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CONTACT INFORMATION

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HIGHLIGHTS

Technology leader with 25+ years of experience in research, development, operations, and administration, in both academia and industry.

Ph.D. in Electrical Engineering from the University of Illinois at Urbana-Champaign.

Experienced expert witness with >80% success record, including a $25M jury award later upheld on appeal.

Technical expertise in communications, networking, digital signal processing, estimation, adaptive and nonlinear systems, control, mechatronics and electro-mechanical systems, and audio transducer engineering.

Proven leadership ability and excellent people skills.

Experience in leading advanced technology development teams in both software and hardware.

Track record of managing projects and developing and delivering products on schedule, within budget, and with high customer satisfaction.

International operations experience, interacting with vendors in China and customers in Japan and Europe.

Large network of contacts in the communications, semiconductor, automotive, transportation, and audio industries, as well as in academia.

Developed technology and products that took a startup from less than $10M to more than $50M in annual revenue over the course of four (4) years.

Recipient of multiple awards in the field of control theory and engineering, including: IEEE Fellow (2005); Donald P. Eckman Award – AACC (1998); George S. Axelby Outstanding Paper Award – IEEE CSS (1993).

Attracted more than $1.5M in external funding from government and industry while at UCLA.

Designed and built an advanced electric vehicle prototype with his students in 1998; students who graduated from that program have gone on to become pioneers in the electric vehicle industry.

Co-inventor on more than twenty-five (25) issued patents and published patent applications.

Author or co-author of one book, 6 book chapters, 25 articles in refereed technical journals, 60 papers in refereed technical conferences, and 22 contributions to international telecommunications standards committees.

Plenary speaker at major technical conferences; invited speaker at more than 40 industrial and academic venues in 12 countries across 4 continents.

Fluent in English, German, and Greek.

PROFESSIONAL EXPERIENCE

Dec 2012 – present **Oraton Consulting**

Dec 2012 – present
PRINCIPAL & CHIEF TECHNOLOGIST
Creates a vision of the technology universe of tomorrow and advises start-up and mature companies on new R&D directions and new product strategies that will help them stay competitive in that universe. Evaluates companies and technologies for VC firms and private equity investors.

Jun 1995 – present **Technology/IP Consultant**

March 2003 – present
INTELLECTUAL PROPERTY CONSULTANT
Helps technology companies formulate and implement their intellectual property strategy, including internal and competitive technology evaluation, utility and design patent filing and prosecution, and internal policies for protection of intellectual property.

Sep 2000 – present
EXPERT WITNESS
Retained by law firms as a technical consultant and expert witness on civil litigation cases ranging from patent infringement to personal injury cases.

Jun 1995 – present
TECHNOLOGY CONSULTANT
Works with technology companies in a variety of areas, including advanced control design for electro-mechanical systems, physical layer design for next-generation broadband communication systems, and optimization of semiconductor fabrication equipment. Has also worked with advertising agencies on designing technology-oriented television commercials and validating their technical claims.

Apr 2006 – Nov 2012 **Actelis Networks, Fremont, CA**

Jun 2007 – Nov 2012
CHIEF TECHNOLOGY OFFICER
Responsible for new technology development, integration of new technology into products, intellectual property strategy and administration, regional and international standards strategy and implementation, evangelism of advanced technology, and technical content of interactions with customers and strategic partners worldwide. Since November 2009, also responsible for Research & Development, including new product development, product maintenance, enhancements to existing products, and advanced technical support. Since September 2011, also responsible for Product Management, including new product requirements, new product introduction, maintenance software and hardware releases, and converting customer inputs into technology and product requirements.

Dec 2006 – May 2007
VICE PRESIDENT, SCIENCE & TECHNOLOGY
Responsible for physical layer (Layer 1) standards and intellectual property strategy, evangelism of advanced technology, technical content of interactions with customers in North America and strategic partners worldwide.

Apr 2006 – Nov 2006
TECHNOLOGY CONSULTANT
Responsible for Layer 1 standards and intellectual property strategy, evangelism of advanced technology, technical content of interactions with customers in North America and strategic partners worldwide.

