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Background

- A leader in the advancement of cinema technology, driving collaborative efforts, technology-to-market strategy, deal-making, and guidance in patent development and defense.
- After an early career in semiconductors, transitioned to the cinema industry with Dolby Laboratories in the late 70's and early 80's, leading development of cinema and studio products. Accomplishments include development of the 70mm Dolby Stereo Surround sound format for the original release of "Apocalypse Now," the Dolby CP200 cinema audio processor, the foundational processor for THX, and Dolby's first 24 channel studio noise reduction unit.
- Chief Engineer for BGW Systems in the mid-80's, a manufacturer of professional audio products.
- Co-founded Theatre Design Associates, later reorganized as Cinema Group, Ltd, and served as President. CGL was creator of, and exclusive marketer for, the CinemAcoustics division of Peavey Electronics, offering a complete line of THX-approved cinema sound equipment.
- MKPE was founded in the late 80's as a consultancy in cinema product and theme park system development.
- Consulted to Walt Disney Imagineering during the late 80's and 90's, designing facilities and entertainment and control systems for Euro Disneyland, Disney's Animal Kingdom (Florida), Disney (Florida) Studio Backlot Tour, EPCOT, Tokyo Disneyland, and Disneyland Anaheim. Pioneered the distribution of digital audio over an Ethernet network in theme parks with Animal Kingdom. Developed on-board sound for the Indiana Jones and Space Mountain rides, adding life to older ride infrastructure.
- Beginning in 2000, engaged in the development and rollout of digital cinema to replace film distribution and projection. Served over 30 clients guiding new opportunities, building partner relationships, providing technology education, guiding IPR matters, brokering deals, and leading collaborative efforts including standards development.
- From 2000 to 2011, served as technology consultant to the National Association of Theatre Owners, leading the exhibition industry through this major technology transformation, and driving exhibition input for the DCI Digital Cinema System Specification.
- Led individual and separate Virtual Print Fee subsidy negotiations with each of the six major Hollywood studios for Digital Cinema Limited (Ireland and UK), Beyond All (5 countries in South America), and DCinema Alliance (Philippines), enabling the cumulative purchase of digital projection systems valued up to \$300M.
- Recent work has focused on the emergence of HDR in cinema, as (now past) co-chair of the American Society of Cinematographer's (ASC) Next Generation Cinema Display Committee, and drove the ASC's effort to establish performance parameters for this new format.

Education

1974, University of California, Berkeley, School of Engineering: BS in Electrical Engineering and Computer Science.

1975, Santa Clara University School of Engineering: graduate work in semiconductor design.

1991, March, UCLA Extension, Engineering and Management Program: Finance for Decision Makers.

Employers

1988-present, MKPE Consulting LLC, Founder and President. Originally founded to provide engineering services to the themed and cinema entertainment industries, with clients that included Walt Disney Imagineering, Iwerks Entertainment, Ultra Stereo Labs (USL), and QSC Audio. In 2000, shifted focus to the replacement of film with digital distribution and projection, where contributions include development of the “digital cinema package” (DCP), now the norm in motion picture distribution, tools for automated security key management, and the development of standardized closed captions for cinema, which received recognition by the US Department of Justice. A summary of important clients and projects is available online at mkpe.com.

1994-2000, Cinema Group, Ltd., co-Founder and President. Created, and drove Sales and Product Management for the CinemAcoustics division of Peavey Electronics. Developed CGL’s intellectual property for the decoding of matrixed audio, deployed in Skywalker Sound and Pixar screening rooms.

1990-1994, Theatre Design Associates, Partner. System design and engineering services for themed entertainment projects, specializing in large-format special venue theaters. Clients included BRC Imagination Arts. The company developed a popular cinema surround speaker, leading to the formation of Cinema Group, Ltd.

1986-1988, Belcan Engineering, Senior Engineer. Early work on the Disney (Orlando) Studio Backlot Tour. Left company to form MKPE.

1985-1986, BGW Systems, Inc., Chief Engineer. Oversaw product development and key client sales support, including IMAX, for the company’s power amplifier and crossover products.

1982-1985, Edison Studios, Recording Engineer. Recording, post production, and mastering of live music events.

1979-1982, Dolby Laboratories, Senior Engineer. Projects included stereo surround for 70mm film (*Apocalypse Now* and *Blade Runner*), the CP200 Cinema Audio Processor, and the SP24 24-Channel Noise Reduction System. The Dolby CP200 was the foundational audio processor for the THX Sound System promoted by Lucasfilm. The Dolby SP24 was installed in countless music and film recording studios around the world.

