Europass Curriculum Vitae

Personal information

First name(s) / Surname(s)	**Alex Falcon**
Nationality	Italian
Date of birth	06/05/1993
Gender	Male

Work experience

Dates	1 December 2023 - 30 November 2025
Occupation or position held	Postdoctoral Fellowship
Main activities and responsibilities	Research activity on multimedia and cross-modal understanding via deep learning (funded under PRIN 2022YTE579 “MUSMA - Multimedia Understanding meets Social Media Analysis”)
Name and address of employer	Università degli Studi di Udine. Via delle Scienze 206, 33100 Udine (UD), Italia.
Type of business or sector	Scientific research

Dates	1 December 2022 - 30 November 2023
Occupation or position held	Postdoctoral Fellowship
Main activities and responsibilities	Research activity on multimedia and cross-modal understanding via deep learning (Italian: "Interpretazione automatica di dati multimediali tramite Deep Learning")
Name and address of employer	Università degli Studi di Udine. Via delle Scienze 206, 33100 Udine (UD), Italia.
Type of business or sector	Scientific research

Education and training

Dates	1 November 2019 - 30 November 2022
Title of qualification awarded	Ph.D. in Computer Science, Maths and Physics (cum laude, awarded on 13 March 2023)
Principal subjects/occupational skills covered	Focus on deep learning applied to vision and language understanding, and predictive maintenance. Thesis title: “Semantics for vision-and-language understanding” (main subjects: cross-modal understanding, multimedia, deep learning)
Name and type of organisation providing education and training	Università degli Studi di Udine. Via delle Scienze 206, 33100 Udine (UD), Italia. (jointly with Fondazione Bruno Kessler. Via Sommarive 18, 38123 Trento (TN), Italia.)

Dates	December 2016 - 18 July 2019
Title of qualification awarded	Master degree in Computer Science (Laurea Magistrale in Informatica) cum laude 110L/110, awarded on 18 July 2019
Principal subjects/occupational skills covered	Focus on algorithms, automated reasoning. Thesis title: “Remaining Useful Life Estimation using LSTM Networks and Attentive mechanisms” (main subjects: predictive maintenance, deep learning)
Name and type of organisation providing education and training	Università degli Studi di Udine. Via delle Scienze 206, 33100 Udine (UD), Italia.

Dates	September 2012 - December 2016
Title of qualification awarded	Bachelor degree in Computer Science (Laurea in Informatica) 101/110
Principal subjects/occupational skills covered	Thesis title (Italian): “Realizzazione di un parser del linguaggio Maude per il tool AbsSpec” (main subjects: programming languages)
Name and type of organisation providing education and training	Università degli Studi di Udine. Via delle Scienze 206, 33100 Udine (UD), Italia.
Dates	September 2007 - July 2012
Title of qualification awarded	Diploma di Perito capotecnico industriale con specializzazione informatica. 90/100
Principal subjects/occupational skills covered	Thesis title (Italian): “” (main subjects: mobile software development, cross-device interactions via Bluetooth)
Name and type of organisation providing education and training	ISIS R. D’Aronco. Via Battiferro 7, 33013 Gemona del Friuli (UD), Italia.
Mother tongue(s)	**Italian, Friulian**

Other language(s)

Self-assessment	Understanding		Speaking		Writing
European level (*)	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

(*) Common European Framework of Reference for Languages

Social skills and competences

- Co-Supervision of BSc, MSc, and PhD students in Computer Science and topics related to Artificial Intelligence (applied to Computer Vision, Cross-modal Understanding, and Predictive Maintenance problems)
- Good communication skills acquired during the PhD, with multiple oral presentations held at scientific conferences (ACM MM, ACM ICMR, etc); seminars held at universities (Univ. Udine, Univ. Bolzano) and research centres (Fondazione Bruno Kessler); lecturer at summer schools (ITINERIS 2025, AI-DLDA 2024)

Organisational skills and competences

- Organisation and co-organisation of scientific events, including scientific conferences (IRCDL 2025, ICIAP 2023, AIxIA 2022), international summer schools (EQAI 2025, EQAI 2024, EQAI 2023), workshops held at scientific conferences (CV4Metaverse at CVPR 2025 and at ECCV 2024, VIQA/VTIUR workshop at ICPR 2020)

