Dr. Stephan Wenger – Curriculum Vitae

Born: 23 March 1965

- 25 years of experience in hardware and software development, research, standardization, and IPR, including management of complete projects from acquisition through development, quality assurance and deployment to customer support.

- Bi-lingual in English and German, with considerable experience in running projects involving multi-lingual staff from different cultural backgrounds and across time zones.

- Excellent communication and presentation skills.

- A strong team leader and motivator.

- In depth knowledge of IETF and ITU-T protocols for videoconferencing and IP telephony.

- In depth knowledge of video and audio compression technologies and standards, especially in H.264.

- Internationally recognized expert in multimedia conferencing standardization, including ITU-T H.323, H.263, H.264, and RTP (IETF/AVT). Member of the Video Coding Experts Group (VCEG) of ITU-T and in JVT, which is responsible for Advanced Video Coding. Frequently chairing Ad-Hoc committees and serving as the Software Coordinator for Reference Software, and as Test Model editor.

- Expert on patent and licensing issues, especially in the field of H.264 video coding and wireless technologies. Expert in the patents and standards playground.

EMPLOYMENT

June 2009 –   CTO, Startup in steal mode

Responsible for the strategic aspects of a new product, developed by a small, but rapidly growing and well-funded startup in the field of telecommunication. Tasks include general research in the field, standardization, the development of a patent portfolio, documentation, and, customer contact.

2007 – May 2009   Senior IPR Manager, Nokia, Mountain View, CA, USA (http://www.nokia.com)

Responsible for managing Nokia's patent Portfolio of standard-essential cases in the services and applications area. This area includes standards produced by international standardization organizations such as the ITU-T, OMA, IETF, W3C, and OASIS, among others. Developed strategies related to licensing and portfolio development specifically related to codec standardization. Reviewed hundreds of patent cases in a litigation context so to identify standard-essentials for both offensive and defensive use. Created a centralized repository, in the form of a Wiki, of the standards-essential cases in Nokia's patent portfolio. Supervised in a project management role four former colleagues from NRC (Principal-level) and four patent attorneys in essentiality evaluations related to litigation. From early 2008 onwards increasingly became involved in, and responsible for, patent policy work in many SDOs, including ASNI, ATIS, ATSC, IETF, ITU, W3C and many others. Provided opinions on the risks and benefits of joining an SDO both from a legal and a business background, and cleared join/leave requests as well as key contributions to SDOs with a mandatory royalty-free licensing obligation in their policy. Provided training and on-site support to SDO delegates in half a dozen SDOs.

2005 – 2008   Adjunct Professor – Tampere University of Technology, Finland (http://www.tut.fi)

Part-time Adjunct Professor (Docent) at TUT. Supervised two MSc theses since July 2005. Taught SGN3156 "Video Compression" in Fall/Winter 2005, see http://www.stewe.org/sgn3156. Research activities are performed primarily in Nokia.

2004 – 2007   Principal Scientist, Nokia Research Center, Tampere, Finland (http://www.nokia.com)

Responsible for the Interactive Video and Imaging work package of the Mobile Video Program. (six persons) and, in line management role, for the NRC/MMT/VT/VITS group (10 persons in Finland and the USA). Contributed in consulting roles to a number of other work packages of the program, including Multimedia Delivery (MUD) and Advanced Video Coding (AVCC). Proposed and executed ongoing NRC/MMT Technology Exploration project PSYCOD on future joint camera and video codec designs. Key contributor to two projects covering ongoing patent litigation. Initiated Fastmedia project related to ITU-T Q.1 standardization. Also involved in licensing negotiations with three companies on request of IPR/legal/licensing groups. Won the Nokia-wide Quality Award, Research Category in 2006, and finished second in 2008. Reviewed some 40 Invention Reports and around 20 journal and conference paper from leading journals and conferences. Together with a colleague, organized special session "Transport of Scalable Media" at the Packet Video Workshop 2006. While in Nokia, authored or co-authored six journal or conference papers. Standardization delegate to IETF (RAI and Transport Areas, AVT, MMUSIC, FECFRAME, and other WGs), with a large number of active Internet Drafts and seven assigned RFCs (three more under IESG evaluation at the time of writing). Liaison officer from IETF to MPEG. Active in 3GPP SA4, contributing to a number of active Work Items and editor of the TR on Video Performance Requirements. Delegate to ITU-T SG16 (Q.1, 2, 3, 6), including a key roles in Q.1 on the subject of Fast Call Setup times for 3G324M, Q.6 on feedback messages for video codecs, and other activities. Produced some 10 Internet Draft revisions, three RFCs, and more than 20 contributions to 3GPP and ITU-T, some of which with good IPR impact. Applied for ~15 patents in 20 months. Reviewed dozen of patents and patent applications, both in the context of Prior Art searches for own patent applications, and related to legal/licensing activities in Nokia. On own initiative, created half-day course on patent matters for engineers, focused on the understanding of the patent creating process, Prior Art search, claim language, essentiality, and equivalence. Enabled the donation of Nokia's H.264 source code by working on technical/legal/commercial aspects.

