Curriculum Vitae
Prof. Dr.-Ing. Franz Quint

Professional Experience:

Upper Rhine Region

- 2021-2022 and 2025-2026: President of the Pillar Science of the Trinational Metropolitan Region Upper Rhine
- 2023 – 2024: Vice-President of the Pillar Science of the Trinational Metropolitan Region Upper Rhine
- 2021 – 2024: President of TriRhenaTech, the association of the Universities of Applied Sciences of Alsace, Baden, Palatinat and Northwestern Switzerland

Karlsruhe University of Applied Sciences

- since 2017: Vice-President for Research, Cooperations and Transfer
- since 2002: full professor for Digital Communications in the Faculty for Electrical Engineering and Information Technology
- 2012 – 2018: Program Director of the Master's Degree Program Electrical Engineering and Information Technology at Karlsruhe University of Applied Sciences
- 2015 - 2020: Program Director of the Master's Degree Program for continuing education in Electrical Engineering at Karlsruhe University of Applied Sciences
- 2008 – 2021: Co-Chair and initiator of the Double Master's Degree Program in Electrical and Computer Engineering with Ryerson University Toronto, Canada
- 2012 – 2021: Co-Chair and initiator of the Double Master's Degree Program in Electrical Engineering with Institute National des Sciences Appliquees (INSA) Strasbourg, France
- 2012 – 2021: Initiator and project leader of the project ProKaTim (Signal Processing Karlsruhe – Timisoara)
- since 2010: Member of the Senate of Karlsruhe University of Applied Sciences
- 2012 – 2017: Member of the Expert Committee for System Accreditation of Karlsruhe University of Applied Sciences
- 2005 – 2018: Member of the Faculty Board
- 2010 – 2021: Faculty Coordinator for International Activities

- Research interests:
    - Information Theory and Coding
    - Digital Signal Processing
    - Digital Image Processing
    - Digital Communications

- Teaching:
  - Digital Communications (course and lab, undergraduate)
  - Digital Signal Processors (course and lab, undergraduate)
  - Digital Image Processing (course, undergraduate)
  - Information Theory and Coding (course, graduate)
  - Spectral Estimation (course, graduate)
- Projects:
  - move.mORe: Sustainable mobility in the Upper Rhine Region
  - TrinTEd: Trinational Technical Education
  - KTUR2: Knowledge Transfer Upper Rhine 2
  - KTUR: Knowledge Transfer Upper Rhine
  - RMTMORI: Large Research Infrastructure for the Upper Rhine Region
  - ALPAKA: Academic Career Development for Upcoming Professors
  - URCfSR: Upper Rhine Cluster for Sustainability Research
  - TITAN-E: Trinational Innovation and Technology Advanced Networks of Enterprises
  - Merses: Robust 2D-Barcodes for Industrial Environments
  - LifeAid: Light Field Enhanced Acoustic Navigation for Visually Disabled Persons
  - Mosyko3D: Modular sensor system for context-based optical acquisition and processing of 3D-data
  - Hypermod: Generalisation of Mathematical and Object Model, Hypermodels and their Applications
  - Komo3D: Context-sensitive mobile 3D-Multisensorsystem

- Reviewer of research projects for AIF (leading national organization for applied research and development)
- Member of the technical committee, reviewer and session chair in several international conferences and Journals on Digital Signal Processing and Communications
- Reviewer of international study programs for DAAD (German Academic Exchange Service)
- Reviewer for program accreditation at ASIIN (German Accreditation Association for Study Programs in Engineering and Natural Sciences) and AQAS (Agency for Quality Assurance)

Airbus, 1997 - 2002

- 1997 – 2002 development engineer at DaimlerChrysler Aerospace in Ulm, Germany (today Airbus) in the areas of Digital Communications, COMINT and Radar Signal Processing
- leader of project teams, since 1999 head of the department “Digital Signal Processing Algorithms”