Oct 2003 – Aug 2005 **Tymphany Corporation, Cupertino, CA**

Sep 2005 – Mar 2008 INTELLECTUAL PROPERTY CONSULTANT
Responsible for formulating and implementing intellectual property strategy, including internal and competitive technology evaluation, and utility and design patent filing and prosecution.

Sep 2004 – Aug 2005 VICE PRESIDENT, ENGINEERING
Responsible for engineering leadership and all product development, including the innovative Linear Array Transducer, strategic planning and deployment of engineering resources, technical and applications support for customers in the US, Europe, and Japan, and management of vendors in China. Also managed all aspects of the corporate intellectual property strategy.

May 2004 – Sep 2004 VICE PRESIDENT, DEVELOPMENT
Responsible for the engineering and product development of a novel audio magnetic suspension transducer technology, including customer technical support. Also managed all aspects of the corporate intellectual property strategy.

Jan 2004 – Apr 2004 VICE PRESIDENT, CONTROL TECHNOLOGY
Responsible for all aspects of modeling and control for novel sound-generating devices, including design of experiments for device modeling, as well as design and implementation of nonlinear and adaptive control algorithms. Devised and implemented a new corporate intellectual property strategy and managed all interactions with several law firms that handled different aspects of that strategy.

Oct 2003 – Dec 2003 TECHNOLOGY CONSULTANT
Responsible for the implementation of a new cost-effective hardware/software platform for rapid prototyping and experimental verification of nonlinear control algorithms for audio devices.

Feb 2003 – Dec 2006 **Iperasys Inc., Cupertino, CA**

CO-FOUNDER & CEO
Co-founded a self-funded startup to develop next-generation imaging technology for vehicular surroundings awareness. Responsible for corporate and technical management, including corporate setup and legal matters, developing a business plan and a technical development plan, and managing relationships with customers, vendors, and corporate advisors.

Jan 2000 – Feb 2003 **Voyan Technology, Santa Clara, CA**

Oct 2002 – Feb 2003 PRESIDENT
Responsible for re-organizing the company; reducing expenses; and bringing the company's next-generation wireline communications technology to market through an acquisition or strategic investment. Established new relationships and managed existing relationships with potential partners/acquirers.

Jan 2000 – Oct 2002 CHIEF SCIENTIST, CONTROL
Responsible for scientific innovation, resolution of major algorithmic and technical issues, marketing support in customer interactions, strengthening of intellectual property position, planning and implementation of standards strategy. Extensive interaction with customers in Japan.

Nov 2000 – Aug 2002 ACTING DIRECTOR OF ENGINEERING

Responsible for technical management (scientific and technical leadership, schedule planning and execution, resource allocation, and establishment of success criteria) of two software products: one for operations management of DSL networks, the other for modeling and optimization of semiconductor manufacturing processes.

Jul 1992 – Oct 2000 **University of California, Los Angeles (UCLA), EE Department**

Jan 2000 – Oct 2000 PROFESSOR (on leave of absence without pay)

Jul 1999 – Dec 1999 PROFESSOR
Conducted academic research on adaptive and nonlinear control theory; directed four sponsored research projects on automated heavy-duty vehicles, reliable ranging sensors for driver-assist systems, and advanced control systems for electric vehicles; authored and published research papers in scientific and technical journals; supervised Ph.D. and M.S. students; taught a graduate course on stochastic processes.

Jul 1998 – Dec 1999 VICE CHAIR FOR COMPUTER SYSTEMS
Designed, implemented, and managed the Department's transition from an internal network administration and computer support structure to an outsourcing contract for hardware/software/network support contract with the School of Engineering's SEASnet computing facility.

Jul 1997 – Dec 1999 CHAIR, CONTROL SYSTEMS MAJOR FIELD
Managed dynamics and control course offerings and teaching assignments within the Electrical Engineering Department; coordinated control course offerings and teaching assignments across the School of Engineering, in cooperation with the Chemical Engineering Department and the Mechanical and Aerospace Engineering Department; organized and supervised Ph.D. Qualifying Examinations.

Jul 1997 – Jun 1999 ASSOCIATE PROFESSOR
Conducted academic research on adaptive and nonlinear control theory; directed three sponsored research projects on automated heavy-duty vehicles, reliable ranging sensors for driver-assist systems, and advanced control systems for electric vehicles; authored and published research papers in scientific and technical journals; designed and built a prototype all-electric vehicle with drive-by-wire, brake-by-wire, steer-by-wire, and active suspension; supervised Ph.D. and M.S. students; taught graduate and undergraduate courses on linear systems, nonlinear systems, nonlinear control, and probability.