Technical skills and competences

- Good knowledge of the main topics in Computer Science, acquired during the BSc and MSc, with a focus on Algorithms, Automated Reasoning, Artificial Intelligence
- Excellent knowledge Artificial Intelligence techniques, acquired during the MSc and the PhD, with a focus on Deep Learning applied to Predictive Maintenance, Computer Vision, Natural Language Processing, Cross-modal Understanding
- Good knowledge regarding the scientific production, acquired during the PhD

Computer skills and competences

- Good-to-excellent knowledge of Python, PyTorch, Numpy, and Pandas, acquired during the MSc and the PhD
- Excellent knowledge of LaTeX typesetting, acquired during the MSc and the PhD

Driving licence: Category B

Additional Information

Honours and Awards

Awards

- **Outstanding Reviewer** at ECCV 2024 (2.7% - 198 out of 7293 reviewers)
- Ranked 3rd at the EPIC-Kitchens-100 Multi-Instance Retrieval Challenge (CVPR 2023)
- Ranked **1st** at the EPIC-Kitchens-100 Multi-Instance Retrieval Challenge (CVPR 2022)
- Ranked 3rd at the EPIC-Kitchens-100 Action Recognition Challenge (CVPR 2021)

Journal | Publications

- Virili, A., **Falcon, A.,** Portelli, B., Peressotti, A., Serra, G., Marraccini, E. (2025). *Use of an AI-based annotation tool reduces inter-observer error linked to cover estimation of arable crops and weeds*. Smart Agricultural Technology. [**Q1, IF 5.7**]
- Abdari, A., **Falcon, A.,** & Serra, G. (2025). *Searching agricultural learning experiences in the metaverse via textual and visual queries within the agrimus project*. International Journal on Digital Libraries 26 (4), pp. 1–11.
- **Falcon, A.,** Abdari, A., & Serra, G. (2025). *ALCER3D: Adaptive Learning Constraints for Enhanced Retrieval of Complex Indoor 3D Scenarios*. IEEE Transactions on Multimedia. [**Q1, IF 9.7**]
- Bianco, R., Coluccia, S., Marinoni, M., **Falcon, A.,** Fiori, F., Serra, G., Ferraroni, M., Edefonti, V., & Parpinel, M. (2025). *2D Prediction of the Nutritional Composition of Dishes from Food Images: Deep Learning Algorithm Selection and Data Curation Beyond the Nutrition5k Project*. Nutrients 17(13).
- Fasihi, M., **Falcon, A.**, Alberti, G., Cadez, L., Giannetti, F., Tomao, A., & Serra, G. (2025). *Evaluating organic carbon in living and dead trees using GLCM features and explainable machine learning: insights from Italian national forest*. Annals of GIS, pp. 1–27. [**Q2, IF 2.7**]
- Fasihi, M., Sodini, M., **Falcon, A**., Degano, F., Sivilotti, P., & Serra, G. (2025). *Boosting grapevine phenological stages prediction based on climatic data by pseudo-labeling approach*. Artificial Intelligence in Agriculture, 15(3), pp. 550–563. [**Q1, IF 8.2**]
- Fasihi, M., Portelli, B., Cadez, L., Tomao, A., **Falcon, A.,** Alberti, G., & Serra, G. (2024). *Assessing ensemble models for carbon sequestration and storage estimation in forests using remote sensing data*. Ecological Informatics, 83, 102828. [**Q1, IF 5.8**]
- **Falcon, A**., Serra, G., & Lanz, O. (2024). *Improving semantic video retrieval models by training with a relevance-aware online mining strategy*. Computer Vision and Image Understanding, 245, 104035. [**Q1, IF 4.3**]
- **Falcon, A.,** Serra, G., & Lanz, O. (2023). *Video question answering supported by a multi-task learning objective*. Multimedia Tools and Applications, 82(25), 38799-38826. [**Q2, IF 3.2**]
- **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. [**Q1, IF 8.2**]

