

RICHARD A. GRAY

PROFILE

As an entrepreneur, company founder, and international consultant, Richard Gray brings over 40 years of experience to the business development, electronics, computer, software, and entertainment/media fields. Focusing on new product design and evaluation, project management and systems integration, he offers knowledge and experience in technology, production, finance and marketing. His extensive domestic and international consulting and management experience qualify him to quickly define key problems and strategies that are implementable and lead to fast and desired results.

After receiving a Liberal Arts degree and a M.S. in Applied Physics/Visual Arts with additional research in Management Science, he founded R.A. Gray, Inc., a consulting firm providing, design, engineering, technical direction and project management services. As President, Mr. Gray interfaced between various design and engineering disciplines, project management, systems architecture, contractors and clients on numerous diversified projects such as: the Spanish National Pavilion, Expo 92; the Queensland Pavilion, Expo 88; Hershey's Chocolate World; Canadian Pacific Pavilion; Pierre Dupont estate's Longwood Gardens Fountain Renovation; Reuben H. Fleet Space Theater and Science Center, San Diego; and KFI Studio facilities in Los Angeles. This experience gave Mr. Gray the foundation of his design, technical direction/project management, and owner representation expertise.

During this period, groundwork for technical design and specialized problem solving was also started with such diverse product designs as: Dimmers, a family of power controllers for light dimming; Fountain Place Centercourt, Dallas, TX; Emergency Light, a sequencing high mounted stop light; TAC-86, a sound control system for large theaters; Acoustic Velocitometer, MC-10A, control system for mixed media presentation; Epic Computer, small portable P.C.; Electronic Candle, simulated candle flame; Burst Octave Noise Generator (Bong)/ Reverberation Timer (RT60B); Multilimiter and Digitimers/Digiclocks.

Mr. Gray has contributed frequently to his field as a key speaker for: the Space Theater Consortium, Monterrey, Mexico, 1980; the International Planetarium Society, Tucson, Arizona, 1978; Comdex, New York, New York, 1981; National Computer Conference, Anaheim, California, 1982; PLASA, London, United Kingdom, 1992; Lightning Design International, Dallas, Texas, 1992; and Technology in Leisure and Entertainment, Maastricht, Netherlands, 1993.

Mr. Gray has established an international reputation as a recognized figure in technical design and direction and project management, as well as a negotiator who has the ability to see the desired result, and move toward a successful conclusion.

PARTIAL LIST OF PROJECTS

- Title: **SAN DIEGO OPEN SOURCE SOFTWARE ORGANIZATION** 2005 - 2008
Client:
Responsibilities: President/Vision Statement/ Meeting Agendas/ Guest Speakers/
Organizational Development
- Description: The San Diego Open Software Organization promotes the use of Open Standards and Open Source Software Solutions. We have been in existence for 10 years. Over the years there have been many presentations from notable companies, such as, IBM, Novel, Sun Microsystems, VM Ware, and many others.
- Title: **AIRWAYS BUSINESS PARK OWNERS ASSOCIATION** 2004 - 2008
Client:
Responsibilities: President & Chairman/Contact Negotiation/ Organizational Development
- Description: Airways Business Park is a Commercial Condominium on County land in El Cajon, CA. Over the past several years we have completed ~\$500,000 in upgrades to the property. We also completed a protracted lease negotiation to extend our lease for 55 years. The negotiation was made difficult, by many factors, including many arcane rules of San Diego County. The negotiation required two years, and the new lease was considered to be favorable by the owners, and ratified in late 2007.
- Title: **HELIX EDUCATIONAL TOUR** 2001 - 2002
Client: Helix Water District
Responsibilities: Design/Direction/Vendor Selection/Project Management
- Description: The Helix water District provides water to 250,000 customers in Southern California. For more than 35 years the district has maintained an educational program. The water district's R.M. Levy water treatment plant completed a \$55 million dollar upgrade. This upgrade includes the first Ozonation treatment facility in California. A completely new tour was commissioned, including special effects, models, sound system, and three videos.
- Title: **SAN DIEGO HALL OF CHAMPIONS** 1997 - 1999
Client: San Diego Hall of Champions
Responsibilities: Project Director/Vision Statement/Overall Design/Vendor Selection/Staffing/Budget/Negotiations/Project Management
- Description: The San Diego Hall of Champions built a new 70,000 square foot museum in Balboa Park, rehabilitating the historic Federal Building. This \$20 million project is the prototype of a new breed of sports museum. Program and event driven, people are encouraged to participate and develop skills, understanding, and appreciation of sports. Success by Design (Richard Gray), and the architect, TLMS, received awards from the California Preservation Foundation for this project.