Jun 1992 – Jun 1997 ASSISTANT PROFESSOR
Conducted academic research on adaptive and nonlinear control theory; directed two sponsored research projects on automated heavy-duty vehicles; authored and published research papers in scientific and technical journals, as well as a book on adaptive and nonlinear control design; supervised Ph.D. and M.S. students; taught graduate and undergraduate courses on linear systems, nonlinear systems, nonlinear control, adaptive control, and probability.

Sep 1998 – Jun 1999 **National Technical University of Athens, Greece (NTUA), ECE Department**

Sep 1998 – Jun 1999 VISITING ASSOCIATE PROFESSOR (on sabbatical leave from UCLA)
Conducted academic research on adaptive and nonlinear control theory; taught a graduate course on nonlinear control and an undergraduate course on discrete-time control systems.

Sep 1991 – Jun 1992	**University of California, Santa Barbara (UCSB)**
Sep 1991 – Jun 1992	Assistant Research Engineer, Department of Electrical and Computer Engineering Conducted academic research on adaptive and nonlinear control theory.
Oct 1991 – Dec 1991	Visiting Lecturer, Department of Electrical and Computer Engineering Taught a graduate course on linear and nonlinear optimization.
Jan 1992 – Mar 1992	Visiting Lecturer, Department of Mechanical and Environmental Engineering Taught a graduate course on nonlinear systems.
Aug 1987 – Aug 1991	**University of Illinois at Urbana-Champaign (UIUC), ECE Department**
Aug 1987 – Aug 1991	Research Assistant, Coordinated Science Laboratory Conducted academic research on adaptive and nonlinear control theory.
Aug 1989 – Dec 1989	Teaching Assistant Taught graduate course on adaptive control.

EDUCATION

1992 Ph.D., Electrical Engineering, University of Illinois at Urbana-Champaign

1989 M.S., Electrical Engineering, University of Illinois at Urbana-Champaign

1987 Diploma (B.S.), Electrical Engineering, National Technical University of Athens, Greece

PROFESSIONAL ACCOMPLISHMENTS

Expert witness in multiple cases related to automotive technology and/or communications technology, with a >80% success rate across all cases (jury verdicts and settlements), including a $25M jury award that was later upheld on appeal (2003-present).

Directed the development of new technologies for high-speed transmission over bonded copper lines, and the positioning and evangelism of these new technologies with customers, partners, and international standards committees, helping a young communications equipment company increase its quarterly revenues by more than 5x (from less than $10M to more than $50M) in 4 years; the products incorporating these technologies have received multiple industry awards and recognitions (2006-2012).

Took over the management of a technical team in turmoil and turned it around in less than 4 months, resulting in significant improvements in employee morale and productivity, as evidenced by a significant increase in patent filings and new strategic technology alliances with some of the world's largest communications companies (2007-2008).

Coordinated the collaboration of several companies aimed at the introduction of a new standardization effort for vectored transmission over copper lines by the International Telecommunications Union (ITU-T), culminating in approval of this new effort by the ITU-T in June 2007 as the new G.vector recommendation (2006-2007).

Directed the development of the innovative Linear Array Transducer for audio speakers from initial prototypes through production. Led a diverse technical team to success over significant challenges, resulting in major improvements in team morale, productivity, and customer satisfaction (2004-2005).

Co-founded a small self-funded startup and led it to a successful prototype development and customer demonstration in just four months (2003).

Took over the management of a company in turmoil and turned it around in an extremely unfavorable market environment, resulting in significant improvements in employee morale and productivity, and culminating in a successful sale of intellectual property assets (2002–2003).

Primary contributor to the technical development of a new physical-layer transmission technology for wireline communications, which achieves much higher transmission speeds through coordination of signals across multiple copper pairs using a vectored MIMO approach. This effort culminated in the first hardware demonstration of the next generation of multi-pair Digital Subscriber Line (DSL) transceivers (2001–2002).