Karlsruhe Institute of Technology, KIT, 1993 - 1997

- 1993 – 1997 researcher on a project of the DFG (German federal research agency) for automatic aerial image understanding
- 1997 PhD-thesis „Kartengestützte Interpretation monokulare Luftbilder“ (Map-based interpretation of monocular aerial images), awarded degree: Dr.-Ing. with summa cum laude

Fraunhofer-Institute for Information- and Data-Processing Karlsruhe, 1990 - 1993

- 1990 – 1993 researcher
- projects on industrial image processing and aerial image understanding

Studies, 1984 - 1990

- 1984 – 1986 Electrical Engineering at Politehnica University Timisoara, Romania
- 1987 – 1990 Electrical Engineering at Karlsruhe Institute of Technology, Germany
- 1990: degree Dipl.-Ing.

Publications
Prof. Dr.-Ing. Franz Quint

Textbooks:

1. A. Christ, F. Quint (Hrsg.): Artificial Intelligence: Research Impact on Key Industries, URAI 2020, ISBN 978-3-943301-29-8, arxiv.org/abs/2010.16241
2. A. Christ, F. Quint (Hrsg.): Artificial Intelligence: from research to Application, URAI 2019, ISBN 978-3-9820756-0-0, arxiv.org/abs/1903.08495
3. F. Quint, F. Alexa, R. Pazsitka (Hrsg.): Proceedings of ProKaTim: Digital Signal Processing Applications, Editura Politehnica, Timisoara, 2016
4. F. Quint, D. Benyoucef (Hrsg.): 3rd Baden-Württemberg Center of Applied Research Symposium on Information and Communication Systems SInCom 2016
5. J. Hoffmann, F. Quint: Signalverarbeitung in Beispielen – verständlich erläutert mit MATLAB und Simulink, De Gruyter Oldenbourg, 2016
6. J. Hoffmann, F. Quint: Simulation technischer linearer und nichtlinearer Systeme mit MATLAB/Simulink, De Gruyter Oldenbourg, 2014
7. J. Hoffmann, F. Quint: Einführung in Signale und Systeme, Oldenbourg Wissenschaftsverlag, 2013.
8. J. Hoffmann, F. Quint: Signalverarbeitung mit MATLAB und Simulink. Anwendungsorientierte Experimente, Oldenbourg-Wissenschaftsverlag, erste Auflage 2007, zweite Auflage 2012.
9. F. Quint: Kartengestützte Interpretation monokularer Luftbilder, Deutsche Geodätische Kommission DGK Reihe C, zugleich Dissertation Universität Karlsruhe, Verlag der Bayerischen Akademie der Wissenschaften, München, 1997.

Chapters in books:

1. R. Vasko, N. Zeller, F. Quint, U. Stilla: A Real-Time Depth Estimation Approach for a Focused Plenoptic Camera, Springer Lecture Notes in Computer Sciences 9475: Advances in Visual Computing, 2015, p. 70-80.
2. W. Proß, F. Quint, M. Otesteanu: Decoding of LDPC-Based 2D-Barcodes Using a 2D-Hidden-Markov-Model, in: M. Obaidat, J. Sevillano, J. Filipe (Eds.): E-Business and Telecommunications, Communications in Computer and Information Science, Vol. 314, p. 374-387, Springer, Berlin, Heidelberg, 2012.
3. F. Quint: Objekterfassung aus Karte und Bild, in Bähr, H.-P., Vögtle, T. (Hrsg.), Digitale Bildverarbeitung, p. 108-144, Wichmann, Heidelberg, 1998.

4. F. Quint: MOSES: A structural approach to aerial image understanding, in Grün, A., Baltsavias, E.P., Henricsson, O. (Hrsg.), Automatic Extraction of Man-Made Objects from Aerial and Space Images II, p. 323-332, Birkhäuser, Basel, 1997.
5. F. Quint, M. Sties: An evidential merit function to guide search in a semantic network based image analysis system, in Perner, P., Wang, P., Rosenfeld, A. (Hrsg.), Advances in Structural and Syntactical Pattern Recognition, p. 140-149, Springer, Berlin, 1996.
6. F. Quint, M. Sties: Map-based semantic modeling for the extraction of objects from aerial images, in Grün, A., Kübler, O., Agouris, P. (Hrsg.), Automatic Extraction of Man-Made Objects from Aerial and Space Images p. 307-316, Birkhäuser, Basel, 1995.