PARTIAL LIST OF PROJECTS

- Title: **ANTEPOYECTO PARQUE TEMATICO DE ALICANTE** 1996
Client: Community of Valencia and City of Alicante, Spain
Responsibilities: Vision Statement/Devise Analysis of Economic Demographic Data/Evaluation of Results/Draft Report
- Description: The Spanish community of Valencia and the City of Alicante wanted to explore the possibility of sighting a major destination attraction in their region. They contracted Globeland Productions in Madrid to provide a feasibility study. As one of the principals of Globeland, my responsibility was to provide a vision statement, overall guidance, evaluation of data, and a draft of the conclusions. This report of some 200 panes had sections such as: Market study; Planning; Concept; Comparable experience; Finance; Impacts of Operation; Economic return. The overall conclusion was the economic and demographic base would support a \$400M investment in a themed attraction, and an urban entertainment center. This facility is currently under construction, with completion due in the year 2001.
- Title: **RAMASHITA DARK RIDE** 1994
Client: Jaya Ancol, Jakarda Indonesia
Responsibilities: Advisor to Managing Director
Design/Vendor Selection/Negotiations/Staging
- Description: The Ramashita Dark Ride depicts an allegorical story. The boat ride consists of 13 scenes containing many types of media, including film, video, animatronics, special effects, fog, lasers, etc. The cost of the project is 40 million dollars (U.S.)
- Title: **SALE OF R.A. GRAY, INCORPORATED** 1993
Client: Shareholders
Responsibilities: Negotiation/Finance/Transition Planning
- Description: R.A. Gray, Incorporated provides management and technical support to customers worldwide. The company also has an extensive line of computer control products. The client list includes, among others, Hughes, Disney, M.C.A., and Warners.
- Description: After 20 years of successful operation, I decided to sell the company as the best way to repay its investors. The company's assets and liabilities were complicated, and included inventory, equipment, leases, intellectual property, contracts, retirement plan, and partnering agreements. Although the negotiations took several months, I was able to convince the board of R.A. Gray, Inc., the board of the buying company, stockholders, and our partners that the arrangements were mutually beneficial. The final arrangements consisted of cash, notes, and royalties. The company continues to operate successfully at its original location with the key employees and customers intact.

PARTIAL LIST OF PROJECTS

Title: **SPANISH NATIONAL PAVILION, EXPO 92, SEVILLA** 1991 - 1992
Client: Spanish Pavilion/Spanish Government
Responsibilities: Vision Statement/Technical Director/Show Director/Designer/
Owner Representative

Hundreds of people were involved in the design and construction. I was responsible for design, cost evaluation, vendor selection, commissioning and direction. I supervised all architects, vendors, and designers.

Description: The "Caminos de España" consisted of six separate shows illustrating the heritage, culture, society, and products of Spain and the Hispanic world. These presentations used many different types of media to enlighten and entertain. In the six month run of Expo, over two million guests were accommodated.

Title: **QUEENSLAND PAVILION, EXPO 88** 1987 - 1988
Client: Queensland Government, Queensland, Australia
Responsibilities: Technical Director/Designer

Worked closely with architect, designer and owner to bring this project to reality. Responsible for systems design, negotiations, vendor selection.

Description: The presentation consisted of a ride illustrating the popular culture, products and environments of Queensland. The media included moving and static sets, video walls, slides, sound, animated characters. This was the top rated attraction of Expo and operated for six months without a failure.

Title: **CHOCOLATE WORLD** 1987 - 1988
Client: Hershey's Chocolate/Herco
Responsibilities: Technical Director/Designer

Worked closely with Artistic Director to design and specify show systems. Responsibilities included system design, negotiation, and training.