Led the technical development of a novel modeling and optimization software package for Advanced Process Control (APC) of etch processes in semiconductor fabrication facilities, which was eventually sold to *Tokyo Electron Limited* as part of an intellectual property acquisition (2002).

Led the technical development of a sophisticated software system for modeling and diagnosis of interference sources in DSL networks, which allows network operators to quickly and accurately determine the source of problems on subscriber lines. The beta version of this software was deployed in a successful field trial by a local telephone carrier (2000–2001).

First person in the history of the Department of Electrical Engineering at the University of California, Los Angeles (UCLA), to advance from the rank of Assistant Professor Step II to the rank of (Full) Professor Step I in only 7 years (1999).

Led a multidisciplinary team of mechanical and electrical engineers that designed and built an electric vehicle prototype from the ground up to explore the concepts of integrated chassis control, vehicle stability enhancement, and autonomous vehicle operation. This vehicle was used as an experimental platform in a collaborative project on steer-by-wire funded by *Ford Motor Company* and *Visteon Automotive Systems* (1997–1999).

Co-invented and co-directed the development of a new sensor technology for accurate vehicle ranging using inexpensive and highly reliable infrared illuminators and imagers. These sensors have potential uses in driver-assist systems such as adaptive cruise control, vehicle following, lane following, electronic towbar, collision warning, collision avoidance, and even fully automated vehicle platooning. This research was featured on the front page of the Business Section of the *Los Angeles Times* on January 12, 1998 (1995–2000).

Directed a multi-year research program on longitudinal control of automated heavy vehicles, which resulted in novel high-performance algorithms that solved the problem of safe close vehicle following without intervehicle communication. This program, which was funded by the California Department of Transportation through California PATH, resulted in the development of a fully automated heavy vehicle prototype, which was a Class-8 18-wheel tractor-trailer combination vehicle with sensors and actuators for automated throttle, brake, and steering operation. The tractor was donated by *Freightliner Corporation*, and the instrumentation was partially funded by *DaimlerChrysler Research and Technology North America Vehicle Systems Technology Center* and *Rockwell Scientific Company* (1994–1999).

Developed a new generation of adaptive control algorithms for nonlinear systems that guaranteed global stability, robustness, and tracking performance for several broad classes of systems whose nonlinearities are not restricted by growth conditions, in both the continuous-time and discrete-time domains. This research

was funded by the National Science Foundation (NSF) over the course of more than a decade, and resulted in several major publications in archival technical journals and multiple honors and awards (1988–2001).

Participated in the development of novel algorithms for cruise control and active suspension, in collaboration with *Ford Motor Company* (1987–1992).

SELECTED PROFESSIONAL HONORS AND AWARDS

2005 IEEE Fellow

1999 Plenary Speaker, American Control Conference, San Diego, CA

1999 Plenary Speaker, Benelux Meeting on Systems and Control, Houthalen-Helchteren, Belgium

1998 Donald P. Eckman Award, American Automatic Control Council (each year the award recognizes one outstanding control engineer in the US under the age of 35)

1997 Honorable Mention, Eta Kappa Nu (HKN) Outstanding Young Electrical Engineer

1996 AlliedSignal Faculty Research Award, UCLA School of Engineering and Applied Science

1995 National Science Foundation (NSF) Early Faculty Career Development (CAREER) Award, Directorate for Engineering, Electrical and Communication Systems Division

1993 George S. Axelby Outstanding Paper Award, Institute of Electrical and Electronics Engineers (IEEE) Control Systems Society, for the paper "Systematic design of adaptive controllers for feedback linearizable systems," co-authored with P. V. Kokotovic and A. S. Morse

1993 NSF Research Initiation Award, Directorate for Engineering, Electrical and Communication Systems Division

1991 Finalist for the Best Paper Award, Student Competition, IEEE Conference on Decision and Control

1991 Best Presentation in Session Award, American Control Conference

1990 Finalist for the Best Paper Award, Student Competition, IEEE Conference on Decision and Control

1990 Grainger Fellowship, University of Illinois at Urbana-Champaign

1990 Best Presentation in Session Award, American Control Conference

1987 ECE Departmental Fellowship, University of Illinois at Urbana-Champaign

1984–1987 Greek Government Fellowship, recognizing outstanding scholastic performance in the Department of Electrical Engineering of the National Technical University of Athens

1983 "Heroes of Polytechneion" Award, for ranking first among 200,000 applicants in the 1982 Greek National Exams for admission to the Department of Electrical Engineering of the National Technical University of Athens (Polytechneion)

PUBLICATIONS

BOOKS

[B1] M. Krstic, I. Kanellakopoulos, and P. V. Kokotovic, *Nonlinear and Adaptive Control Design*, Wiley-Interscience, New York, 1995.