Articles in Journals and Conference Proceedings:

1. A. Borne, F. Quint et. al.: Multimodal object tracking using raw visible and thermal infrared data, Seventeenth International Conference on Quality Control by Artificial Vision (QCAV2025), Proceedings of SPIE, 2025, doi: 10.1117/12.3079227.
2. A. Borne, F. Quint et. al.: Military Aerial Multimodal Dataset for RGB-T Object Tracking: Benchmark and Efficient Algorithm. In Autonomous Systems for Security and Defence II,International Society for Optics and Photonics, 2025. https://doi.org/10.1117/12.3069652.
3. L. Marcos, F. Quint, P. Babyn and J. Alirezaie: Dilated Convolution ResNet with Boosting Attention Modules and Combined Loss Functions for LDCT Image Denoising, 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2022, pp. 1548-1551, doi: 10.1109/EMBC48229.2022.9870993.
4. G. Engel, F. Bhatti, T. Greiner, M. Heizmann, F. Quint: Distributed and Context Aware Application of Deep Neural Networks in Mobile 3D-Multi-Sensor Systems Based on Cloud-, Edge- and FPGA-Computing, Proceedings, 2020 IEEE 7th International Conference on Industrial Engineering Applications (ICIEA 2020)
5. F. Bhatti, G. Engel, M. Engelsberger, M. Ziebarth, N. Zeller, J. Beyerer, T. Greiner, M. Heizmann, F. Quint: Context Aware 3D Image Processing and Acquisition : A Service-Oriented System in Scope of I4.0 Applications, atp Magazin, Nr. 3, pp. 76-86, 2019
6. M. Sütterlin, N. Zeller, F. Quint: Generating a Totally Focused Colour Image from the Recordings of a Plenoptic Camera, 13th International IEEE Symposium on Electronics and Telecommunication, p. 293-296, 2018
7. M. Ziebarth, N. Zeller, M. Heizmann, F. Quint: Modeling the unified measurement uncertainty of deflectometric and plenoptic 3-D sensors, Journal on Sens. Sensors and Sensor Systems, 7, 517-533, doi.org/10.5194/jsss-7-517-2018, 2018.
8. N. Zeller, F. Quint, U. Stilla (2018): Scale-Awareness of Light Field Camera based Visual Odometry, Computer Vision - ECCV 2018, Springer Lecture Notes in Computer Science LNCS 11212, p. 732-747, https://doi.org/10.1007/978-3-030-01237-3_44
9. N. Zeller, F. Quint, U. Stilla: A Synchronized Stereo and Plenoptic Visual Odometry Dataset, arXiv:1807.09372 , 2018
10. M. Heizmann, T. Greiner, F. Quint (2018): 3D-Sensorsysteme für Industrie 4.0, INSPECT Nr. 2, p. 22-23, 2018
11. N. Zeller, F. Quint: Direct Plenoptic Odometry - Visual Odometry based on a Light Field Camera, Forschung aktuell 2018, p. 22-27, ISSN: 1613-4958.

