PUBBLICATO ALL'ALBO WEB IN DATA 15.02.2023

UNIVERSITA' DEGLI STUDI DI GENOVA

AREA RICERCA, TRASFERIMENTO TECNOLOGICO E TERZA MISSIONE
SERVIZIO RICERCA

D.R. n. 725

IL RETTORE

- Visto il Decreto Rettorale n. 96 del 16/01/2023, con il quale è stato indetto il concorso, per titoli e colloquio, per il conferimento di n. 1 borsa di ricerca post laurea di tipo *starting* della durata di 8 mesi, eventualmente rinnovabile, dell'importo di € 10.832,00 (diecimilaottocentotrentadue/00), per lo svolgimento di una ricerca sul tema: "Intelligenza Artificiale Affidabile per la Logistica e il Trasporto Merci", presso il DIBRIS dell'Università degli Studi di Genova;

- Visto il Decreto Rettorale n. 630 del 09/02/2023 con il quale è stata costituita la Commissione giudicatrice per il conferimento della suddetta borsa di ricerca;

- Visto il verbale della Commissione giudicatrice del concorso in parola, riunitasi in data 15/02/2023;

- Constatata la regolarità della procedura seguita;

DECRETA

Art. 1

Sono approvati gli atti del concorso di cui in premessa e la seguente graduatoria di merito:

1. Dott.re Denis Rollov punti 83/100

Sotto condizione dell'accertamento dei requisiti di cui al bando, è dichiarato vincitore del concorso in parola il Dott.re Denis Rollov.

Genova, 15.02.2023

IL RETTORE

Responsabile del procedimento: Monica Buffa
Area Ricerca, Trasferimento Tecnologico e Terza Missione
Servizio Ricerca

Firmato digitalmente da:
NICOLETTA DACREMA
Università degli Studi di Genova
Firmato il: 15-02-2023 12:31:29
Seriale certificato: 1070114
Valido dal 30-07-2021 al 30-07-2024

europass Curriculum vitae

PERSONAL INFORMATION Denis Rollov






SHORT BIO

Denis Rollov is a computer science professional with a Master's degree from Skoltech, where he specialized in computer vision, generative models, data analysis. He has a strong background in computer science, honed by participation in various hackathons where he has won prizes, and also has an experience in industrial computer vision start-ups, both as a researcher and software engineer. He has come to understand that the robustness of models is a complex and crucial task during his work experience, and therefore he has decided to pursue a Ph.D. to gain novel information and develop intuition in terms of research, specifically in the area of robustness in computer vision.

JOB APPLIED FOR

Intelligenza Artificiale Affidabile per la Logistica e il Trasporto Merci

WORK EXPERIENCE

Apr 2021 – Present (1yr 10mos)

Computer Vision Engineer

Oz Forensics
Almaty, Kazakhstan

Duties

- Managing markup group (4 co-workers) for android and ios (on-device) products;
- Managing the process of model ensembling and preparing the product model for client use, including discussing training and validation data, selecting model candidates for ensembling, testing, and releasing the final model;
- Researching novel solutions and improvements in face anti-spoofing with development afterwards;
- Team processes development;

Achievements

- Developed an on-device light reflection analysis model, which is now integrated into our clients' systems;
- Automated the process of model ensembling, including both server-ensemble and on-device ensemble;
- Developed a convenient tool to analyze model performance on datasets from various domains;
- Developed a face detection model that can handle multiple faces, integrated it into an ensemble model to obtain a batch of all possible faces, and performed subsequent face anti-spoofing analysis. In comparison to a ensemble model without face detection, I was able to decrease the EER, FAR, and FRR by 20% using improved ensembling model;
- Introduced novel face anti-spoofing architecture to handle various aspect ratio images simultaneously;
- Automated and accelerated the process of model estimation by using multithreading techniques;
- Initiated the seminar's conducting and subsequently introduced new technologies into our system. For example, I introduced ViT-based architectures, which demonstrated good performance on our internal datasets, as well as the SAM optimizer, which is now widely leveraged by many of my colleagues;
- Proposed an unsupervised scene change detection solution that demonstrated performance faster than MobileNet, and also improved the FAR metrics;

Nov 2020 – Apr 2021 (6mos)

Computer Vision Engineer

Footrack.stats
Moscow, Russia

Duties

- Participating in brainstorming for marking-up and solution processes;
- Coding and supporting the whole code infrastructure;

Achievements

- Developed the unsupervised process for border detection to filter out redundant information;
- Developed the unsupervised process for ball detection to collect the statistics of the movement with subsequent bird-eye projection to the field;

Jul 2019 – Oct 2020 (1yr 4mos)

