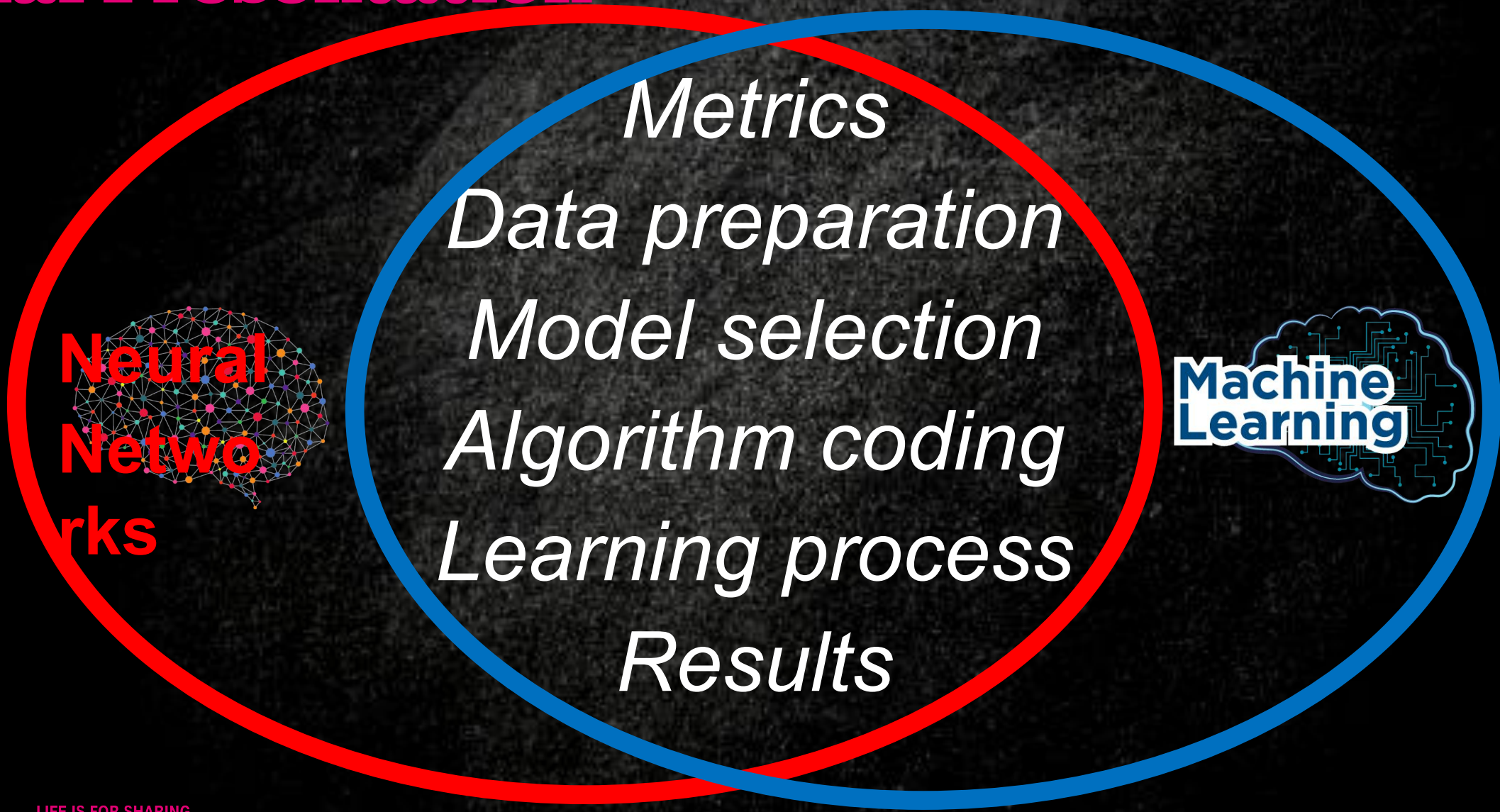
Challenges for students:

Clean images from noise

Find way to use all given data in learning process

Choose the best model for the classification

AI University: Tasks for students
Final Presentation



AI University: Results Evaluation Criteria

Revision of code committed by students to Git repository

Exam passing (presentation and questions)

Student	Classification of diseases (ML)			Classification of pneumonia (Neural Networks)			Final score
	Task	Presentation	Theme understanding	Task	Presentation	Theme understanding	
Student name							

AI University: Student Results

Classification of stars (ML)

