

## **RICHARD A. KRAMER, PH.D.**

Phone: (541) 602-2271  
email: Richard.Kramer@SISDevelopment.com

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### **E X E C U T I V E   S U M M A R Y**

Industry technical expert with 30+ years of solid industry experience as a top-technology leader combined with academic excellence. Top-technology leader in the introduction of new technologies in the areas of: video, video compression / encoding, multimedia, streaming media, network communications, wireless communications, wireless networks, artificial intelligence, machine learning, cryptography, encryption, authentication, digital rights, physical security (video surveillance, cameras, digital video recorders, burglar alarm systems, intelligent locks, monitoring software), Internet / web-based client-server /cloud architectures, advanced software, and data security.

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### **P R O F E S S I O N A L   E X P E R I E N C E**

#### **SIS DEVELOPMENT INC.**

**2006-PRESENT**

##### **President**

- Leader of SIS Development, Inc. (“SIS”) / Security Industry Services Inc. SIS is an engineering and technical services company that serves leading product and software companies.
- Called upon and served as a technical expert for numerous reputable companies including Sony, Apple, Google/YouTube, Netflix, Cannon, FLIR Systems, ASUS Computer, American Express, US-Department of Justice, and the like.
- Formed a formidable team of leaders, core competency, and technical resources domestically and internationally. Formed strategic partnerships to form a profitable “win-win”.

#### **GENERAL ELECTRIC, GE-SECURITY**

**2003 - 2007**

##### **General Manager – Technology / Vice President, Engineering**

Leader of progressive 300+ person technology and engineering organization: 16 organizations in 11 geographically dispersed locations. Responsible for technology development for \$500M+/year in products worldwide for General Electric’s Video Systems Group (VSG) and other advanced Enterprise/Commercial/Residential solutions: video surveillance (IP network video products and software, DVRs, cameras), burglar alarm systems (ITI, CADDX and other lines), burglar alarm monitoring software (MAS), and life-safety markets (access control systems, real-estate mobile keys, smoke detectors, etc.).

- Execution and Innovation - Developed leading-edge new customer solutions, successfully launching 20+ major new products/platforms per year, resulting in double-digit organic market growth.
- Held leading industry market share (90 %+ ) position in key vertical and unique markets with technically innovative products and software in a wide variety of security applications.

- Strategy Leader of GE FY2005 “Session 2” strategy creation and multiple technical M&A due-diligence teams for numerous acquisition targets. Leader of negotiations: closed numerous key strategic partnerships/agreements. 2005 OM (Operating Margin) +50% above plan.
- High-Performance - Advanced with increasing levels of responsibilities from \$120M to \$500M+ in revenue/year accountability; rated as “Top-20%” talent and nominate/attended executive leadership training at GE’s legendary Jack Welch Executive Training Center.

**GM/VP/C-LEVEL ROLES, NEW VENTURES, AND DIVESTITURES 1998-2003**

Norcross, GA

**VP Engineering /GM/Officer for start-ups and corporate sponsored diversification ventures**

- Ivex Corporation – Launched/Pioneered first IP network video surveillance solution for the security industry (partnered with Loronix, now Verint): Developed an online video monitoring software service and the revolutionary IP network video appliance. Successfully acquired by a public entity. Stock went from \$3.60 to \$8.60 within 30 days.
- Home Wireless Networks - Built team/leader of R&D for world’s first combined voice plus data wireless home gateway. Products “Bell” approved. Launched under BellSouth and MCI brands. Launched first low-cost 802.11 access point by Telenor in Europe. Acquired.
- Miraxis; parent EMS TECHNOLOGIES, \$309M (Acquired by Honeywell); corporate technology diversification new business based on new network and wireless Ka-band combined 2-way wireless WAN/Internet/video connectivity and DTH/DBS video distribution satellite technology.

**SCIENTIFIC-ATLANTA, BROADBAND COMMUNICATIONS DIVISION (\$2.5B)**

**1995 – 1998**

Acquired by CISCO SYSTEMS

Norcross, GA

**Project Director, Advanced Video Systems (AVS) 1997-1998**

**Engineering Manager, Home Communications Terminals 1996-1997**

**Engineering Manager, 8600x 1995-1996**

Led director-level cross-functional team developing next generation interactive TV (iTV) 2-way video cable set-top boxes to replace \$400M/year Advanced Video Systems (AVS) broadband products. Built engineering department and provided daily direction to multi-disciplined engineering department responsible for S-A’s highest revenue earning product, the 8600x cable set-top. Direct engineering management responsibility for AVS high-volume domestic set-tops, remote controls and third-party partnerships.