1977-1978, DWD Audio Systems, Director of Purchasing. Vertical manufacturer of home entertainment loudspeakers, from voice coils to loudspeaker products. Rebuilt relationships with suppliers as the company recovered from financial difficulties.

1974-1976, Interdesign, Inc., Design Engineer. A pioneering ASIC company founded by Hans Camenzind, inventor of the “555” timer, a common building block in analog systems. Developed custom analog and digital integrated circuits for numerous projects, including defense, communications, musical instrument, and other commercial applications.

1974, Fairchild Semiconductor, Test Engineer, overseeing the testing of analog integrated circuits at wafer level and at packaging.

Corporate and Public Roles

(2008-2013) Secretary and Member of the Board of Directors, In-Three, Inc.

(2000-2011) Digital Cinema Consultant, National Association of Theatre Owners (NATO).

Honors and Awards

2011, 2016, Society of Motion Picture and Television Engineers (SMPTE) Life Fellow.

2016, Audio Engineering Society (AES) Life Member.

2005, ShoWest Award of Appreciation for the Advancement of Digital Cinema.

Patents

US Patent 5727068, Matrix Decoding Method and Apparatus.

WIPO Patent Application WO/2001/031923, Method and Apparatus for Ensuring Secure Distribution and Receipt, and Secure Authorized Exhibition of Digital Audiovisual Data

Committees

(2013-2018) Co-Chair of the Next Generation Cinema Display subcommittee of the American Society of Cinematographers (ASC) Motion Imaging Technology Council.

(2014-2016) Secretary of the SMPTE 21DC Technology Committee for Digital Cinema.

(2011-2013) Co-Chair of the SMPTE 21DC High Frame Rate Study Group for Digital Cinema.

(2000-2011) Chair/Co-Chair SMPTE 21DC-30 / DC28-7 D-Cinema Exhibition Working Group and numerous sub-committees.

(2002-2008) Technology Committee Chair, NATO.

(2005-2008) Technical Committee Chair, Cinema Advertising Council (CAC).

(2002-2005) US Delegate for SG-6, ITU (UN Treaty Organization, Geneva).

Publications

Editor, *Cinema Display Evaluation Plan and Test Protocol*, American Society of Cinematographers (ASC), 2016

Creator and Publisher, *Cinopedia*, (cinopedia.com), dedicated to the education of digital cinema technology, 2016-present.

Creator and Editor, *mkpeReport*, (mkpereport.com), a publication of MKPE Consulting, 2005-present

Editor, *Digital Cinema System Requirements*, National Association of Theatre Owners, 2006.

Digital Cinema Perspectives, Chapter 14, IP-Racine, 2006.

Understanding Digital Cinema, Chapter 10, Elsevier (Focal Press), 2005.

Government

Michael Karagosian and mkpe.com are referenced in the following:

Final Rule, *Nondiscrimination on the Basis of Disability by Public Accommodations - Movie Theaters; Movie Captioning and Audio Description*, United States Department of Justice, November 2016.

Notice of Proposed Rulemaking (NPRM), *Movie Theaters; Captioning and Audio Description: Nondiscrimination on the Basis of Disability by Public Accommodations*, United States Department of Justice, August 2014.

Select Articles

Please note that the list below is not exhaustive. Additional articles are published in *Theatre World* (publisher Network208 in Bengaluru, India), the online publication *Digital Cinema Report* (<http://digitalcinemareport.com>), as well as over 400 articles covering the development of digital cinema in his online publication *mkpeReport* (<http://mkpereport.com>). Web links are provided for select articles.

Moving Cinema Forward to HDR, 2019 January, *digiDaybook*,
(<https://www.digidaybook.com/michael-karagosian-moving-cinema-forward-to-hdr/>)

DCI Has Lost Its Way, 2018 September, *Digital Cinema Report*,
(<http://www.digitalcinemareport.com/article/dci-has-lost-its-way>)

What ASC's Cinema Display Evaluation Means, 2016 September, *Digital Cinema Report*,
(<http://www.digitalcinemareport.com/article/what-asc's-cinema-display-evaluation-means>)

The Immersive Sound Challenge, 2016 June, *Digital Cinema Report*,
(<http://www.digitalcinemareport.com/article/immersive-sound-challenge>).

