Falcon Alex, Ph.D.

falcon.alex@spes.uniud.it
https://scholar.google.com/citations?user=sHPhexYAAAAJ&hl=it
https://aranciokov.github.io/
https://www.linkedin.com/in/alex-falcon-9b1a231a3/

Alex Falcon is a Post-Doc Researcher at University of Udine, Italy, since December 2022. He received his Ph.D. in Computer Science, Mathematics and Physics in 2023 at the University of Udine, Italy. From Fall 2020 to Spring 2022 he visited Fondazione Bruno Kessler, Italy. His research interests are focused towards multimedia, video and language understanding, and deep learning. During his Ph.D., he has published 10 papers in prestigious journals and conferences in Multimedia, Computer Vision, and Predictive Maintenance.

Employment History

2022 – 2024 **Post-doc researcher (research fellow), University of Udine, Italy**.

Education

2019 – 2022 **Ph.D. student, University of Udine, Italy and Fondazione Bruno Kessler, Italy** in Computer Science, Maths, and Physics. Passed *cum laude*.
Thesis title: *Semantics for vision-and-language understanding*.

2017 – 2019 **M.Sc. Computer Science, University of Udine, Italy**. Final mark: 110/110 *cum laude*.
Thesis title: *Remaining Useful Life Estimation using LSTM Networks and Attentive mechanisms* (subject: Predictive Maintenance, Deep Learning).

2012 – 2016 **B.Sc. Computer Science, University of Udine, Italy.**
Thesis title (Italian): *Realizzazione di un parser del linguaggio Maude per il tool AbsSpec* (subject: Programming Languages).

Research Publications

Journal Articles

1. **Falcon**, **A.**, Serra, G., & Lanz, O. (2023). Video question answering supported by a multi-task learning objective. *Multimedia Tools and Applications*, *82*, 38799–38826. DOI: 10.1007/s11042-023-14333-0
2. **Falcon**, **A.**, D'Agostino, G., Lanz, O., Brajnik, G., Tasso, C., & Serra, G. (2022). Neural turing machines for the remaining useful life estimation problem. *Computers in Industry*, *143*, 103762. DOI: 10.1016/j.compind.2022.103762

Conference Proceedings

1. Abdari, A., **Falcon**, **A.**, & Serra, G. (2024a). AdOCTeRA: Adaptive optimization constraints for improved text-guided retrieval of apartments, In *International conference on Multimedia Retrieval (ICMR)*.
2. Abdari, A., **Falcon**, **A.**, & Serra, G. (2024b). A language-based solution to enable metaverse retrieval, In *International conference on Multimedia Modeling (MMM)*. Springer. DOI: 10.1007/978-3-031-53311-2_35
3. **Falcon**, **A.**, Portelli, B., Abdari, A., & Serra, G. (2024). Paving the way for personalized museums tours in the metaverse, In *Information and Research science Connecting to Digital and Library science (IRCDL)*.
4. Abdari, A., **Falcon**, **A.**, & Serra, G. (2023a). FArMARe: A furniture-aware multi-task methodology for recommending apartments based on the user interests, In *International Conference on Computer Vision (ICCV) - CV4Metaverse workshop*.

5. Abdari, A., **Falcon**, **A.**, & Serra, G. (2023b). Metaverse retrieval: Finding the best metaverse environment via language, In *ACM International Conference on Multimedia (MM) - MMIR workshop*.

6. Bruni, P., **Falcon**, **A.**, & Radeva, P. (2023). Time-aware circulant matrices for question-based temporal localization, In *International Conference on Image Analysis and Processing (ICIAP)*. Springer. DOI: 10.1007/978-3-031-43153-1_16

7. D'Agostino, G., **Falcon**, **A.**, Lanz, O., Brajnik, G., Tasso, C., & Serra, G. (2023). Estimating the remaining useful life via neural sequence models: A comparative study, In *Artificial Intelligence and Applications for Business and Industries (aiabi), co-located with 21st AIxIA Conference*.