12. N. Zeller, F. Quint, U. Stilla: From the Calibration of a Light-Field Camera to Direct Plenoptic Odometry, IEEE Journal on Selected Topics in Signal Processing, October 2017.
13. N. Zeller, F. Quint: Kalibrierung einer plenoptischen Kamera zur Navigation und 3D-Datenerfassung, Forschung aktuell 2017, p. 82-86.
14. N. Zeller, F. Quint, U. Stilla: Depth estimation and camera calibration of a focused plenoptic camera for visual odometry, ISPRS Journal of Photogrammetry and Remote Sensing, Vol. 118, p. 83-100, 2016.
15. N. Zeller, F. Quint, M. Sütterlin, U. Stilla: Investigating Mathematical Models for Focused Plenoptic Cameras, Proceedings, 12th IEEE International Symposium on Electronics and Telecommunication ISETC'16, Timisoara, 2016, p. 285-288.
16. J. Konz, N. Zeller, F. Quint, U. Stilla: Depth Estimation from Micro-Images of a Plenoptic Camera, 3rd Baden-Württemberg Center of Applied Research Symposium on Information and Communication Systems SInCom 2016, p. 17-23.
17. A. Kühefuß, N. Zeller, F. Quint, U. Stilla: Feature Based RGB-D SLAM for a Plenoptic Camera, 3rd Baden-Württemberg Center of Applied Research Symposium on Information and Communication Systems SInCom 2016, p. 25-29.
18. N. Zeller, C. Noury, F. Quint, C. Teuliere, U. Stilla, M. Dhome: Metric calibration of a focused plenoptic camera based on a 3d calibration target, ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, III-3: 449-456, 2016
19. N. Zeller, F. Quint, U. Stilla: Filtering Probabilistic Depth Maps Received from a Focused Plenoptic Camera, Proceedings, 2nd BW-CAR Symposium on Information and Communication Systems, SInCom 2015, p. 7-12.
20. N. Zeller, F. Quint, U. Stilla: Establishing a Probabilistic Depth Map from Focused Plenoptic Cameras, Proc. International Conference on 3D Vision (3DV), p. 91-99, 2015.
21. N. Zeller, F. Quint, U. Stilla: Narrow Field of View Odometry based on a Focused Plenoptic Camera, ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. II-3/W4, 2015
22. N. Zeller, F. Quint, U. Stilla: Applying a Traditional Calibration Method to a Focused Plenoptic Camera, Proceedings, 1st BW-CAR Symposium on Information and Communication Systems, SinCom, p. 19-24, 2014.
23. N. Zeller, F. Quint, C. Zangl, U. Stilla: Edge Segmentation in Images of a Focused Plenoptic Camera, Proceedings, 11th IEEE International Symposium on Electronics and Telecommunication ISETC'14, p. 269-272, 2014.
24. R. Ionel, S. Ionel, P. Bauer, F. Quint: Water Leakage Monitoring Education: Cross Correlation Study via Spectral Whitening, Proceedings, 40th Annual Conference of the IEEE Industrial Electronics Society, Dallas, p. 2465-2471, 2014
25. N. Zeller, F. Quint, U. Stilla: Calibration and accuracy analysis of a focused plenoptic camera, ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. II-3, p. 205-212, 2014.
26. N. Zeller, F. Quint, L. Guan: Kinect based 3D Scene Reconstruction, in Communication Paper Proceedings 22nd International Conference on Computer Graphics, Visualization and Computer Vision (WSCG), Prague, Vol. 22, p. 73-81, 2014
27. N. Zeller, F. Quint, U. Stilla: Kalibrierung und Genauigkeitsuntersuchung einer fokussierten plenoptischen Kamera, in: Seyfert H (Hrsg) 34. Wissenschaftlich-Technische Jahrestagung der DGPF, Vol. 23, 2014