What's Wrong with the DCP?, 2015 March, *Digital Cinema Report*,
(<http://www.digitalcinemareport.com/article/what's-wrong-dcp>).

Fixing the DCP, 2015 March,
(<http://www.digitalcinemareport.com/article/fixing-dcp>).

X-Curve Is Not An EQ Curve, SMPTE, 2013 March,
([https://smpte.org/sites/default/files/files/X-Curve Is Not An EQ Curve.pdf](https://smpte.org/sites/default/files/files/X-Curve%20Is%20Not%20An%20EQ%20Curve.pdf)).

Setting Standards for High Frame Rate Digital Cinema, *Creative Cow*, 2012 November,
(<http://newsletters.creativecow.net/newsletters/2012/11-12/index.html>).

Digital Cinema Experiences Strong Growth in 2011 - a Mid-Year Report, *SMPTE Motion Imaging Journal*, 2011 Progress Report, 2011 September.

Tracking When Film Distribution Ends, *Digital Cinema Report*, 2011 March.

Digital Cinema in 2010 - a Mid-Year Report, *SMPTE Motion Imaging Journal*, 2010 Progress Report, 2010 September.

Understanding 3D, Matthew DeJohn and Michael Karagosian, *Digital Cinema Report*, 2010 March.

Who Do You Trust? (The Digital Cinema Security Model), *Digital Cinema Report*, 2010 January.

Digital Cinema Progress in 2009, *SMPTE Motion Imaging Journal* 2009 Progress Report, 2009 September.

SMPTE DCP Compliance is On the Way, Digital Cinema Report, 2009 December.

Director's Intent or Someone Else's Intent? (Director's Intent Rules in Cinema), Digital Cinema Report, 2009 August.

Move the Media Block? (Resetting the Digital Cinema Equipment Model.) Digital Cinema Report, 2009 July.

Digital Cinema Quietly Reaches Major Milestone, Digital Cinema Report, 2009 March.

Growing the Number of 3D Screens, Digital Cinema Report, 2009 March.

3D Meets TV Audiences in Super Bowl, Digital Cinema Report, 2009 February.

Is Now the Time to Invest in Digital Cinema?, Digital Cinema Report, 2009 January.

Enabling the Disabled to See Movies, Digital Cinema Report, 2009 January.

Digital Cinema Progress in 2008, SMPTE Motion Imaging Journal, 2008 Progress Report, 2008 September.

The Games We Play (in 3-D), Digital Cinema Report, 2008 December.

Is 3D Here to Stay?, Digital Cinema Report, 2008 November.

The Transition to Digital Cinema, SMPTE Motion Imaging Journal, 2007 Progress Report, September 2007.

Choice in 3-D Digital Cinema, Moving Image Technology Newsletter, October 2007.

Digital 3D - In a Theatre Near You?, INS Asia Magazine (INS Asia is now Systems Integration Asia), 2005-August.

Digital Cinema Security Poses New Challenges, INS Asia Magazine, 2005-February.

Digital Cinema in India, INS Asia Magazine, 2004-December.

Quality in Digital Cinema (5th in Series), INS Asia Magazine, 2004-August.

Projection Technology in Digital Cinema (4th in Series), INS Asia Magazine, 2004-June.

Interoperability in Digital Cinema (3rd in Series), INS Asia Magazine, 2004-March.

Digital Cinema: Motivating Factors (2nd in Series), INS Asia Magazine, 2004-January.

An Introduction to Digital Cinema (1st in Series), INS Asia Magazine, 2003-November.

SMPTE Digital Cinema Committee Starts Off Running, System Contractor News, March 2000.

Multichannel Film Today, Film Journal Magazine, Dec 1999.

Select Presentations and Panels

Please note that the list below is not exhaustive.

Fireside Chat: The Digital Cinema Era – How We Got Here and Where We're Going, 2019 February, Digital Cinema Summit at Integrated Systems Europe 2019, Amsterdam, Netherlands.

HDR Cinema in 2018, 2018 June, QLED and HDR10 Summit (sponsored by Samsung), Los Angeles.

Working Towards HDR Cinema, 2017 June, QLED and HDR10 Summit (sponsored by Samsung), Los Angeles.

Next Generation Cinema: On the Way to HDR, 2017 April, Beijing Film Festival Technology Conference, Beijing, China.

Another Presentation on Cinema..., 2016 June, Media Salles, Taormina, Italy.

The End of Digitization and the Beginning of Something New, 2015 August, Media Salles, Prague, Czech Republic.

