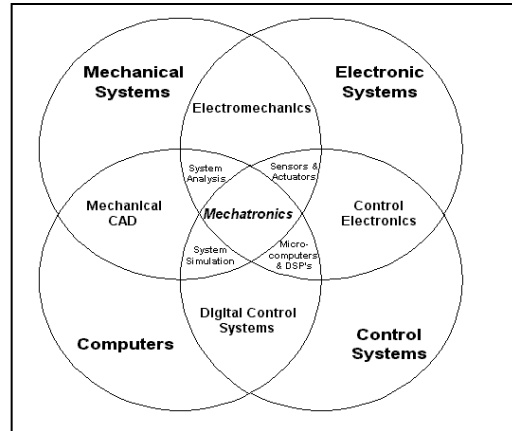


Litigation Support Specialist, Expert Witness and Investigative Consultant

Short Biography

David Collins
TEAM IX

Experience: Amusement Ride and Device, Aerospace, Commercial, Technical and Management Consulting using multi-disciplinary (Mechatronic) skills



Principal of firm established to provide design, development, commissioning, operational and maintenance training and operational consulting on a wide range of amusement rides and devices. The firm also provides independent investigation and expert testimony using 55 years of professional experience based on challenges, solutions and experience based design, risk assessment, risk mitigation, inspection and testing of aircraft, space, amusement ride systems and water-park rides and attractions. Primarily involved in specifying and verifying system performance, determining defects, analyzing failures, discovering hazards, confirming intended use, misuse, abuse and/or safety violations in amusement rides or devices, industrial equipment and their components and accessories.

Recognized for successfully completing litigation support, expert witness and forensic consulting projects for a balanced base of defense attorneys, plaintiff's attorneys and criminal investigators. The primary areas of expertise and the specific subjects of relevant cases are described in the accompanying list of examples. These include, but are not limited to:

AMUSEMENT RIDES: Based on experience with Disney Imagineering, Universal Studios Hollywood (USH), amusement park, carnival rides and water-park rides and devices, I have been able to provide litigation support and expert witness services covering all technical and operational aspects of all levels of amusement rides and water rides and attractions. I have developed inspection check-lists for over 200 amusement rides. I have established functional baselines for major, one-of-a-kind park rides, coasters, thrill rides, family rides and kiddie rides that can be used as references in litigation support. I am currently participating in a European ride accessibility project.

MOTION SIMULATORS: I am listed inventor on three US and three European patents on the use of Motion Simulators in the amusement industry. I designed and built the first, successful, large cabin, entertainment, motion simulator system. The system was replicated by Disney for their Star Tours simulators. Based on this expertise I was qualified as a litigation support specialist in a patent infringement suit (Defense) related to entertainment motion simulators where plaintiff was claiming \$40 million dollars in damages. I was also qualified as an expert witness (Defense) in a related \$40 million dollar patent attorney malpractice case.

SPECIAL SIMULATION: I have previously been involved in the development of codes and standards compliance and safety assessment of “Live-Fire” training simulation props and systems for a state of the art Fire Department Training Evolution facility. This work is based on my extensive experience in the operation and maintenance of “Live-Fire” effects used in the Amusement park industry. I have been engaged as an investigator to conduct code compliance, safety and operational assessments of “Live-Fire” training simulation props.

PASSENGER SAFETY EQUIPMENT: As a litigation support specialist I have successfully tested, evaluated and conducted fault-tolerance analysis of safety restraints and systems on amusement rides and devices for a number of attorneys. I recently received patent number 7,905,789 B2 and 8,505,383 for a specialized safety restraint system for amusement rides based on my extensive experience in the field of passenger restraint systems.

PERFORMANCE TESTING: My performance testing of amusement rides and transportation systems has been accomplished through the use of tri-axial accelerometers and related sensor systems. Most recently I have providing acceleration measurement and assessment services for the restored ANGELS FLIGHT™ Railway (1901 funicular) prior to returning it to public service following a major safety upgrade and rebuild. I have also expanded the scope of performance testing through the use of fully instrumented Hybrid III Crash Test Dummies that have been tailored to provide information in the dynamic performance of amusement rides and devices. I have been engaged as a forensic investigator, litigation support specialist and expert witness providing performance testing and analysis for several cases and a current case.

SAFETY TESTING: Modern amusement rides and devices have complex, real-time ride control systems. I have applied my aircraft and space related experience to fault-tolerance testing of amusement ride and device ride control systems. I have applied fault-tolerance testing to verify the safety of the control systems for major amusement rides. I pioneered this type of fault-tolerance testing methodology to the verification of the control systems for the original Bally’s MGM section of the Las Vegas Monorail system. I continue to perform safety testing of new amusement rides as part of my Acceptance Testing and Commissioning Audits.