2000 – 2006   Director – UB Video, Inc, Vancouver, BC, Canada (http://www.ubvideo.com)

Helped founding the company. Provided input on business, procedural, legal, marketing, and technology issues. Worked with the engineers, marketing, and management to create the world leader in H.264 based video compression technology. Personally acquired one strategic customer, and helped in negotiations with several others. Represented UB Video in many standardization meetings. Stayed on the BoD until the successful acquisition of UB Video in January 2006. Had a key role in the acquisition process, especially with respect to the capitalization and due diligence of UB Video's extensive IPR portfolio.

1995 – 2009   Incorporator/President – Teles Communications Corp, Hillsborough, CA, USA

Incorporated Teles Corp., and, together with the first President, hired staff, rented office space, and set up the operations. Started work on product adaptation of Teles/Germany ISDN and video conferencing products for the US market. Supervised activities from Germany, after a fully functional business including sales, marketing, engineering, and administration was established, and the company was acquired by Teles/Germany. Sent back to the USA by the German headquarters in early 1998 as a last minute effort to generate sales. For a short time managed a team of 20, including sales, marketing, engineering, and administration. Closed down the company as a result of the discontinuation of the ISDN-PC-board products, supervised the sale of inventory and assets, laying off the remaining staff, and taking care of the necessary legal steps. Teles Corp. continues to exist as a dormant shell.

1989 – 2001   Project Manager and Strategic Advisor, Teles AG, Berlin, Germany (http://www.teles.de)

Managed projects of various sizes in the field of video conferencing and video telephony applications – mostly PC-based. Led a team of 10 engineers to implement a Transputer-based video-mixing H.231-compliant MCU – some aspects of which are documented in my PhD thesis. Led a team of 8 engineers in designing the first software-only PC-based H.320-compliant video telephony terminal. This system was later enhanced to support the then emerging H.323 recommendation. Acquired, negotiated for, and led two projects to sell the resulting H.320/H.323 protocol stacks to other companies in Germany and in the USA that used it as a rapid prototyping tool for demonstration purposes of their video hardware. The larger one of these projects involved a staff of 15 engineers from three companies in Los Gatos, CA USA, Burlingame, CA USA, and Berlin, Germany. From 1995 on attended 8+ standardization meetings every year, world-wide, and contributed to these meetings on behalf of Teles AG and the German National Body. Advised the CTO and the Teles AG board on standardization and patent matters.

1990 – 2002   Assistant Professor – Technische Universität Berlin, Germany

As a "wissenschaftlicher Mitarbeiter" and later "wissenschaftlicher Assistent" taught undergraduate and graduate students, supervised more than 20 Diploma Theses (roughly corresponding to Master's Thesis), and managed a team of up to 20 research and teaching assistants. In 1998, took a one year sabbatical and taught at University of British Columbia in Vancouver, British Columbia, Canada.

1987-1998   Software/Firmware Engineer, Fraunhofer-Institut für Werkzeugmaschinen und Fertigungstechnik, Berlin, Germany

Started as a student employee, was quickly elevated to junior engineering pay scale while continuing undergraduate studies. Worked on user interfaces for tool machines. Introduced C-language to the development group (until then all development work was performed using 68K assembler).

- 1987   Programmer, self-employed

As a high school and undergraduate student started a business that implemented specialized CP/M, Apple-II and PC-based commercial/accounting software. Successfully implemented a software package for hotel management (320000 lines of code) that was sold to three hotels in Spain. Also worked on a software package for a shoe import company in Germany (220000 lines of code). Business was taken over by a partner in 1987, and is still in existence.

CONSULTING ACTIVITIES:

2002 – 2004   TeleSuite Inc, Englewood, OH, USA (http://www.telesuite.com)

Was contracted to advise the company on the design of a new, high-end H.264 video conferencing endpoint (8 DSPs, screen resolution of 2560 x 480, custom designed camera, codec, and data projectors). Was then hired to manage the project. Wrote an initial spec sheet for the video compression engine, the audio environment, the network infrastructure, and the overall system design. Hired and supervised an engineering team in the US and Germany. Identified, negotiated with, and contracted two external companies for hardware development and video compression engine. Wrote low-level spec sheets for most of the essential interfaces within the design, and supervised the contracted companies and the engineers to adhere to those specifications. Also wrote initial draft marketing material for the new technology, and presented the technical aspects of the new design to investors and board members of TeleSuite. Identified the patentable parts of the technology and filed two patent applications.