Description: A ride-through experience show, demonstrating the making of chocolate employing theatrical techniques. Media included audio, video, video walls, lighting, sound, moving and static sets, and animated figures.

PARTIAL LIST OF PROJECTS

Title: **CANADIAN PACIFIC PAVILION** 1985 - 1986
Client: Canadian Pacific
Responsibilities: Technical Director/Designer

Assisting the Artistic Designer to achieve a realization, system design, technical system selection, vendor interface and coordination.

Description: A presentation of communication and transportation through the ages. The action takes place on three sides of the audience using film slides, lights, sounds, effect, animated characters, moving and static sets. System operated flawlessly throughout the run of the Expo, and was considered to be among the best.

Title: **MAJOR FOUNTAIN RENOVATION** 1982 - 1984
Client: Longwood Gardens
Responsibilities: Design/Review/Construction/Commissioning/Training

Worked closely with owner to achieve a successful result. Responsible for systems design, commissioning, training.

Description: Rehabilitation and automation of the largest fountains in North America, on the Pierre Dupont Estate in Pennsylvania. Control of lighting, hydraulics, power consumption. These fountains are used during the summer for presentation to thousands of people. All programs are choreographed to music, and some contain pyrotechnics.

Title: **AUDIO RECORDING AND REPRODUCTION SYSTEM** 1979
Client: Reuben H. Fleet Space Theater and Science Center
Responsibilities: Project Concept/Designer/Manager

Successful grant preparation and choosing and coordinating a team of expert acoustical, audio, mechanical, and electronic designers. Responsibilities included planning, budget, coordination, commissioning, and training.

Description: The project consisted of two major parts: A 32 track recording studio with automated mixdown and simulated dome theater monitoring, and a computer automated reproduction system enabling synchronization of film, audio, and video. The reproduction system has the capability of enhancing playback by matrixing speakers and level control. This system was a prototype for all similar systems that followed.

PARTIAL LIST OF PROJECTS

Title: **IMAGE PROJECTOR** 1978
Client: Reuben H. Fleet Space Theater
Responsibilities: Project Manager/Designer/Engineer

My responsibility was to write a successful grant proposal, assemble and coordinate a competent team of mechanical, optical, and electronic engineers. My involvement included system design, budget, monitoring, construction, commissioning and training.

Description: Produced a large format projector capable of a 20:1 zoom ratio, image rotation, x-y panning, and image change. This project required the modification of video zoom camera lenses. The system consisted of a computer interface servo system and many custom optical and mechanical designs.

Title: **PLANETARIUM AUTOMATION SYSTEM** 1975 - 1979
Client: Reuben H. Fleet Space Theater
Responsibilities: Project Concept/Review/Manager/Designer/

Funding came from many sources and required two years of proposals, meetings, and reviews before construction began.

Responsibilities included "spearheading " the project, design, coordination, vendor selection, design reviews, construction supervision, scheduling, budget, commissioning and training.

Description: Developed a computer automation system to control lighting, sound, slides, film, image projector, and star projector. System included a sophisticated manual recording and control console, compilers enabling complicated programs to be entered as script commands. This system was the progenitor of over 30 systems used throughout the world.

Title: **ANIMATION AND TITLING CRANE** 1974 - 1975
Client: R.A. Gray
Responsibilities: Concept/Design/Financing

Used several vendors for design and construction.

Description: Semi-automated camera and stand for the production of animated films and titling of movies. Controls included trucking (up-down), x-y and rotation. The camera shutter and focus were also automated. This unit was leased for 10 years and finally sold. It was the prototype of more advanced systems in use today.

PARTIAL LIST OF PROJECTS

Title: **KFI STUDIO FACILITIES** 1974 - 1975
Client: KFI Radio/Cox Broadcasting
Responsibilities: Project Manager/Designer/Engineer/Budget/Vendor Selection/
Labor Negotiations/Production/Commissioning & Training/

Coordinated the activities of many experts in audio, acoustics, human factors, cabinetry, machining, etc. Also did much of the specialized control, signaling, switch and logic design.

Description: The KFI Studio facilities were the first of a new breed using solid state logic systems to reduce the workload of the operator. The project consisted of eight control rooms, several studios and production facilities. All are connected with communications and switching arrangements. Most were original designs, opening a new product line for the contractor.