BOOK CHAPTERS

[BC1] J. Zhao and I. Kanellakopoulos, "Active identification for control of discrete-time uncertain nonlinear systems," in *Adaptive Control Systems*, G. Feng and R. Lozano, Eds., Butterworth-Heinemann, Oxford, UK, 1999, pp. 159–183.

[BC2] I. Kanellakopoulos and M. Tomizuka, "Commercial Trucks and Buses in Automated Highway Systems," in *Automated Highway Systems*, P. Ioannou, Ed., Plenum Press, New York, 1997, pp. 213–245.

[BC3] I. Kanellakopoulos, "Adaptive control of nonlinear systems: a tutorial," in *Adaptive Control, Filtering and Signal Processing*, K.-J. Åström, G. C. Goodwin and P. R. Kumar, Eds., The IMA Volumes on Mathematics and its Applications, vol. 74, Springer-Verlag, New York, 1995, pp. 89–133.

[BC4] I. Kanellakopoulos, "Advances in adaptive nonlinear control," in *Proceedings of Workshop on Advances in Control and its Applications*, H. K. Khalil, J. H. Chow and P. Ioannou, Eds., Springer-Verlag, New York, 1996, pp. 68–107.

[BC5] I. Kanellakopoulos, P. V. Kokotovic, and A. S. Morse, "Adaptive output-feedback control of systems with output nonlinearities," in *Foundations of Adaptive Control*, P. V. Kokotovic, Ed., Springer-Verlag, Berlin, 1991, pp. 495–525.

[BC6] P. V. Kokotovic, I. Kanellakopoulos, and A. S. Morse, "Adaptive feedback linearization of nonlinear systems," in *Foundations of Adaptive Control*, P. V. Kokotovic, Ed., Springer-Verlag, Berlin, 1991, pp. 311–346.

PATENTS

[P1] J. M. Cioffi, C.-S. Hwang, K. J. Kerpez, J. Oh, I. Kanellakopoulos, and P. Chow, "Ergodic spectrum management systems and methods," U.S. Patent Application No. 16/804,000, Publication No. US 2020/ 0280863 A1, published 09/03/2020.

[P2] J. M. Cioffi, C.-S. Hwang, I. Kanellakopoulos, J. Oh, and K. J. Kerpez, "Wireless-wireline physically converged architectures," U.S. Patent Serial No. 11,601,255, issued 3/7/2023.

[P3] J. M. Cioffi, K. J. Kerpez, C.-S. Hwang, and I. Kanellakopoulos, "Systems and methods for implementing high-speed waveguide transmission over wires," U.S. Patent Serial No. 11,290,150, issued 3/29/2022.

[P4] A. D. Unruh, R. J. True, E. T. Norcott Jr., J.-P. Axelsson, A. Jabbari, D. L. Prince, K. L. Kantor, I. Kanellakopoulos, and S. Wei, "Acoustic transducer comprising a plurality of coaxially arranged diaphragms," U.S. Patent Serial No. 9,967,673, issued 5/8/2018.

[P5] I. Kanellakopoulos, A. Priebatch, E. Domanovitz, M. Nurko, T. Barlev, "Cable-level crosstalk reduction," U.S. Patent Serial No. 9,484,984, issued 11/1/2016.

[P6] A. D. Unruh, R. J. True, E. T. Norcott Jr., J.-P. Axelsson, A. Jabbari, D. L. Prince, K. L. Kantor, I. Kanellakopoulos, and S. Wei, "Acoustic transducer comprising a plurality of coaxially arranged diaphragms," U.S. Patent Serial No. 9,462,388, issued 10/4/2016.

[P7] K. L. Kantor, I. Kanellakopoulos, and A. Jabbari, "Magnetic suspension transducer," U.S. Patent Serial No. 9,301,034, issued 3/29/2016.