- Engineering manager for consumer iTV video products – the company’s highest revenue-earning product lines (\$200M/year) with volumes over 1M+/year (8600x, 8600, etc.).

- Reversed 10-year legacy of re-branding Panasonic set-tops by successfully building new engineering organization and launching the company's first successful internally designed high-volume, low-cost product. Volumes reached 80K/month. Reduced COGS (Cost of Goods Sold) by 40%, from \$154 to \$78.
- Spearheaded the launch of the company's first high-volume product to be built in a new company owned factory in Mexico. Proactively developed processes and infrastructure.
- Led the introduction of new development processes and successfully completed business plans, product definitions, ROI (Return on Investment) analysis, forecasts, and resource plans for next-generation set-top products to replace the existing \$400M/year broadband AVS products.
- Managed daily design engineering activities and contract manufacturing support with international third-party partners: Panasonic, WKK and others.

**SCHLUMBERGER INDUSTRIES, EMNA (\$14B, NYSE: SLB)**

**1987 – 1995**

Norcross, GA

(Acquired by ITRON)

<b>Engineering Manager, Residential and Commercial Metering</b>	<b>1994-1995</b>
<b>Hardware Manager, Recorders, and Translation Systems</b>	<b>1990-1994</b>
<b>Senior Electronic Design Engineer</b>	<b>1989-1990</b>
<b>Electronic Design Engineer</b>	<b>1987-1989</b>

Engineering manager for Schlumberger's Electricity Management, North America (EMNA) division. Managed supervisors, multi-disciplined developers and Quality Assurance/Software Quality Assurance personnel developing high-volume electronic communication products, meter reading, modems and power monitoring equipment used by the electric utility industry to monitor and control power on the power grid.

- Designed working ASIC (Application Specific Integrated Circuit) on first pass. Granted two patents.
- As a hands-on developer, primary designer for division's top two highest priced products (Gross Margin: 55%, Average Sales Price: \$2,000).
- Managed R&D organization for residential and commercial product lines, obtaining over \$60M/year in revenue with product line volumes ranging from 10Ks/year to 100Ks/year.
- Promoted, dynamically improved, and launched division's highest revenue product (the "Vectron") after a two-year delay within another R&D organization.
- As hardware manager, launched new product lines that spawned new services business.
- Annually selected to participate in the "Best Program" for high potential managers.

**BABCOCK & WILCOX, NUCLEAR POWER DIVISION** **1984 - 1987**  
**ELECTRONIC DESIGN ENGINEER / SR. ELECTRONICS DESIGN ENGINEER**

As part of the “Special Products and Integrated Field Services” team, I was a designer and developer of electronic inspection systems and robotic repair systems for nuclear power plant components inside the nuclear containment building.

- Provided system, circuit and software design for advanced video/CCTV, ultrasound, and other imaging solutions to inspect radioactive components inside the nuclear containment building.
- Board level designer of electronic hardware using a multitude of CPU/MPUs, high-speed communication interfaces, control circuits, and complex test/measurement ADC circuits.
- Software programmer using high-level software programming languages and assembly code firmware for robotic/automation repair and inspection equipment.

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**E D U C A T I O N**

**Ph.D. in Electrical and Computer Engineering, GPA: 4.0** **2022**

Oregon State University Corvallis, Oregon

Research areas and interests include: video, video streaming technologies, video compression (encoding / decoding), optimization of video streaming content transmission, network coding, wireless communications, artificial intelligence / machine learning / reinforcement learning (including algorithms, classifiers, prediction, video analytics), security (including cryptography, encryption, data security, physical security).

Dissertation: “Machine Learning Bandwidth Optimization of Interactive Live Free-Viewpoint Multiview Video for Sporting Events,” Oregon State University.

Graduated Top of Class (4.0 GPA)

**Master of Science in Electrical and Computer Engineering, GPA: 4.0** **2017**

Oregon State University Corvallis, Oregon

Research areas and interests include video, video compression (encoding/decoding), optimization of video streaming content transport, network coding, video streaming, wireless communications, cryptography, encryption, and data security.

Thesis: “Optimization of Interactive Live Free Viewpoint Multiview Video Streaming Bandwidth,” Oregon State University.

Graduated Top of Class (4.0 GPA)

**Bachelor of Science in Electrical Engineering, Magna cum laude**

**1984**

The University of Toledo

Toledo, Ohio

Member Tau Beta Pi Engineering Honor Society

**Executive MBA, 12 Credit Hours**

**Attended 2003**

Emory University, Goizueta Business School

Atlanta, Georgia

The executive business program was ranked in the top 10 globally by Business Week and The Financial Times.

