Iustina Ivanova

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Summary

I apply Artificial Intelligence in real-world applications. My background is in software engineer: I am fascinated by computer vision and it's applications in the software solutions. Furthermore, I achieved with distinction a Master in Artificial Intelligence, where I researched neural networks for object detection. During the last three years, I conducted a research project about "Sensors and data for the analysis of sports activities (SALSA)", funded by the EFRE-FESR programme 2014-2020 (CUP: I56C19000110009), and published several well received papers about computer vision solutions and recommender systems web interfaces for sport climbers. Nowadays, I am focusing on vision-based methods and real applications where Artificial Intelligence can be used to improve the quality of life.

Work Experience

Artificial Intelligence developer Nov 2022 - April 2022

During this four months short-term project, I developed a web-based solution which was designed to interact with Rest-API server (Kafka). I was employed in a project connected with the reconstruction of 3D human hearts.

Data Science Moderator May 2019 - Oct 2020

I designed lectures 'Statistics' for students participating in a course 'Data science' in Netology. The material is accessible online: https://github.com/yustinaivanova/Netology-statistics

Computer Vision Data Scientist April 2019 - Nov 2019

I worked as a data scientist in the railway company. We designed and deployed a video-based tracking system for people. The project aimed to, firstly, detect objects in the video, secondly, to detect people, and thirdly, to measure working time of a person from video data.

Teacher of informatics, mathematics and physics Aug 2013 - Nov 2017

- My tasks were to organize the study process and making the subjects to be interesting.
- I was preparing students for final exams in the high school – EGE.
- As a result, around 30 students successfully passed exams, and entered to the universities.
- I prepared 10 students for programming competition.
- In addition, I gave lessons about website creation, and 2D game development.

Projects

Recommender System Website for Outdoor Sportclimbers Link to Github

In this project, I developed several prototypes of websites which recommended sport climbers potentially interesting climbing place in Arco (Italy).

Education

2019 - 2022 Research Activities (Computer Science) at **Free University of Bolzano, Italy**

2017 - 2018 Master of Science (Artificial Intelligence) at **University of Southampton, United Kingdom** (Distinction)

2007 - 2013 Specialist (Software Engineering) at **Bauman Moscow State Technical University, Russia** (3,8/5)

Publications

Ivanova, Iustina, Marina Andrić, Sadaf Moaveninejad, et al. (2020). "Video and Sensor-Based Rope Pulling Detection in Sport Climbing". In: *Proceedings of the 3rd International Workshop on Multimedia Content Analysis in Sports*. MMSports '20. Seattle, WA, USA: Association for Computing Machinery, pp. 53–60. ISBN: 9781450381499. DOI: 10.1145/3422844.3423058. URL: https://doi.org/10.1145/3422844.3423058.

Shtekhin, Sergey Evgenievich et al. (2020). "Computer vision system for working time estimation by human activities detection in video frames". In: *Proc. of the Institute for System Programming of the Russian Academy of Science* 32.1.

Ivanova, Iustina (2021). "Climber Behavior Modeling and Recommendation". In: *Proceedings of the 29th ACM Conference on User Modeling, Adaptation and Personalization*. UMAP '21. Utrecht, Netherlands: Association for Computing Machinery, pp. 298–303. ISBN: 9781450383660. DOI: 10.1145/3450613.3459658. URL: https://doi.org/10.1145/3450613.3459658.

Ivanova, Iustina, Marina Andric, Andrea Janes, et al. (2021). "Climbing Activity Recognition and Measurement with Sensor Data Analysis". In: *Companion Publication of the 2020 International Conference on Multimodal Interaction*. ICMI '20 Companion. Virtual Event, Netherlands: Association for Computing Machinery, pp. 245–249. ISBN: 9781450380027. DOI: 10.1145/3395035.3425303. URL: https://doi.org/10.1145/3395035.3425303.

