

## Validation, Verification & Quality Assurance of Machine Learning Systems

*Folien:*  
Englisch

*Vortragssprache:*  
Englisch

*Umfang (mit Diskussion):*  
30 min.



### *Abstract:*

The effectiveness of artificial Intelligence (AI), especially machine learning technology, has been accepted in broad fields of applications such as manufacturing, automated driving, robots, health care, finance & retail business. NVISO, an AI company based in Lausanne (CH), has implemented several machine learning projects in recent years. The presented NVISO framework automates to a very large degree the quality management aspects starting from problem specification up to validation of the finally deployed AI solutions running on customer specific hardware, typically SoCs (System on Chip) with neural network accelerators.

The presented NVISO framework with its generic processes is flexible enough to support most advanced AI development processes while at the same time handling all critical success factors for AI based solutions such as AI algorithms, the huge amount of data, related data tools, quality management aspects, and specific contexts (Automotive, Hospitals, Finance, ...) that lead to specific requirements for the AI Solutions. Challenges to Quality Assurance are data validation, missing standards & model validation. In this talk we give approaches to overcome these challenges.

***Vortragende:* Dr. Ernest Wallmüller, Qualität & Informatik Schweiz, Zurich (CH), University of Applied Sciences/FNHW, Olten (CH) & Dr. Martin Reber, NVISO, Lausanne (CH)**

## **Dr. Ernest Wallmüller**

Ernest Wallmüller is one of the pioneers of holistic software quality management and lecturer at the Universities of Applied Sciences of FNHW Olten (CH), ZHAW Winterthur (CH) and of Wels (AT). Dr. Wallmüller earned his doctors degree in technical science from Johannes Kepler University, Linz (AT) and habilitated there in the field of business informatics. Subsequently, he was head of research & development projects in the area of software engineering (CASE, prototyping) at J. Kepler University and senior assistant at the ETH Zurich (CH) for several years.



Afterwards he was manager of a group "Software Engineering and Quality Assurance" at SBG/UBS Zurich (CH). There he managed projects to build up a software engineering environment and project audits as well as quality & productivity improvement projects for the IT area, among others a large metrics program. He then worked 6 years for ATAG Ernst & Young as a consultant in Switzerland, Austria, Germany and England. From 1995 to 1997 he was a member of the extended management team of UNISYS AG in Thalwil (CH) and managed its Project Quality Office & Quality Systems in Switzerland & Europe.

Since 1987 Ernest Wallmüller has worked as a CEO, manager, Automotive SPICE/ISO 15504 principal assessor, assessor according to EFQM, TPI and CMMI, ISO9001:2015 auditor for swiss safety center & as an author of several books on software quality. His research interests are risk management, QA/QM, digitalization & machine learning/AI.

He is the founder & CEO of Qualität & Informatik, Zurich (CH). His consulting focus was on process improvements in IT organizations, assessment services according to ISO 9001, SEI-CMMI, Automotive and Enterprise SPICE, IT audits, measurement programs in IT organizations, preparation for different certifications, inspections & audits as well as change management tasks, business process reengineering & benchmarking projects. His actual focus is on software process improvement, assessment services, process & project engineering, project risk management & organizational change management, especially in agile & digitalization efforts.

He is a sought-after speaker at international conferences and is the renowned author of numerous professional articles and books in German and English like "Software Quality Assurance - A practical approach" (Prentice-Hall, 1994) or "Software Quality Engineering" (Hanser, 2011).

He is a senior member of the IEEE, ACM and in professional societies of the GI & swissICT. Dr. Ernest Wallmüller is a member of Software Quality Management Austria & of program committees for different international conferences. Since 2010 he is a member of the Advisory Board of the international standardization effort Enterprise SPICE.

## **Dr. Martin Reber**

Martin Reber is the Head of Sales of NVISO Europe.

He was CEO of several firms in the area of speech technology, machine learning & cybersecurity like SVOX, Limmex and even of startup companies like soomz.io and Acceleration Force.

He holds a doctors degree in Micro-Electronics from the Technical University of Kaiserslautern (DE) and an MBA from ETH Zurich (CH).