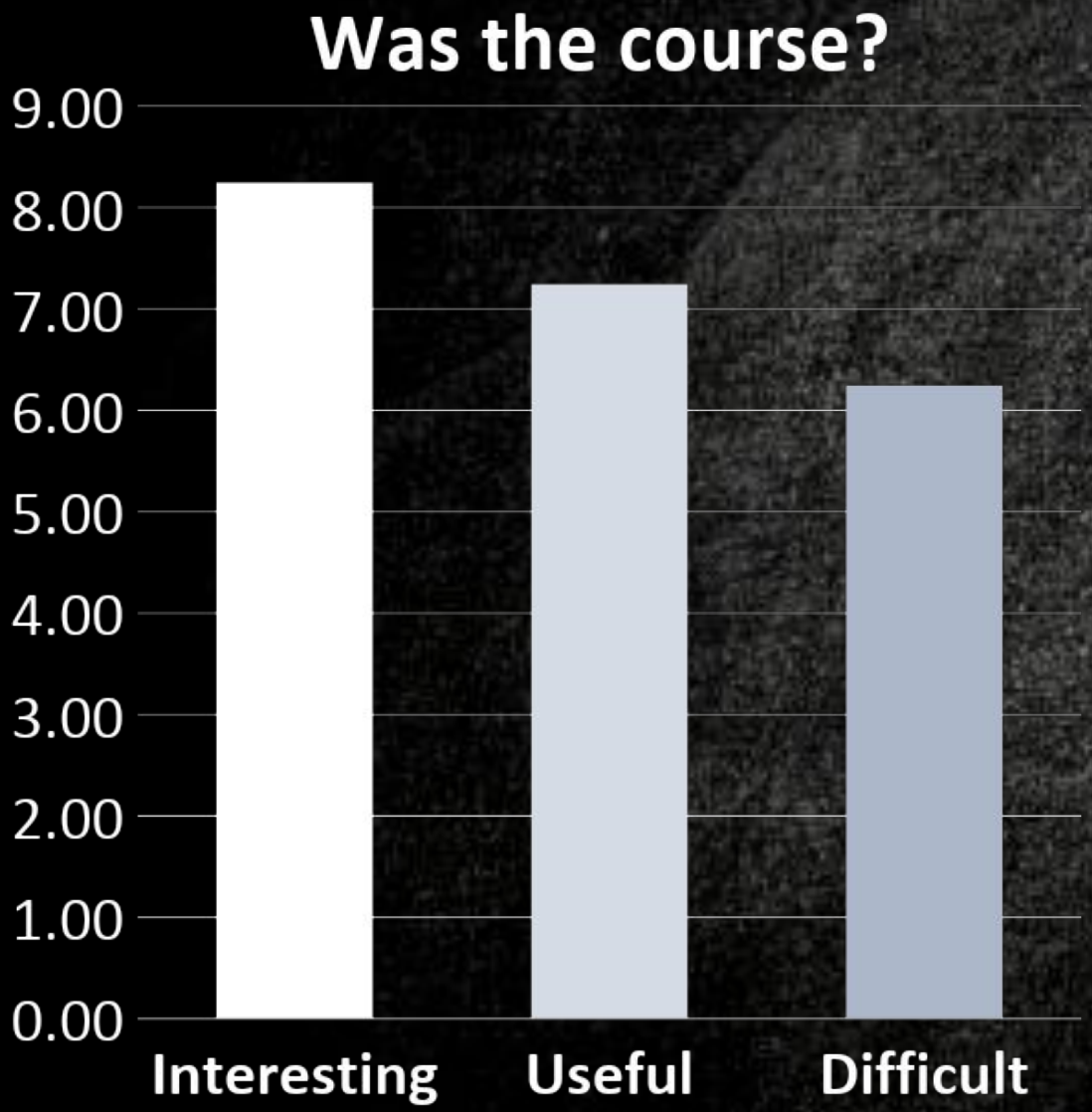
Scre type	Task	Presentation	Theme understanding	Total score
Best	5	5	4,25	14,25
Average	3.8	3,7	3,5	11
Worst	2,5	2	2	6,5

Classification of pneumonia(Neural Networks)

	Task	Presentation	Theme understanding	Total score
Best	5	5	4,25	14,25
Average	3,5	3,6	3,2	10,5
Worst	2,5	2	2	6,5

AI University: Students course Awards

AI University: Student feedback



Desired length of the course

3 months

В целом, курс мне понравился, остались хорошие впечатления и какие-то знания :)

Вот тема с анлоком нейронки и деплоем мне очень интересна, но не раскрылась для меня. А так, я очень доволен, как слон. Теперь пожинаю плоды, стебают вот, что это тупо все if под капотом, но это не совсем так)

СПАСИБО!!!

Спасибо за курс! Это было очень полезно!

Спасибо за курс, хотелось бы больше практики и упорядоченности в лекциях и материалах.

AI University: Plans for Improvement IN FLOW 2

Increase quality of material and adopt it for better understanding

Prepare data sets that would be closer to company industry

Pay more attention to preprocessing of data sets

Pay more attention to Pipeline of work with AI

Split graduation exam in two parts after each module

Increase mentoring activities

Statistics & budgeting

LIFE IS FOR SHARING.

AI University: Time load for the team

Activity	Flow 1(h)	Flow 2(h)
Lectures		
Preparation	12	8
Reading	3	3
Task		
Introductory task check	0.5	0.5
Review of exam task	5	5
Mentoring	6	8

Thanks For Your Attention!

Any questions?