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**C E R T I F I C A T I O N S , A F F I L I A T I O N S &  
O T H E R T R A I N I N G**

**Proficient trained software/source code programmer using the following software languages/systems:** MATLAB, Object Oriented, C, C++, Java, FORTRAN, MIRCL (“Multiprecision Integer and Rational Arithmetic C/C++ Library” which is a software library used for developing encryption and authentication algorithms), and numerous assembly languages for both RISC (Reduced Instruction Set Computer) and CISC (Complex Instruction Set Computer) processors.

Member, IEEE (Institute of Electrical and Electronic Engineers).

Member Phi Kappa Phi Honor Society – Lifetime Member

Java 2, Sun Certified Programmer.

GE Six Sigma, Black Belt Training Certified.

Additional post-graduate studies and/or certificates: DSP (Digital Signal Processing) and computer architecture, finance, project management, leadership training.

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**P A T E N T S**

**U.S. Patent No. 5,701,253** - Isolated Current Shunt Transducer; December 23, 1997.

**U.S. Patent No. 5,422,939** - Parallel Off-Hook Detection for Both Line Available and Phone Pick-up Detection, June 6, 1995.

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**A C A D E M I C W O R K ( P U B L I S H E D A N D N O N -  
P U B L I S H E D )**

1. Richard A. Kramer, Dissertation: “Machine Learning Bandwidth Optimization of Interactive Live Free-Viewpoint Multiview Video for Sporting Events,” Oregon State University, May 17, 2022 (presented June 15, 2022).
2. Richard A. Kramer, Thinh Nguyen, “Optimization of Interactive Live Free Viewpoint Multiview Video Streaming Bandwidth”, Proceedings of SAI Intelligent Systems

- Conference, IntelliSys 2018: Intelligent Systems and Applications pp. 641-657 (presented, September 6, 2018, London, UK).
3. Richard A. Kramer, Jin Phoy Rhee, “The Need, Advances and Challenges Related to Wireless Body Area Network Communications Technology”, Oregon State University, June 6, 2017 (presented, June 8, 2017).
  4. Richard A. Kramer, Aashutosh Y. Taikar, Warit Paweenbampen, Haya Alorayj, Surabhi Tushar Godambe, “The Challenges and Advances in Mixed Reality Video Technology”, Oregon State University, June 7, 2017 (presented, June 7, 2017).
  5. Michael Foster, Richard Kramer, “A Low-Power, Low-Noise, High-Gain Differential Operational Amplifier”, June 8, 2017
  6. Richard A. Kramer, Thesis: “Optimization of Interactive Live Free Viewpoint Multiview Video Streaming Bandwidth”, Oregon State University, April 10, 2017 (presented April 10, 2017).
  7. Richard A. Kramer, Mathias Elmlinger, Abhishek Ramamurthy, Siva Pranav Kumar Timmireddy, “A Comprehensive Review of the Challenges and Opportunities Confronting Cache Memory System Performance”, Oregon State University, March 13, 2017 (presented March 16, 2017).
  8. Richard A. Kramer, Presentation/Lecture: “ESIGN and Other RSA Alternative Signature Schemes”, Oregon State University, February 8, 2017.
  9. Richard A. Kramer, ESIGN, ECDSA, ED25519 Cryptographic Signature Software Code, January 16, 2017.
  10. Richard A. Kramer, “A Survey of ESIGN: State of the Art and Proof of Security” (re-issue with full implementation, performance testing and data analysis), Oregon State University, January 16, 2017.
  11. Richard A. Kramer, “The Insecurity of Libcrypts’s PRG”, Oregon State University, February 9, 2017.
  12. Richard A. Kramer, “A Survey of ESIGN: State of the Art and Proof of Security”, Oregon State University, November 7, 2016.
  13. Richard A. Kramer, Presentation/Lecture: “Secure Audit Logging Systems with Privacy Preservation”, Oregon State University, October 25, 2016.
  14. Richard A. Kramer, “Efficient Multimedia Distribution in Source Constraint Networks”, Oregon State University, November 3, 2015.
  15. Richard A. Kramer, “An Analysis of Dynamic Flow Scheduling for Data Center Networks”, Oregon State University, August 27, 2015.

16. Richard A. Kramer, “An analysis for the paper: Interactive Streaming of Stored Multiview Video Using Redundant Frame Structures”. Oregon State University, December 22, 2015.
17. Richard A. Kramer, “An analysis for the paper: Video Streaming with Network Coding”, Oregon State University, November 2, 2015.
18. Richard A. Kramer, Presentation/Lecture: “Hedera – An Analysis of Dynamic Flow Scheduling for Data Center Networks”, Oregon State University, October 25, 2015.
19. Richard A. Kramer, “An Analysis of Cloud Based Data Centers Costs”, Oregon State University, August 27, 2015.