PARTIAL LIST OF PRODUCT DESIGNS

Title: **BUSS ORIENTED, MODULAR MEDICAL INTERCOM SYSTEM** 2011-
Client: Tech Works
Responsibilities: Concept/Design/Review

Description: This project line will replace the IC-52 with a far more flexible design
Two BUSS structures support Collaboration and Monitoring
The CI-BUSS allows Modules to communicate with one another
The PA-BUSS supports Amplifier Distribution and Logging
Modules are configured and connected together to form systems
Simple system may be a single unit; Complex systems may be many units

Title: **VARIOUS SHOW CONTROL PRODUCTS** 2003-
Client: The Whit Rabbit Company / Benchmark Controls
Responsibilities: Design/Review

Description: This project is a continuation of the Control Systems work started in 1973 by *R.A. Gray*. Some of the designs entail completely new products, utilizing the Standards developed in the past. Other products are upgrades of previous products utilizing newer technologies, which enhance performance, while greatly reducing the footprint of the system; stay tuned...

Used at the Bellagio Hotel Fountain, and many other major attractions

Title: **IC-52, AND OTHER COMMUNICATION PRODUCT LINE** 2005-
Client: Tech Works
Responsibilities: Concept/Design/Review

Description: Utilizing newer technology components while leveraging the knowledge gained with previous communications product the IC-52 is far superior to its predecessors. Carrying forward this effort a line of new communications are being developed; stay tuned...

Title: **VARIOUS SHOW CONTROL PRODUCTS** 1999-
Client: White Rabbit/RA Gray
Responsibilities: Design

Description: Updating the product line with new compatible products. Utilizing newer technologies to build more cost efficient show control systems. These systems leverage 30 years of experience, and successful protocols.

PARTIAL LIST OF PRODUCT DESIGNS

- Title: **VOICE CALL** 1996 - 2007
Client: United Communications Technologies
Responsibilities: Concept/Design/Review
- Description: A very flexible long range wired and wireless communications system. This system is designed to fill the need for multi-station, multi-master, handsfree communications and monitoring. This product line is optimized for many applications but primarily for use in hospitals, schools and prisons. For hospitals and assisted living, this new concept allows the care giver to receive and make calls from a wireless phone. The use of a wireless phone and display eliminates the need for a nurse to be tied to a patient monitoring station, improving care and reducing costs.
- Title: **UNIVERSAL HANDS FREE INTERCOM (IC-29)** 1994
Client: Communications Company
Responsibilities: Concept/Design/Review
- Description: A universal intercom amplifier designed especially for hands free applications. Found in such situations as embassies, hospitals, and the fast food industry. This unit replaces a very successful previous design, which was an accepted standard for 16 years.
- Title: **DIMMERS** 1983 - 1990
Client: R.A. Gray, Inc., et.al.
Responsibilities: Concept/Design/Program Manager/Product Introduction
- Description: A family of power controllers for light dimming. These units have unique features that allow automated control, circuit interruption, emergency circuits, flicker flame effects, etc. Accepted as a standard, with thousands in use throughout the world.
- Title: **FOUNTAIN PLACE CENTERCOURT** 1987
Client: Criswell Development Company
Responsibilities: Control System Design/Programming Supervision/Training
- Description: Fountain Place is one of the outstanding tourist attractions in Dallas. Visited by hundreds of thousands of people each year. The Center Court Fountain consists of 217 individually controlled nozzles. The effect is a dynamic sculpture of ever changing shapes. This fountain has no visible basin. The water emerges through the paving stones to the amazement and delight of the spectators. This design has won numerous awards and a patent.
- Title: **EMERGENCY LIGHT** 1987
Client: Back-Off Corporation
Responsibilities: Design/Review/Submittals
- Description: Initially designed as a sequencing high mounted stoplight. Which is now used on all emergency vehicles. This unit has gained wide acceptance as an emergency services light. (Granted two U.S. patents)