Digital Cinema panel (moderator), 2015 June, Display Summit at InfoComm, Orlando, Florida.

Not Your Father's Silver Screen, 2015 April, SMPTE Technology Summit for Cinema at NAB, Las Vegas, Nevada.

Immersive Sound and Laser Illumination, 2014 September, Kino Expo, St. Petersburg, Russia.

The Digital Cinema Composition, Security Key Management, and Accessibility, 2013 August, Media Salles, Warsaw, Poland.

The End of the Rollout is Near and What That Means To You, 2013 August, Media Salles, Krakow, Poland.

Update on the Digital Cinema Rollout, 2013 April, SMPTE Technology Summit for Cinema at NAB, 2012 April, Las Vegas.

VPFs and a Brief History of the DCP, 2012 September, The Academy of Motion Picture Arts and Sciences, Hollywood.

Beyond the Digital Turning Point: The Next Steps in Cinema, August 2012, Venice Film Festival / Media Salles, Venice, Italy.

Accessibility and Security Key Management, August 2012, Venice Film Festival / Media Salles, Venice, Italy.

Looking Ahead in Digital Cinema and HFR, Cinegrid 2012 conference, 2012 December, San Diego.

A Review of Digital Cinema, 2012 May, ABCine (Association of Brazilian Cinematographers), Sao Paulo, Brazil.

International Digital Cinema Rollout, SMPTE Technology Summit for Cinema at NAB, 2012 April, Las Vegas.

Trends in Rollout, Financing, and Technology, 2011 July, Media Salles, Tallinn, Estonia.

Technology Moves Forward, 2011 March, CinemaCon, Las Vegas.

Accessibility in the Cinema, 2010 June, Canadian Hard Of Hearing Association (CHHA), Sudbury, Canada.

Digital Cinema... Year 11, 2010 April, SMPTE Digital Cinema Summit at NAB, Las Vegas.

Year 11... Still Talking About Rollout, 2010 February, Media Salles, Helsinki.

Good vs Bad 2-D to 3-D Conversion, 2010 September, IBC, Amsterdam.

Anti-Piracy in Cinema, 2010 October, Business of Entertainment, Burbank.

Digital Cinema Trends in US, 2010 December, 3-D Stereo Media, Liege, Belgium.

3-D, Financing, and Other Stuff, 2009 September, Venice International Film Festival, Lido, Italy.

Moderator, Digital Cinema Finance Panel, 2009 October, ShowEast, Orlando.

Digital Cinema Market, 2009 April, *Soft Money 5*, Loyola Law School, Los Angeles.

Digital Cinema Status Report, 2008 March, ShoWest, Las Vegas.

Digital Cinema Status Report, 2008 August, Norwegian International Film Festival, Haugesund, Norway.

Exhibition and Digital Cinema, 2008 April, SMPTE Digital Cinema Summit at NAB, Las Vegas.

D-Cinema Tutorial, 2007 September, Rio International Film Festival, Rio de Janeiro, Brazil.

Workflow Challenges in Digital Cinema Exhibition, 2007 April, SMPTE Digital Cinema Summit at NAB, Las Vegas.

Digital 3D Presentation, 2007 January, Moving Image Technology Seminar, Fountain Valley.
Digital Cinema Transition, 2007 July, Gerson Lehrman Group, New York and San Francisco.
Accelerating the Market through Interoperability and Certification, 2006 June, ICTA, Amsterdam.
Digital Cinema Progress, 2006 September, IBC, Amsterdam.
Digital Cinema Review, 2006 April, Show Canada, Vancouver.
Digital Cinema Issues, 2006 April, SMPTE Digital Cinema Summit at NAB, Las Vegas.
Interoperability and Certification, 2006 January, ITEA, Los Angeles.
Quality and Interoperability in Digital Cinema, 2004 June, Napoli Film Festival, Naples, Italy.
Business and Standards in Digital Cinema, 2004 March, SMPTE Digital Cinema Summit at NAB, Las Vegas.
Digital Cinema in Asia, 2003 November, IBTS/SMPTE, Milan, Italy.
New Industries and New Business, 2003 June, Napoli Film Festival, Naples, Italy.
The American View, 2001 Dec, EDCF, Stockholm, December 2001.
Content Packaging for Digital Cinema, 2002 April, SMPTE/NAB Digital Cinema Summit., Las Vegas.
Digital Cinema Systems, 2000 June, Infocomm 2000, Anaheim.