8. **Falcon**, **A.**, Serra, G., & Lanz, O. (2022a). A feature-space multimodal data augmentation technique for text-video retrieval, In *ACM International Conference on Multimedia (MM),* ***CORE A****, acceptance rate 23%*. DOI: 10.1145/3503161.3548365

9. **Falcon**, **A.**, Serra, G., & Lanz, O. (2022b). Learning video retrieval models with relevance-aware online mining, In *International Conference on Image Analysis and Processing (ICIAP)*. DOI: 10.1007/978-3-031-06433-3_16

10. **Falcon**, **A.**, Sudhakaran, S., Serra, G., Escalera, S., & Lanz, O. (2022). Relevance-based margin for contrastively-trained video retrieval models, In *ACM International Conference on Multimedia Retrieval (ICMR),* ***CORE B****, acceptance rate 29%*. DOI: 10.1145/3512527.3531395

11. **Falcon**, **A.**, D'Agostino, G., Serra, G., Brajnik, G., & Tasso, C. (2020). A dual-stream architecture based on neural turing machine and attention for the remaining useful life estimation problem, In *PHM Society European Conference (PHME)*. DOI: 10.36001/phme.2020.v5i1.1227

12. **Falcon**, **A.**, D'Agostino, G., Serra, G., Brajnik, G., & Tasso, C. (2020). A neural turing machine-based approach to remaining useful life estimation, In *International Conference on Prognostics and Health Management (ICPHM)*. DOI: 10.1109/ICPHM49022.2020.9187043

13. **Falcon**, **A.**, Lanz, O., & Serra, G. (2020). Data augmentation techniques for the video question answering task, In *European Conference on Computer Vision - EPIC workshop*. Springer. DOI: 10.1007/978-3-030-66415-2_33

14. Menardi, M., **Falcon**, **A.**, Mohamed, S. S., Seidenari, L., Serra, G., Del Bimbo, A., & Tasso, C. (2020). Text-to-image synthesis based on machine generated captions, In *Italian Research Conference on Digital Libraries (IRCDL)*. Springer. DOI: 10.1007/978-3-030-39905-4_7

Awards and scholarship

2024 **Granted a 1-year fellowship through PRIN 2022YTE579 (funded by Ministry of University and Research, Italy).** Scientific Responsible: Prof. Giuseppe Serra.

2023 **3rd place at EPIC-Kitchens-100 Multi-Instance Action Retrieval Challenge (CVPR 2023)**.

Attendance of ELLIS Summer School on Large Scale AI for Research and Industry. 25% acceptance rate, held in person in Modena, Italy.

Granted a 1-year fellowship from the University of Udine, Italy. Scientific Responsible: Prof. Giuseppe Serra.

Granted a €5000 voucher from the University of Udine, Italy.

2022 **Attendance of International Computer Vision Summer School (ICVSS)**. 25% acceptance rate, held in person in Scicli, Italy.

1st place at EPIC-Kitchens-100 Multi-Instance Action Retrieval Challenge (CVPR 2022). Obtained with techniques we authored and published at ACM ICMR 2022 and ICIAP 2022.

Awards and scholarship (continued)

2021 **3rd place at EPIC-Kitchens-100 Action Recognition Challenge (CVPR 2021)**.

2020 **Attendance of Machine learning for Non-Matrix Data Summer School**. Held virtually at Politecnico di Milano, Italy.

2019-2022 **Granted FBK scholarship** for pursuing a Ph.D. at University of Udine, Italy.

Scientific service

- **Proceedings Chair** IRCDL 2023.
- **Local organization chair** EQAI 2024, EQAI 2023, ICIAP 2023, AIxIA 2022.
- **Guest Editor** Special Issue on Text-Multimedia Retrieval: Retrieving Multimedia Data by Means of Natural Language (ACM TOMM, 2024).
- **Organizer** 3rd edition of Computer Vision for Metaverse at ECCV 2024, Video and Image Question Answering (VIQA) within the joint workshop VTIUR at ICPR 2020.
- **Journal reviewing** IJCV, IEEE TMM, IET Computer Vision, ACM TOMM, IEEE Trans Hum Mach Syst.
- **Conference reviewing** ACM MM 2024, ECCV 2024, IRCDL 2024, ACM MM 2023, AI4CH@AIxIA 2023, PACLIC 2023, CCISP 2023, IRCDL 2023, ICIAP 2023, ICPR 2022, ICIAP 2021, EMNLP 2021, ICPR 2020.
- **Co-supervision** 4 Bachelor and 5 Master students of Computer Science Degree or IoT, Big Data, and ML Degree at UniUD on topics related to Video&Language and Predictive Maintenance.
- **Teaching assistance** Object Oriented Programming (Prof. Brajnik), UniUD (2020-2021).