

Charles Poynton
139 Robert Street
Toronto, ON M5S 2K6
CANADA
tel +1 416 413 1377
charles@poynton.com
www.poynton.com

Charles Poynton – Biography

Charles Poynton graduated from Queen's University in Kingston, Ontario, with a B.A. in Mathematics and Computer Science. In 1973, he joined Dataline Systems Limited of Toronto, an early provider of timesharing computer services, where he developed mathematical and communications software. He performed hardware design, installation, and testing of optical character recognition equipment for Leigh Instruments of Ottawa. From 1978 to 1979, he worked for Digital Video Systems in Toronto, where he wrote the bit-slice processor microcode for the first broadcast video framestore/synchronizer. He then studied at the Ontario College of Art in Toronto; he was invited to become a faculty member at OCA, where he taught electronics to art students.

In 1981, he founded Poynton Vector Corporation to design and build digital television processing equipment for NASA's Johnson Space Center. From 1985 to 1995, this equipment converted the field-sequential color television signal from the Space Shuttle to NTSC, for viewing, recording, and distribution to television networks. The conversion and NTSC encoding were accomplished digitally. After completing the NASA contract, Poynton Vector undertook contracts for the design and development of special-purpose digital television equipment for a number of clients, including the National Research Council of Canada, Hewlett-Packard Laboratories, and Vertigo Computer Imagery. All of these projects made extensive use of digital video; most dealt with the integration of television systems and computer systems.

From 1988 to 1995, he was Staff Engineer at Sun Microsystems Computer Corporation in Mountain View, California. He introduced video, high-definition television (HDTV), and accurate color technology to computer workstations. He developed the system architecture for a product that brought video into the workstation environment. He was a principal contributor to the DARPA HDTV Workstation research project, along with colleagues from David Sarnoff Research Center and Texas Instruments.

Mr. Poynton has been an active member of the Society of Motion Picture and Television Engineers (SMPTE) Working Group on Studio

Video Standards, and its various subgroups, since 1981, and has contributed to many video standards, including ITU-R Recommendations BT.601 and BT.709. He was a major technical contributor to the ANSI/SMPTE 240M and 260M standards for 1125/60 HDTV. He was the founding chairman of SMPTE's Working Group on Digital Pictures, which developed the SMPTE 168M (DPX) standard for the exchange of digital images in the film production community. He advocated the square-pixel common image format for HDTV, and was the prime mover to have this proposal accepted unanimously by the executive committee of the ATSC in 1990, and subsequently by all ATV proponents. During 1994 and 1995, he served as document editor for SMPTE 274M, the 1920×1080 HDTV production standard; this became the foundation for all of SMPTE's HDTV studio standards.

Mr. Poynton has worked for many years within television and computing standards organizations to encourage the adoption of standards for the use of television technology in computer environments. Mr. Poynton worked to encourage the computer industry to adopt the ITU-R BT.709 HDTV colorimetry standard for accurate color interchange. This effort resulted in provision for ITU-R BT.709 colorimetry in the TIFF 6.0 file format, and led to the BT.709 color parameters being adopted in the sRGB standard for desktop computing.

In 1995, he wrote, designed, illustrated, and typeset the book *A Technical Introduction to Digital Video*, published in 1996 by John Wiley & Sons. That book reached fifth printing. His book *Digital Video and HDTV Algorithms and Interfaces* was published in 2003 by Morgan-Kaufmann, and is in its second printing.

Since 1995, he has been engaged in short-term and long-term consulting, specializing in the physics, mathematics, and engineering of digital color imaging systems including digital video, HDTV, and digital cinema (D-cinema). He does technology forecasting, systems modeling, algorithm development, video signal processing architecture, color characterization and calibration, and image quality assessment. His clients range from manufacturers of integrated circuits to movie studios.

Mr. Poynton has published many magazine articles, and published and presented many technical papers. He has organized and presented many popular courses and seminars, including courses on color technology at SIGGRAPHs from 1994 through 2004. He has presented seminars at many other conferences, including conferences held by organizations such as BKSTS, GSTA, IS&T, SID, and SMPTE.

Mr. Poynton is a Fellow of the SMPTE, and an Honorary Member of the BKSTS. In 1993, he was awarded SMPTE's prestigious David Sarnoff Gold Medal, in recognition of his work toward the integration of computing and television technologies.