28. N. Zeller, F. Quint, L. Guan: Hinderniserkennung mit Microsoft Kinect, in: Seyfert H (Hrsg) 34. Wissenschaftlich-Technische Jahrestagung der DGPF, Vol. 23, 2014
29. L. Ivascu, M. Izvercian, F. Quint, A. Radu: Applying the principles of activity-based costing method for the modeling of the sustainable university, 6. Int. Conference on Manufacturing, Science and Education, MSE, p.465-468, 2013.
30. A. Radu, M. Izvercian, F. Quint, L. Ivascu: Modelling human resources education in the e-learning and e-teaching era, 6. Int. Conference on Manufacturing, Science and Education, MSE, p. 205-208, 2013.
31. W. Pross, F. Quint, M. Otesteanu: Comparing the error-correction capabilities of different 2D barcodes in industrial environments, Scientific Bulletin of the Politehnica University of Timisoara - Transactions on Electronics and Communications, vol. 57(71), no.2, p. 31-35, 2012.
32. W. Proß, F. Quint, M. Otesteanu: Design of irregular LDPC codes for nonparametric channels, Proceedings of the 10th International IEEE Symposium on Electronics and Telecommunications (ISETC'12), p. 135-138, 2012.
33. W. Proß, F. Quint, M. Otesteanu: Design of short irregular LDPC codes for a Markov-modulated Gaussian channel, Proceedings of the International Conference on Signal Processing and Multimedia Applications (SIGMAP2012), p.31-34, 2012
34. C. Dita, F. Quint et al.: A Scanning Method for Industrial DMC Marked on Spherical Surface, 11th WSEAS International Conference on Telecommunications and Informatics, TELE-INFO, p. 38-42, 2012.
35. C. Dita, F. Quint et al.: Using Mean Shift Algorithm in the Recognition of Industrial Data Matrix Codes, 11th WSEAS International Conference on Signal Processing, SIP, p. 174-179, 2012.
36. C. Dita, M. Otesteanu, F. Quint: Data Matrix code - A Reliable Optical Identification of Microelectronic Components, in Proceedings IEEE 17th International Symposium for Design an Technology in Electronic Packaging, SIITME, p. 39-44, 2011.
37. C. Dita, M. Otesteanu, F. Quint: Scanning Industrial Data Matrix Codes, 19th IEEE Telecommunications Forum, TELFOR, p. 1211-1214, 2011.
38. C. Dita, M. Otesteanu, F. Quint: A robust localization method for industrial data matrix code, in Scientific Bulletin of the Politehnica University of Timisoara, Romania, Transactions on Electronics and Communications, Tomul 56(70), Fascicola 2, p. 12-17, 2011.
39. W. Proß, F. Quint, M. Otesteanu: Design of short irregular LDPC codes based on a constrained Downhill-Simplex method, in Scientific Bulletin of the Politehnica University of Timisoara, Romania, Transactions on Electronics and Communications, Tomul 56(70), No. 2, p. 33-37, 2011.
40. W. Proß, F. Quint, M. Otesteanu: Estimation-Decoding of short blocklength LDPC codes on a Markov-modulated Gaussian channel, in 3rd IEEE International Conference on Signal Processing Systems (ICSPS2011) p. 383-387, 2011.
41. W. Proß, F. Quint, M. Otesteanu: Estimation-Decoding on LDPC-based 2D-barcodes, in 2011 International Conference on Signal Processing and Multimedia Applications SIGMAP, p. 34-39, 2011.
42. W. Proß, F. Quint, M. Otesteanu: Using PEG-LDPC Codes for object identification, in: Proceedings of the 2010 9th International IEEE Symposium on Electronics and Telecommunications, p. 361-364, 2010.
43. C. Fischer, F. Quint, W. Proß: Bildverarbeitung für die 2D-Data-Matrix-Code-Erkennung in industrieller Umgebung, in Forschung aktuell, p. 70-72, 2010.