2001 – 2003   Companies interested in a Royalty Free Baseline of the forthcoming JVT/H.264 standard

Together with two other world-renowned experts in the field, conducted an extensive study on the applicable IPR that may be infringed by unlicensed use of H.264 baseline. Convinced some ten companies to join the political efforts to get a license or royalty free baseline. Made technical and procedural contributions to the standardization committee to remove features of the draft standard that would require licenses by those companies that were not willing to license their IPR royalty free. Fought the political battles to make those contributions pass, despite substantial resistance from some of the largest companies in the field. Reviewed, with the help of other technical and legal experts, more than 200 patents, and hundreds of academic publications and standardization contributions.

2001 – 2003   Polycom Inc, Video Group, Austin, TX, USA (http://www.polycom.com)

Worked with the technical staff to push a very controversial video coding tool (on which Polycom owns patent rights) into the ITU-T Recommendation H.264. Implemented the required reference software, by changing the old reference design, which amounts to several 100,000 lines of code. Conducted an intensive study of the features according to the test plan agreed to by the committee. Wrote 200+ pages of justification documents and two academic publications on the issue. Traveled to four key opponents of the new technology and lobbied for it. Successfully completed the project by helping to arrange a political compromise in the standardization committees in question.

1999 – 2004   Polycom Network Systems, Tel Aviv, Israel (http://www.polycom.co.il)

Trained the signal processing staff of Polycom Israel (formerly Accord networks) on forthcoming video compression technologies, namely some modes of H.263+, H.263++, MPEG-4 advanced simple profile, and JVT/H.264. Conducted an extensive study on error concealment schemes for coded video, and wrote a report, that led to the implementation of the recommended scheme into a product design. Implemented a software simulation environment for audio error concealment, and conducted a study on audio concealment schemes for erasure environments with varying packet loss rates, and assuming six different audio compression schemes. Advised the company about new technologies in the field of IP based video conferencing, namely of the SIP protocol developed in the IETF, and introduced company personnel to the key members of this committee.

1999 – 2004   LG Electronics, Seoul, Korea (http://www.lg.co.kr)

Helped training new team members on advances in video compression, audio compression, and transmission of multimedia content over IP and over 3GPP networks. Created and maintained a 400+ slides presentation and a 200+ page textbook document on these topics. Evaluated CVs and performed interviews for new team members in Korea and in the USA.

1997 – 1999   Microsoft Corp., Redmond WA, USA (http://www.microsoft.com)

Advised the company on standardization issues in the ITU-T, particularly on questions of video compression and carriage of IP over ISDN.

1996 – 1999   Intel Corp., Portland, OR, USA (http://www.intel.com)

Semiconductor for video related work, details cannot be discussed as per non-disclosure agreement.

1998   Philips Multimedia Research Center, Palo Alto, CA, USA (http://www.philips.com)

Helped the company to select an appropriate product reference design for their new TriMedia chip for a video-telephony and video conferencing application.

1996 – 1998   Array Microsystems, Inc, Los Gatos, CA, USA (http://www.array.com)

Helped the fab-less semiconductor company to embed their low cost video compression hardware into a commercial H.320 protocol stack. Was involved in the hiring of experts in the technology, including performing interviews and reviewing CVs. Coordinated the work of two development teams located in Germany and in California.

1996 – 1997   Siemens AG, München, Germany (till 1996) (http://www.siemens.com)

Created an 80 page study on the effectiveness and error resilience impacts of the H.263 and (then forthcoming) H.263+ optional modes for video conferencing applications. Helped select the appropriate set of compression tools for the (later abandoned) video compression chip project. Worked together with Siemens personnel on a detailed spec sheet for the design.

1994 – 1996   Creatix Polymedia GmbH, Saarbrücken, Germany

Designed a prototype of an H.320 desktop video conferencing solution, consisting of a special VGA board with on-board frame grabber, device drivers, an H.261 video codec, G.711 and G.722 audio codecs. Led a team of four engineers and several external consultants. Negotiated the purchase of a software library for H.320 protocol suite and for video compression technology.

EDUCATION :

1995
Dr.-Ing. (PhD) in Computer Science, Technische Universität Berlin, Grade: sehr gut (corresponding to A)

1989
Diplom-Informatiker (Ms), Technische Universität Berlin, Grade: sehr gut (corresponding to A)

1985
High School Diploma from Friedrich-Bährens-Gymnasium, Schwerte, Germany

INTERESTS :   Multimedia and Compression
                   Skiing, Mountaineering, Hiking
                   Travel, good food and wine

AFFILIATIONS: Member IEEE, ACM, VDI
                   Member of K.A.V. Suevia im CV (Fraternity in Berlin, http://www.suevia-berlin.de)