Editorial

- **Falcon, A.**, Serra, G., Escalera, S., & Wray, M. (2025). *Introduction to the special issue on text-multimedia retrieval: Retrieving multimedia data by means of natural language*. ACM Transactions on Multimedia Computing, Communications and Applications, 21(10), pp. 1–4. [**Q1, IF 6.0**]

Conference | Publications

- Abdari, A., **Falcon, A.,** Serra, G., & Huang, Q. (2025, June). *Reproducibility Companion Paper: AdOCTeRA--Adaptive Optimization Constraints for Improved text-guided Retrieval of Apartments.* In Proceedings of the 2025 International Conference on Multimedia Retrieval (pp. 1958-1960). [**CORE B**]
- Macrì, G., Bazzana, L., **Falcon, A.,** & Serra, G. (2025, June). *HM3: Hierarchical Modeling of Multimedia Metaverses on 10000 Thematic Museums via Theme-aware Contrastive Loss Function.* In Proceedings of the 2025 International Conference on Multimedia Retrieval (pp. 1009-1017). [**CORE B**]
- Abdari, A., **Falcon, A.,** & Serra, G. (2025, January). AgriMus: Developing Museums in the Metaverse for Agricultural Education. In IRCDL.
- **Falcon, A.**, Abdari, A., & Serra, G. (2024, December). *HierArtEx: Hierarchical Representations and Art Experts Supporting the Retrieval of Museums in the Metaverse*. In International Conference on Multimedia Modeling (pp. 60-73). Singapore: Springer Nature Singapore. [**CORE B**]
- Abdari, A., **Falcon, A.,** & Serra, G. (2024, May). *AdOCTeRA: Adaptive Optimization Constraints for improved Text-guided Retrieval of Apartments*. In Proceedings of the 2024 International Conference on Multimedia Retrieval (pp. 1043-1050). [**CORE B**]
- Abdari, A., **Falcon, A.,** & Serra, G. (2024, January). *A Language-based solution to enable Metaverse Retrieval*. In International Conference on Multimedia Modeling (pp. 477-488). Cham: Springer Nature Switzerland. [**CORE B**]
- **Falcon, A.,** Portelli, B., Abdari, A., & Serra, G. (2024). *Paving the Way for Personalized Museums Tours in the Metaverse*. In IRCDL (pp. 178-188).
- Abdari, A., **Falcon, A.,** & Serra, G. (2023, November). *Metaverse Retrieval: Finding the Best Metaverse Environment via Language*. In Proceedings of the 1st International Workshop on Deep Multimodal Learning for Information Retrieval (pp. 1-9).
- Bruni, P., **Falcon, A.,** & Radeva, P. (2023, September). *Time-Aware Circulant Matrices for Question-Based Temporal Localization*. In International Conference on Image Analysis and Processing (pp. 182-195). Cham: Springer Nature Switzerland.
- Abdari, A., **Falcon, A.,** & Serra, G. (2023). *FArMARe: a Furniture-Aware Multi-task methodology for Recommending Apartments based on the user interests*. In Proceedings of the IEEE/CVF International Conference on Computer Vision (pp. 4293-4303).
- D'Agostino, G., **Falcon, A.,** Lanz, O., Brajnik, G., Tasso, C., & Serra, G. (2022). *Estimating the Remaining Useful Life via Neural Sequence Models: a Comparative Study*. In CEUR WORKSHOP PROCEEDINGS (Vol. 3463). CEUR-WS.
- **Falcon, A.,** Serra, G., & Lanz, O. (2022, October). *A feature-space multimodal data augmentation technique for text-video retrieval*. In Proceedings of the 30th ACM International Conference on Multimedia (pp. 4385-4394). [**CORE A***]
- **Falcon, A.,** Sudhakaran, S., Serra, G., Escalera, S., & Lanz, O. (2022, June). *Relevance-based margin for contrastively-trained video retrieval models*. In Proceedings of the 2022 international conference on multimedia retrieval (pp. 146-157). [**CORE B**]
- **Falcon, A.,** Serra, G., & Lanz, O. (2022, May). *Learning video retrieval models with relevance-aware online mining*. In International Conference on Image Analysis and Processing (pp. 182-194). Cham: Springer International Publishing.
- **Falcon, A.,** Lanz, O., & Serra, G. (2020, August). *Data augmentation techniques for the video question answering task*. In European Conference on Computer Vision Workshops (pp. 511-525). Cham: Springer International Publishing.
- **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 (Vol. 5, No. 1, pp. 10-10).
- **Falcon, A.**, D'Agostino, G., Serra, G., Brajnik, G., & Tasso, C. (2020, June). *A neural turing machine-based approach to remaining useful life estimation*. In 2020 IEEE International Conference on Prognostics and Health Management (ICPHM) (pp. 1-8). IEEE.
- 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 Digital Libraries: The Era of Big Data and Data Science: 16th Italian Research Conference on Digital Libraries, IRCDL 2020, Bari, Italy, January 30–31, 2020, Proceedings 16 (pp. 62-74). Springer International Publishing.

