


# Falcon Alex, Ph.D.

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## Employment History

2022 – 2023     **Post-doc researcher (research assistant), University of Udine, Italy.**

## Education

- 2019 – 2022     **Ph.D. student, University of Udine, Italy and Fondazione Bruno Kessler (Trento), 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** in Predictive Maintenance with a Deep Learning approach. Final mark: 110/110 *cum laude*.  
Thesis title: *Remaining Useful Life Estimation using LSTM Networks and Attentive mechanisms*.
- 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. *Accepted for publication at Multimedia Tools and Applications*.
- 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.






### Conference Proceedings

- 1 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 *Italian workshop on artificial intelligence and applications for business and industries, co-located with 21st international conference of the italian association for artificial intelligence*.
- 2 **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%.
- 3 **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)*.
- 4 **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%.
- 5 **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)*.

- 6 **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)*.
- 7 **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.
- 8 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.









## Awards and scholarship

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- 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.
- 2021  **3RD PLACE AT EPIC-KITCHENS-100 ACTION RECOGNITION CHALLENGE (CVPR 2021).**
- 2020  **MACHINE LEARNING FOR NON-MATRIX DATA.** Summer school I attended, held virtually at Politecnico di Milano, Italy.
- 2019-2022  **FBK SCHOLARSHIP** for pursuing a Ph.D. at University of Udine, Italy.

## Invited talks and seminars

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- 2022  **ORAL PRESENTATION AT AIABI 2022** I presented the paper “Estimating the remaining useful life via neural sequence models: A comparative study” at the workshop AIABI - Italian workshop on artificial intelligence and applications for business and industries. Udine, Italy.
-  **ORAL PRESENTATION AT ACM MM 2022** I presented the paper “A feature-space multimodal data augmentation technique for text-video retrieval” at the main conference. Lisbon, Portugal.
-  **POSTER PRESENTATION AT ICVSS 2022** I presented the poster “Relevance-aware online mining for video retrieval” at the first poster session at the summer school ICVSS - International Computer Vision Summer School. Scicli, Italy.
-  **SEMINAR AT UNIBZ** I presented two seminars, “Learning video retrieval models with relevance-aware online mining”, and “Data-driven approaches for the Remaining Useful Life Estimation problem” at Free University of Bozen-Bolzano. Bolzano, Italy.
-  **ORAL PRESENTATION AT ICIAP 2021** I presented the paper “Learning video retrieval models with relevance-aware online mining” at the main conference. Lecce, Italy.
-  **SEMINAR AT FBK** I presented the seminar “Data-driven approaches for the Remaining Useful Life Estimation problem” at Fondazione Bruno Kessler. Trento, Italy.
-  **ORAL PRESENTATION AT ICMR 2022** I presented the paper “Relevance-based margin for contrastively-trained video retrieval models” at the main conference. Newark, NJ, USA.
- 2020  **ORAL PRESENTATION AT EPIC@ECCV 2020** I presented the paper “Data augmentation techniques for the video question answering task” at the workshop EPIC - Egocentric Perception, Interaction and Computing. Virtual.

## Invited talks and seminars (continued)

- **ORAL PRESENTATION AT PHME 2020** I presented the paper “A dual-stream architecture based on neural turing machine and attention for the remaining useful life estimation problem” at the main conference. Turin, Italy.
- **ORAL PRESENTATION AT ICPHM 2020** I presented the paper “A neural turing machine-based approach to remaining useful life estimation” at the main conference. Detroit, MI, USA.

## Scientific service

- **PROCEEDINGS CHAIR** Conference on Information and Research science Connecting to Digital and Library science (IRCDL 2023)
- **LOCAL ORGANIZATION CHAIR** 2nd European Summer School on Quantum AI (EQAI 2023), 22nd International Conference on Image Analysis and Processing (ICIAP 2023), 21st International Conference of the Italian Association for Artificial Intelligence (AIxIA 2022).
- **ORGANIZER** Video and Image Question Answering (VIQA) section of the joint workshop VTIUR at ICPR 2020.
- **JOURNAL REVIEWING** International Journal of Computer Vision (IJCV), IEEE Transaction on Multimedia (IEEE TMM), IET Computer Vision, ACM Transactions on Multimedia Computing, Communications, and Applications (ACM TOMM), IEEE Transactions on Human-Machine Systems (IEEE Trans Hum Mach Syst).
- **CONFERENCE REVIEWING** International Conference on Communication, Image and Signal Processing (CCISP 2023), Conference on Information and Research science Connecting to Digital and Library science (IRCDL 2023), International Conference on Image Analysis and Processing (ICIAP 2022), International Conference on Pattern Recognition (ICPR 2022), Conference on Empirical Methods in Natural Language Processing (EMNLP 2021), International Conference on Pattern Recognition (ICPR 2020)
- **CO-SUPERVISION** 3 Bachelor and 4 Master student 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).

## Certifications

- 2021 ■ **FUNDAMENTALS OF DEEP LEARNING FOR MULTI-GPUS** Awarded by NVIDIA Deep Learning Institute.
- 2015 ■ **Certificazione Diritto e ICT** (Data Protection and Privacy). Awarded by Exform - Associazione Per La Formazione.
- 2012 ■ **INTEGRATED SKILLS IN ENGLISH (ISE III, C1 Level) Certificate in ESOL International.** Awarded by Trinity College London.

## Skills

- Languages ■ Italian native speaker. Strong reading, writing, listening, and speaking competencies in English.
- Coding ■ Currently Python (pytorch, numpy, pandas). Previously Prolog, Haskell, Java, C++, SQL.
- Misc. ■ Academic research, private teaching,  $\text{\LaTeX}$  typesetting and publishing.