

# Bohdan Ivaniuk-Skulskyi

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in Bogdan Ivanyuk

📍 KyloRen

## RESEARCH INTEREST

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Machine learning and compute vision, particularly efficient models; robotics

## EDUCATION

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**National University of Kyiv-Mohyla Academy (NaUKMA)**  
*Master's degree in Applied Mathematics (Honour degree, GPA: 97.45 / 100)*

Kyiv, Ukraine  
*September 2020 – 2022*

**National University of Kyiv-Mohyla Academy (NaUKMA)**  
*Bachelor's degree in Applied Mathematics (Honour degree, GPA: 94 / 100)*

Kyiv, Ukraine  
*September 2016 – May 2020*

## EXPERIENCE

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**Cyclope.ai (VINCI Autoroutes)**

Ph.D. student

Paris, France  
*January 2023 – Present*

**Stack:** Python, PyTorch, Tensorflow, bash

- Working on object detection, segmentation and anomaly detection models

**National University of Kyiv-Mohyla Academy**

Teaching assistant

Kyiv, Ukraine  
*April 2022 – Present*

- Introduction to Reinforcement Learning course lecturer
- Assisting in courses of Machine Learning and Deep Learning for master's students

**University of Toronto, Wearable Robotics Group**

Machine Learning Research Intern

Kyiv, Ukraine (remote)  
*April 2022 – Present*

**Stack:** Python, PyTorch, Tensorflow, scikit-learn

- Working under the supervision of Dr. Laschowski and Dr. Mihailidis
- Responsible for data preprocessing and video classification model of the StairNet dataset
- Experimenting with different encoder models (MobileNetV2, MobileViT, EfficientNet) in combination with temporal models (LSTM, Transformer), and video models (MoViNet)

**TietoEvry (Infopulse)**

Machine Learning Engineer

Kyiv, Ukraine  
*October 2021 – January 2023*

**Stack:** Python, PyTorch, scikit-learn, bash, Triton Inference Server

- Team member of Cognitive Computing division
- Working on natural language processing tasks: text classification, token classification, and representation learning
- Prepared and deployed textual recommendation system using Triton Inference Server. Improved recommendation top\_k accuracy from 0.56 to 0.81

**Samsung Research**

Software Engineering Intern (Machine Learning Research)

Kyiv, Ukraine  
*April 2021 – December 2021*

**Stack:** Python, PyTorch, Tensorflow, Keras, scikit-learn, C++, bash

- Working as part of Intelligent Security Lab team
- Responsible for speaker identification demo preparation in an online learning setting, using Google TRILL model as a base model
- Worked on a audio spoof detection project, where have implemented S-vectors and RawNet with One-class learning loss function to construct more compact embeddings of spoof voices
- Working on compressed video processing using neural networks

**FIdo.ai - non-profit students organization at NaUKMA**

Cofounder and Graduate Research Student

Kyiv, Ukraine  
*Sep. 2020 – Present*

**Stack:** Python, PyTorch, transformers

- Developing foundation of Natural Language Processing for Ukrainian language
- Creating datasets for text classification, part of speech tagging, question answering and others 📄
- Training family of BERT models for the Ukrainian language

- Recruited and managing a team of 8 senior students
- Represent, negotiate and built relation with IT industry leaders in Ukraine like Reface

## Anadea

Machine learning Engineer

Kyiv, Ukraine

March 2021 – October 2021

**Stack:** Python, PyTorch, Tensorflow, Keras, bash

- Improved image captioning algorithm by combination of Detectron object feature extraction model and length controllable captions generation model
- Improved company name generator using GPT2 fine-tuned model with data pre and post-processing
- Performed social media post duplicate detection method that achieves 0.95 in F1-score

## Concorde Capital

Investment Banking Intern

Kyiv, Ukraine

May 2019 – Sep. 2019

- Market research in various spheres (agriculture, IT, heavy industry, logistic) for acquisition purpose
- Preparation of financial reports and pitching presentations

## YouScan

Summer Intern

Kyiv, Ukraine

May 2017 – Sep. 2017

- Performed social media data analysis and classification for big multinational companies
- Preparation of social media activity reports

## PUBLICATIONS

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### Geometric properties of adversarial images

Bogdan Ivanyuk-Skulskiy, Galyna Kriukova, Andrii Dmytryshyn

IEEE Third International Conference Data Stream Mining & Processing (DSMP), 2020

## SELECTED PROJECTS

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### Quora Insincere Questions Classification (Kaggle) - silver medal

- Binary classification network for abusive content detection
- Architecture is composed of Embedding layer (combination of GloVe and PARAGRAM embeddings), and a blend of LSTM with Attention, GRU with Attention, GRU with MaxPooling, GRU with AveragePooling, and Capsule layer over GRU. The outputs are passed through the Linear Layer to get score probabilities
- Reached F1-score of 0.69764 on public and 0.70489 on private leaderboards

### Severstal: Steel Defect Detection competition (Kaggle) - silver medal

- Algorithm is composed of two steps: classification network for the presence of steel defect and 4 pre-trained U-Net for defect type segmentation. Images were augmented with pixel normalization, image rotation, and image resizing
- Reached mean Dice coefficient of 0.90097 on private and 0.91273 on public leaderboards

### Surviv.io agent

- Project purpose - the training of an agent that can play battle royal game, with a target to win
- Performed video analytics to detect weapon loot action and detection of the weapon type itself
- Agent control and inference pipeline implementation using selenium

## SKILLS

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**Languages:** Ukrainian, Russian, English, French

**Programming languages:** Python, moderate experience with C++ and Java

**Libraries:** pandas, NumPy, Matplotlib, PyTorch, Tensorflow, OpenCV

## ACHIEVEMENTS

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### Kaggle Competitions Expert (Kaggle)

Quora Insincere Questions Classification - silver medal

Mechanisms of Action (MoA) Prediction - silver medal

Severstal: Steel Defect Detection - silver medal

**Scholar of ZAVTRA.UA stipend program of Victor Pinchuk Foundation, 2020**