44. W. Proß, F. Quint: Comparative Study of a CDMA2000 Turbo code and a linear time encodable PEG LDPC code over GF(q), in: P. Scharff (Hg.), Proceedings of the 54. IWK International Scientific Colloquium on Information Technology and Electrical Engineering, Devices and Systems, Materials and Technologies for the Future, Ilmenau, 2009.
45. W. Proß, F. Quint: Decoding performance of Turbo-Codes and LDPC-Codes with short blocklength, in: I. Sabin (Hrsg.), Doctor Etc 2009, Editura Politehnica Timisoara p. 97-102, 2009.
46. F. Quint et al.: A Real-time HF Channel-simulator with C6711DSK, in: Conference Proceedings European DSP Education & Research Symposium, Austin, Texas, 2004.
47. F. Quint: A Software-Radio Approach for a Radio-Monitoring System, in Proceedings of the Symposium Electronic Warfare in the Information Age, Oslo, 2000.
48. M. Kückenwaitz, F. Quint, J. Reichert: A Robust Baud Rate Estimator for Noncooperative Demodulation, in Proceedings of the MILCOM 2000, Los Angeles.
49. F. Quint, J. Reichert, H. Roos: Emitter Detection and Tracking Algorithm for a Wide Band Multichannel Direction-Finding System in the HF-Band, in Proceedings of the MILCOM'99, Atlantic City, 1999.
50. J. Kreuzberger, J. Reichert, F. Quint: Detection of Speech Modulated SSB and AM Signals in the HF-Band, in Proceedings of the MILCOM'99, Atlantic City, 1999.
51. F. Quint: The role of GIS-based models in aerial image understanding, in Krupnik, A. (Hrsg.), Theoretical and Practical Aspects of Surface Reconstruction and 3-D Object Extraction, International Archives of Photogrammetry and Remote Sensing, 32(3-2W3):120-126, 1997.
52. F. Quint: Recognition of structured objects in monocular aerial images using context information, in Leberl, F., Kalliany, R., Gruber, M. (Hrsg.), Mapping Buildings, Roads and other Man-Made Structures from Images, S. 213-228, Oldenburg, Wien, 1997.
53. F. Quint, M. Sties: Evaluating model fidelity in an aerial image analysis system, in ISPRS, XVIIIth Congress, International Archives of Photogrammetry and Remote Sensing, 31(B3):669--674, 1996.
54. F. Quint, S. Landes: Colour aerial image segmentation using a Bayesian homogeneity predicate and map knowledge, in ISPRS, XVIIIth Congress, International Archives of Photogrammetry and Remote Sensing, 31(B3):663--668, 1996.
55. F. Quint: Aerial image understanding using digital map based semantic models, in Euroconference GIS, ENSG Paris, 1995.
56. H.-P. Bähr, F. Quint, U. Stilla: Modellbasierte Verfahren der Luftbildanalyse zur Kartenfortführung, Zeitschrift für Photogrammetrie und Fernerkundung, 63(6):224-234, 1995.
57. F. Quint: Kartengestützte Bildauswertung, in List, F. (Hrsg.), 14. Wissenschaftlich-Technische Jahrestagung der DGPF, Publikationen der DGPF, Bd. 3, S. 21-27, Berlin, 1995.
58. F. Quint, H.-P. Bähr: Feature extraction for map based image interpretation, in Shi, X., Du, D., Gao, W. (Hrsg.), Third International Colloquium of LIESMARS: Integration, Automation and Intelligence in Photogrammetry, Remote Sensing and GIS, S. 1-8, Wuhan, China, 1994.
59. F. Quint, A. Korn: Kombination von Bildauswerteverfahren und neuronalen Netzen für die sichtsystemgestützte Oberflächenprüfung, Mitteilungen aus dem Fraunhofer-Institut für Informations- und Datenverarbeitung (IITB) Karlsruhe, S. 15--21, 1993.

60. A. König, A. Korn, F. Quint, M. Glesner: Two neural models for fast category learning - neural associative memories and the restricted coulomb energy model, in Gielen, S., Kappen, B. (Hrsg.), Proceedings of the ICANN'93, Amsterdam, Springer, 1993.
61. A. König, F. Quint et. al.: A generic dynamic inspection system for visual object inspection and industrial quality control, in Proceedings of the International Joint Conference on Neural Networks IJCNN'93, Bd. II, S. 1243-1246, Nagoya, Japan, IEEE, 1993.
62. A. Korn, F. Quint, G. Winkler: Merkmalextraktion für die Sichtprüfung mit neuronalen Netzen, in van der Meer, M. (Hrsg.), Statusseminar Neuroinformatik des BMFT, Berlin, 1992.

Patents:

1. J. Kreuzberger, F. Quint et al. : „Detektor für sprachmodulierte Sendungen“, DE19960161C2
2. C. Krimmer, F. Quint, et al.: „Pegel- und Peilwinkel-basierte Detektion und Segmentierung von Sendungen im HF-Bereich“, DE19925580A1