Ivanova, Iustina et al. (2021). "Knowledge-Based Recommendations for Climbers". eng. In: vol. 2960. CEUR Workshop Proceedings. CEUR-WS, p. 6.

Andric, Marina et al. (2022). "Climbing Route Difficulty Grade Prediction and Explanation". In: *IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology*. WI-IAT '21. Melbourne, VIC, Australia: Association for Computing Machinery, pp. 285–292. ISBN: 9781450391153. DOI: 10.1145/3486622.3493932. URL: https://doi.org/10.1145/3486622.3493932.

Ivanova, Iustina et al. (2022). "Content-Based Recommendations for Crags and Climbing Routes". In: *Information and Communication Technologies in Tourism 2022*. Ed. by Jason L. Stienmetz et al. Cham: Springer International Publishing, pp. 369–381. ISBN: 978-3-030-94751-4.

Ivanova, Iustina Alekseevna et al. (2022). "Map and Content-Based Climbing Recommender System". In: *Adjunct Proceedings of the 30th ACM Conference on User Modeling, Adaptation and Personalization*. UMAP '22 Adjunct. Barcelona, Spain: Association for Computing Machinery, pp. 41–45. ISBN: 9781450392327. DOI: 10.1145/3511047.3536416. URL: https://doi.org/10.1145/3511047.3536416.

Ivanova, Iustina and Mike Wald (2023). "Recommender systems for outdoor adventure tourism sports: hiking, running and climbing". In: *Human-Centric Intelligent Systems*.

Ivanova, Iustina Alekseevna and Mike Wald (2023a). "How can we model climbers' future visits from their past records?" In: *Adjunct Proceedings of the 30th ACM Conference on User Modeling, Adaptation and Personalization*. UMAP '23 Adjunct. Limassol, Cyprus: Association for Computing Machinery. DOI: 10.1145/3563359.3597408. URL: https://doi.org/10.1145/3563359.3597408.

– (2023b). "Introducing Context in Climbing Crags Recommender System in Arco, Italy". In: *Companion Proceedings of the 28th International Conference on Intelligent User Interfaces*. IUI '23 Companion. Sydney, NSW, Australia: Association for Computing Machinery, pp. 12–15. ISBN: 9798400701078. DOI: 10.1145/3581754.3584120. URL: https://doi.org/10.1145/3581754.3584120.

Skills

Programming	Python, OpenCV, machine learning, computer vision, recommender systems, Javascript, PyTorch, Tensorflow, Git
Professional Softwares	VScode, PyCharm, Jupyter Notebook, Docker, React, Bootstrap, Flask

Courses and Schools

3rd Advanced Course on Data Science & Machine Learning. (Siena, Italy). July 13-17, 2020

Summer school for data science as part of PhD study.

4th International School on Deep Learning. (Canary Island, Spain). July 26-30, 2021

Deep learning summer school as part of PhD study

Big Sports Data Science School. (Caen, France). June 27-30, 2022

Thematic School for Data Science in Sports Analytics.

Volunteering

Intelligent User Interfaces 2023 I was a part of a volunteer team in the University of Sydney (Australia)

Achievement

Winner of NOI Hackathon SFSCON Edition. Nov 12-13, 2021

Free Software Conference Hackathon. Our project: https://hackathon.bz.it/project/authpass

Winner of NOI Hackathon Open Data Hub Edition. May 20-21, 2022

Open Data Hub Hackathoin. My project: https://hackathon.bz.it/project/orange-juice

Winner of NOI Hackathon Summer Edition. Aug 5-6, 2022

Summer Hackathon. Our project: https://hackathon.bz.it/project/octo-

Winner of NOI Hackathon SFSCON Edition. Nov 10-11, 2022

Free Software Conference Hackathon. Our project: https://hackathon.bz.it/project/procam

References

Professor Mike Wald Professor in the University of Southampton (email: m.wald@soton.ac.uk)

Professor Jonathon Hare Professor of Machine Learning in University of Southampton (email: jsh2@ecs.soton.ac.uk)