[P8] I. Kanellakopoulos and A. Priebatch, "Method and system for installing and operating discrete multi tone repeaters," U.S. Patent Serial No. 9,100,176, issued 8/4/2015.

[P9] K. L. Kantor, I. Kanellakopoulos, and A. Jabbari, "Magnetic suspension transducer," U.S. Patent Serial No. 8,942,409, issued 1/27/2015.

[P10] A. D. Unruh, R. J. True, E. T. Norcott Jr., J.-P. Axelsson, A. Jabbari, D. L. Prince, K. L. Kantor, I. Kanellakopoulos, and S. Wei, "Acoustic transducer comprising a plurality of coaxially arranged diaphragms," U.S. Patent Serial No. 8,897,472, issued 11/25/2014.

[P11] I. Kanellakopoulos, A. Priebatch, A. Levy, and M. Bar-El, "Method and system for applying dynamic spectral shaping to digital subscriber loop communication systems," U.S. Patent Serial No. 8,774,311, issued 7/8/2014.

[P12] I. Kanellakopoulos, A. Levy, T. Barlev, M. Bar-El, A. Priebatch, and E. Tsur, "Method and system for robust digital subscriber loop communication," U.S. Patent Serial No. 8,576,899, issued 11/5/2013.

[P13] M. Erickson, T. Gudmundsson, I. Kanellakopoulos, J. Hench, "Mitigation of interference and crosstalk in communication systems", U.S. Patent Serial No. 7,978,591, issued 7/12/2011.

[P14] J. Hench, T. Gudmundsson, I. Kanellakopoulos, S. Shah, G. Aral, and Y. Tan, "Method and apparatus for prediction and optimization in impaired communication systems," U.S. Patent Serial No. 7,864,692, issued 1/4/2011.

[P15] S. Shah, I. Kanellakopoulos, and M. A. Erickson, "Method and system for split-pair reception in twisted-pair communication systems", U.S. Patent Serial No. 7,649,828, issued 1/19/2010.

[P16] M. Tsatsanis, I. Kanellakopoulos, M. A. Erickson, J. Overby, "A method and system for providing window shaping for multiline transmission in a communications system", U.S. Patent Serial No. 7,522,515, issued 4/21/2009.

[P17] K. Li, M. A. Erickson, and I. Kanellakopoulos, "Method and system for dynamic modeling and recipe optimization of semiconductor etch processes", U.S. Patent Serial No. 7,155,301, issued 12/26/2006.

[P18] M. Erickson, I. Kanellakopoulos, J. Hench, S. Shah, J. Waite, M. Tsatsanis, and G. Aral, "Method and apparatus for cooperative diagnosis of impairments and mitigation of disturbers in communication systems," U.S. Patent Serial No. 6,978,015, issued 12/20/2005.

[P19] J. Hench, T. Gudmundsson, A. Aghdam, I. Kanellakopoulos, G. Aral, Y. Tan, H. Singh, and S. Shah, "Method and apparatus for impairment diagnosis in communication systems," U.S. Patent Serial No. 6,970,560, issued 11/29/2005.

[P20] C. Galarza, M. Tsatsanis, M. Erickson, I. Kanellakopoulos, J. Waite, M. Gu, S. Shah, D. Hernandez, T. Pare, and N. Yuen, "Method and apparatus for characterization of disturbers in communication systems," U.S. Patent Serial No. 6,970,415, issued 11/29/2005.

[P21] T. Gudmundsson, J. Hench, A. Aghdam, I. Kanellakopoulos, G. Aral, H. Singh, Y. Tan, and S. Shah, "Design and architecture of an impairment diagnosis system for use in communication systems," U.S. Patent Serial No. 6,870,901, issued 3/22/2005.

[P22] T. Pare, M. Tsatsanis, I. Kanellakopoulos, M. Erickson, C. Galarza, J. Waite, D. Hernandez, S. Shah, M. Gu, N. Yuen, H. Rosario, D. Lin, and F. Lopez-de-Victoria, "Method and apparatus for mitigation of disturbers in communication systems," U.S. Patent Serial No. 6,834,109, issued 12/21/2004.