Software Engineer

Gazpromneft-Snabjenie
Moscow, Russia

Duties

- Interview and defence of the projects to the employer;
- Development and introduction logistic models fro region supply;
- Work closely with development teams to ensure accurate integration of machine learning models into firm platforms;
- Team process development;

Achievements

- Developed a heuristic NP complete algorithm for logistics;
- Developed a web scraper that collects information about a person and consolidates it into a single document, which facilitates the manual data collection process for my co-workers;
- Developed a CAPTCHA Recognition, which was part of the web scraper problem;

Aug 2018 – Jun 2020 (1yr 6mos)

Research Intern

NRU "Higher School of Economics"
Moscow, Russia

Duties

- Participating in scientific and educational projects in Laboratory of Telecommunication Systems of Higher School of Economics;

Achievements

– I have written and submitted a scientific paper on the topic of "Study of the corrective properties of codes lying on the Varshamov–Gilbert boundary for non-orthogonal multiple access systems";

Aug 2018 – Mar 2019 (8mos)

Junior Analyst

KARI
Moscow, Russia

Duties

– Implementation of technical support for customer services. Systematic and business analysis of internal processes;
– Knowledge developing and debugging in Python;
– Interview and defence of project to the employee;

Achievements

– Developed a stock price prediction algorithm using a gradient boosting algorithm, which improved the RMSE metrics compared to the previous algorithm by 1%.
– Automated some data preparation processes using SQL and Python;

EDUCATION AND TRAINING

2020 – 2022

M.Sc. - Thesis Title: “Effective design of Vision Transformer for Face Anti-Spoofing” ISCED 6

Skolkovo Institute of Science and Technology (Skoltech), Moscow, Russia

Master's program in **Information Science and Technology**

2016 – 2020

B.Sc - Thesis Title: “Development of Non-Orthogonal Multiple Access System” ISCED 6

NRU "Higher School of Economics", Moscow, Russia

Bachelor's program in **Information and Communication Technologies and Systems**

2020

“Fundamentals of Accelerated Computing with CUDA Python” ISCED 6

Online course from NVIDIA (2020)

Course Description:

This course teach how to use the RAPIDS software stack from Python, including cuDF (a DataFrame library interoperable with Pandas), dask-cudf (for distributing DataFrame work over many GPUs), and cuML (a machine learning library that provides GPU-accelerated versions of the algorithms in scikit-learn).

2020

“Build Basic Generative Adversarial Networks (GANs)” ISCED 6

Online course from DeepLearning.AI, Coursera (2022)

Course Description:

– Learn about GANs and their applications;
– Understand the intuition behind the fundamental components of GANs;
– Explore and implement multiple GAN architectures;
– Build conditional GANs capable of generating examples from determined categories;

2020

“Build Better Generative Adversarial Networks (GANs)” ISCED 6

Online course from DeepLearning.AI, Coursera (2022)

Course Description:

– Assess the challenges of evaluating GANs and compare different generative models;
– Use the Fréchet Inception Distance (FID) method to evaluate the fidelity and diversity of GANs;
– Identify sources of bias and the ways to detect it in GANs;
– Learn and implement the techniques associated with the state-of-the-art StyleGANs;

PERSONAL SKILLS

Mother tongue: Russian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Italian	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills
- team work: I have worked in various types of teams in research. For 1.5 years I coached my university football team. I was a team leader in intellectual games.

Organisational / managerial skills
- I conducted several seminars during my studying at Skoltech and in my company Oz Forensics. I covered state-of-the-art papers and made local industrial experiments.
- I supervised markup-group in Oz Forensics to prepare ondevice-datasets for training.

Computer skills
- Competent with Python, SQL;
- Competent with deep learning frameworks, like PyTorch, TensorFlow 2+, JAX, ONNX, Tflite;
- Competent with classic machine learning frameworks, like Numpy, Scipy, Pandas, Sklearn, Lightgbm;
- Competent with Linux;

Other skills: Love music and playing music: guitar, bass, drums. Enjoy all sports particularly hockey, football, gym, curling, billiards. Love to travel. Love cinema and series.

Driving licence: B

ADDITIONAL INFORMATION

2020 "Study of the corrective properties of codes, lying on the Varshamov–Gilbert boundary, for non-orthogonal multiple access system"

ISCED 6
NRU "Higher School of Economics"
Moscow, Russia
In this work, the class of multi-user slotted vectorial disjunctive channels is considered. A lower bound on its throughput is obtained for this channel. In addition, a signal-coding construction was proposed to resolve collisions that occur during transmission, assuming that the code included in the construction lies on the Varshamov-Gilbert boundary.