Seminars

Conferences

- Oral presentation of "*MUSMA*" at CV4Metaverse held at CVPR 2025 (Nashville, TN, USA)
- Poster presentation of "*HierArtEx: Hierarchical Representations and Art Experts Supporting the Retrieval of Museums in the Metaverse*" at the conference MMM 2025 (Nara, Japan)
- Oral presentation of "*MUSMA*" at CV4Metaverse held at ECCV 2024 (Milan, Italy)
- Poster presentation of "*AdOCTeRA: Adaptive Optimization Constraints for improved Text-guided Retrieval of Apartments*" at the conference ACM ICMR 2024 (Phuket, Thailand)
- Oral presentation of "*A Language-based solution to enable Metaverse Retrieval*" at the conference MMM 2024 (Amsterdam, Netherlands)
- Poster presentation of "*Time-Aware Circulant Matrices for Question-Based Temporal Localization*" at the conference ICIAP 2023 (Udine, Italy)
- Poster presentation of "*FArMARe: a Furniture-Aware Multi-task methodology for Recommending Apartments based on the user interests*" at the workshop CV4Metaverse held at ICCV 2023 (Paris, France)
- Oral presentation of "*Estimating the Remaining Useful Life via Neural Sequence Models: a Comparative Study*" at the workshop AIABI held at AIxIA 2022 (Udine, Italy)
- Oral presentation of "*A feature-space multimodal data augmentation technique for text-video retrieval*" at the conference ACM MM 2022 (Lisbon, Portugal - remote)
- Oral presentation of "*Relevance-based margin for contrastively-trained video retrieval models*" at the conference ACM ICMR 2022 (Newark, New Jersey, USA - remote)
- Oral presentation of "*Learning video retrieval models with relevance-aware online mining*" at the conference ICIAP 2021 (Lecce, Italy)
- Oral presentation of "*Data augmentation techniques for the video question answering task*" at the workshop EPIC held at ECCV 2020 (Virtual - remote)
- Oral presentation of "*A dual-stream architecture based on neural turing machine and attention for the remaining useful life estimation problem*" at the conference PHME (Turin, Italy - remote)
- Oral presentation of "*A neural turing machine-based approach to remaining useful life estimation*" at the conference IEEE ICPHM (Detroit, Michigan, USA - remote)

Universities or Research Centres

- "Artificial Intelligence and data mining methods in ecology" - (12h) advanced training course for PhD students held at University of Tuscia, Italy
- "Deep Learning for Multimedia understanding" - seminar held at University of Udine, Italy
- "Semantics for vision-and-language understanding" - PhD defence held at University of Udine, Italy
- "Data-driven approaches for the Remaining Useful Life Estimation problem" - seminar held at Free University of Bozen-Bolzano, Italy
- "Learning video retrieval models with relevance-aware online mining" - seminar held at Free University of Bozen-Bolzano, Italy
- "Data-driven approaches for the remaining useful life estimation problem" - seminar held at Fondazione Bruno Kessler, Italy

Summer schools

- "Text-to-Metaverse Retrieval: A New Frontier in Search" - (1h30) course held at AI-DLDA Summer School (2024), Udine, Italy

Autorizzo il trattamento dei dati personali presenti nel CV ai sensi del D.Lgs. 2018/101 e del GDPR (Regolamento UE 2016/679).