PARTIAL LIST OF PRODUCT DESIGNS

- Title: **TAC-86** 1986
Client: Sonics Associates/Oxmoor Products
Responsibilities: Control Design
- Description: The TAC-86 is a sound control system for large theaters and auditoriums. The unit consists of a master control with computer interface. A unique feature of this system is the ability to control the level with a pseudo analog control from any number of locations.
- Title: **SHOW PRODUCTION SYSTEM** 1984- 1985
Client: R.A. Gray, Inc., et.al.
Responsibilities: Concept/Proposal/Funding/Review/Program Management/Introduction to Market
- Description: Until this system was introduced, most mixed media presentation systems used the same machine for playback and production. This system allowed the production equipment to be used for programming, and only a small, inexpensive reproduction system to be left on site. This system is in use in hundreds of sites throughout the world.
- Title: **ACOUSTIC VELOCITOMETER** 1984
Client: Strategic Defense Initiative
Responsibilities: Development/Design/Proposal/Money
Collaboration with Park Hays Miller, Jr.
- Description: This device allows the trajectory and speed of very high velocity projectiles to be measured. A rail gun is used to obtain velocities of 10,000 m/sec. Unfortunately, the extreme electromagnetic fields interfere with most measurement apparatus. This device used the acoustic bow shock waves to plot the trajectory of the projectile. Project was taken over by the authority.
- Title: **MC-10A** 1979 - 1983
Client: R.A. Gray, Inc., et.al.
Responsibilities: Concept/Proposal/Stock Financing/Partnership Negotiations/Design/Review/Program Management
Some 20 people were involved in a four-year development program.
- Description: A comprehensive, interactive control system for mixed media presentation. Consisting of over 15 standard modules, used in a diverse set of configurations. These systems are in use throughout the world, with fountains, museums, theme parks, world expositions, etc. The computer system required a ground up design including real-time disk operating systems, compilers, etc.

PARTIAL LIST OF PRODUCT DESIGNS

- Title: **EPIC COMPUTER** 1981
Client: Epic Computers/Beehive/Keytronics
Responsibilities: Design Objectives/Electronic Design/Review
- Description: A small portable personal computer with integrated disk drives, menu driven operating system and software. This design later became the basis for Beehive; and Keytronics entry into the P.C. field. Introduced at the first Comdex show in New York.
- Title: **ELECTRONIC CANDLE** 1979
Client: Self/Licensed to Candlelight
Responsibilities: Concept/Circuit Design/ Evaluation of many factors to achieve a desired effect.
- Description: A simulated candle flame using three lamps enclosed in a mantle. The lamp flickers in a manner similar to heated gases in an actual flame using random stochastic processes. This design was granted a patent. Today this design is used throughout the world. (Granted U.S. Patent)
- Title: **BURST OCTAVE NOISE GENERATOR (BONG)/
REVERBERATION TIMER (RT60B)** 1979
Client: Communications Company
Responsibilities: Concept/Design/ Responsible for design, packaging, and evaluation.
- Description: A test set for determining the reverberation time of room. The unit can produce a repeatable pseudo-random noise sequence to excite the environment. The reverberation time is measured on a small hand-held unit. This unit was evaluated favorably against laboratory systems costing many times more, and requiring a sophisticated operator. Product has been marketed for over 15 years.
- Title: **MULTILIMITER** 1976
Client: Pacific Recorders & Engineering (Now Harris)
Responsibilities: Program Manager/Designer
- Responsibilities included developing the concept and selling it to the client. Activities including product design, circuit design, packaging, field evaluation.
- Description: This limiter/compressor was suitable for both stereo and monaural operation. Whereas most limiters used forms of frequency band splitting, this limiter operated on the entire spectrum splitting the processing in the time domain. The first stage included a feed forward R.M.S. limiter. It was unique at the time, accepted practice today. Many of the other concepts developed in this product are now common practice. Most units installed over 20 years ago still remain in service.

PARTIAL LIST OF PRODUCT DESIGNS

Title: **DIGITIMERS/DIGICLOCKS** 1975
Client: Pacific Recorders & Engineering (Now Harris)
Responsibilities: Concept/Design/Program Manager

Description: This program introduced the digital clock to broadcasting and production market. Broadcasting needed the accuracy and flexibility of digital technology but required an analog representation of time. This family of products pioneered interfacing techniques and presentation techniques.