[P23] S. Boyd, S. Shah, M. Erickson, I. Kanellakopoulos, "Joint spindle speed and head position control in rotating media storage systems," U.S. Patent Serial No. 6,741,414, issued 05/25/2004.

[P24] O. M. Stafsudd, I. Kanellakopoulos, P. R. Nelson, and N. Bambos, "Method and apparatus for intelligent ranging via image subtraction," U.S. Patent Serial No. 6,711,280, issued 03/23/2004.

(Please note: Non-published patent applications submitted less than 18 months ago are not listed due to confidentiality agreements.)

STANDARDS CONTRIBUTIONS

[S1] V. Oksman, M. Mohseni, A. Clausen, G. Ginis, F. Sjöberg, M. Kuipers, I. Kanellakopoulos, "Initialization of G.vector," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document 08CC-060, September 2008.

[S2] V. Oksman, F. Sjöberg, I. Kanellakopoulos, M. Sorbara, "Proposal for pilot signals for downstream FEXT cancellation," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document 08CS-070, April 2008.

[S3] M. Mohseni, V. Simileysky, M. Sorbara, I. Kanellakopoulos, V. Oksman, S. Schelstraete, F. Sjöberg, "Key Evaluation Criteria for Vectoring," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document RJ-029, October 2007.

[S4] M. Sorbara, G. Ginis, I. Kanellakopoulos, S. Schelstraete, F. Sjöberg, "Proposed Definition of the 'Normalized Error Sample'," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document RJ-028, October 2007. Also submitted to ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI) as Contribution NIPP-NAI-2007-128, September 2007.

[S5] I. Kanellakopoulos, M. Sorbara, G. Ginis, S. Schelstraete, F. Sjöberg, D. Wei, "Proposal for New Recommendation on FEXT Cancellation for use with VDSL2 Transceivers," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document COM15-C520-E, May 2007. Also submitted to ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI) as Contribution NIPP-NAI-2007-075, May 2007.

[S6] I. Kanellakopoulos, M. Mohseni, "VDSL2 FEXT Cancellation Performance Estimates in Remote Deployments," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document COM15-C479-E, May 2007. Also submitted to ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI) as Contribution NIPP-NAI-2007-102, May 2007.

[S7] G. Ginis, M. Sorbara, I. Kanellakopoulos, S. Schelstraete, F. Sjöberg, "Moving forward with vectoring," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2007-097, May 2007.

[S8] I. Kanellakopoulos, "Another implementation example of the 'Abuse of Receivers' method for FEXT Cancellation," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document NC-096, April 2007.

[S9] I. Ilani, I. Kanellakopoulos, "Implementation of the 'Abuse of Receivers' method for FEXT Cancellation," ITU-T (International Telecommunications Union – Telecommunications Standardization Sector) Study Group 15 / Question 4 (SG15/Q4), Temporary Document SD-064, January 2007. Also submitted to ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI) as Contribution NIPP-NAI-2007-023, February 2007.

[S10] I. Ilani, I. Kanellakopoulos, "Crosstalk Modeling for Multiuser Methods," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2006-175, December 2006.

[S11] I. Ilani, I. Kanellakopoulos, "Intelligent Design of Estimation Precoding Matrices," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2006-174, December 2006.

[S12] I. Ilani, I. Kanellakopoulos, "FEXT Cancellation performance as a function of Hchannel Resolution," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2006-173, December 2006.

[S13] I. Kanellakopoulos, "Effects of Unshaped PSD Masks in Extended US0," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2006-145, October 2006.

[S14] I. Kanellakopoulos, "Use of Extended US0 in Multiuser-Enabled VDSL2 Systems," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2006-144, October 2006.

[S15] M. Sorbara, I. Kanellakopoulos, "Proposed Framework for Enabling Downstream FEXT Cancellation in VDSL2," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2006-142, October 2006.

[S16] G. Ginis, T. Starr, M. Sprenger, I. Kanellakopoulos, M. Tsatsanis, J. M. Cioffi, "Proposed Text on Margin Cap based on the 'Agreement In Principle on Band Preference'," ATIS Network Interface, Power & Protection Committee (NIPP) – Subcommittee Network Access Interfaces (NAI), Contribution NIPP-NAI-2006-113, August 2006.

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