ACCIDENT INVESTIGATION: I have been called on to conduct amusement ride and device accident investigations related to injuries and fatalities involving passengers on amusement rides and devices. I was called in by the Augusta, Georgia District Attorney to investigate a ride injury where there was alleged tampering with an amusement ride. I was called in by the Louisiana Fire Marshal's Office to provide an assessment of a roller coaster that was involved in a fatal accident. I have been called in to conduct an intensive investigation of several amusement rides that were involved in fatal accidents. In those cases I provided litigation support, expert witness services and investigation services.

CODES & STANDARDS COMPLIANCE: The U.S., European and Asian amusement industries have developed a wide range of codes and standards for amusement rides and devices. There are ancillary codes and standards that applied by Authorities Having Jurisdiction (AHJ). I have incorporated codes and standards compliance assessments as part of my litigation support assignments.

RISK ASSESSMENT: Risk assessment and risk mitigation is a critical element of designing an amusement ride or device. I have conducted risk assessment reviews as part of my support of litigation and expert witness services. I am also an active Member of the RRG Risk Reduction Group for Ageing Amusement Rides. This is a unique group of engineers, inspectors and Owner/Operators who are looking to determine a better way of assigning risk to amusement rides based on a broad range of weighted decision factors including improved maintenance processes. The RRG was founded by TSSA Technical Standards and Safety Authority, Ontario, Canada and has included participants from the United States.

More details regarding these Experience Categories available upon request.

Recognized for successfully completing projects for clients in, but not limited to, the United States, Canada, Great Britain, Switzerland, Greece, Turkey, Egypt, Israel, Tunisia, Korea and, Japan. The primary areas of expertise and the specific subjects of relevant cases are described in the accompanying list of examples. These include, but are not limited to:

AERONAUTICS: Long Range Secure Communications Systems, Electronic Countermeasures Systems, Decoy & Deception Systems, Color HUD Camera Systems, Autonomous Aerial Refueling for Unmanned Air Vehicles, Technology Maturation Planning for UAV-AAR, Infra Red Camera Application Assessment

SPACE: Proof-of-concept Flight Sequencer Controller for Vega / Ranger Spacecraft, Identification and Correction of Conductive Crystal Growth in Space Electronics, Controller for Gas Chromatograph

SOLAR ENERGY: Development and Manufacture of High Efficiency Solar-Thermal Collectors, Development and Manufacture of Pre-Packaged Commercial Solar-Thermal Systems, Energy Conservation Studies, Application of Passive and Active Solar Technology at the Community Level

LASERS: Development and Manufacture of ND YAG Laser Marking Systems, Development and Manufacture of Ruby Welder / Driller Systems, Development of very High Power Precision Drilling System

AMUSEMENT INDUSTRY:

PARKS & ATTRACTIONS: Design & Commissioning of Experience Music Project Artist's Journey, Design, Commissioning and Operational Start-Up of the Largest Indoor Theme Park in Europe, Development Planning and Feasibility Study for Major Resort / Water Park Complex, Design & Commissioning of the 48 Scene, 80 Animated Figure, 155 Car Dark Ride Show for the Telecom Pavilion at EXPO'93 (Korea), Development Design Consulting for a Theme Park (Tunisia). Planning and conceptual development of a major, indoor water-park for a resort complex in Scotland. Performed the Design Review and Acceptance Testing of a medium sized water-Park in the US.

THEATERS: EXPO 85, Japan, 500 seat, 70mm, 6 channel audio, auto show control, EXPO 86, Vancouver, 500 seat, 70mm, 6 channel. C.D. audio, auto show control, EXPO 86, Vancouver, 300 seat, 70mm, 6 channel. C.D. audio, auto show control, Managed development of Showscan electronic film projectors, Developed and operated the TurboVenture Simulator Theater and Corporate Events Venue (Scotland)

SIMULATORS: CINEMA RIDE, 3D Simulators, Project Management, Owner's Representative and Installation Coordination, Operational Training and Inspection, EXPO 86, Vancouver, 40 passenger submersible simulator, auto show control, sensory stimulation systems, CN TOWER, Toronto, dual 40 passenger flight simulators, auto show control, compact 70mm electronic projector, ancillary video displays (2 years prior to Disney Star Tours), Managed development of Showscan moving seat theater systems, EPCOT, Living Seas Pavilion, Development of the "HYDROLATORS"

RIDES & ATTRACTIONS: Disney EPCOT, Horizons Pavilion, Ride Vehicle systems integration and start-up, Disney EPCOT, Living Seas Pavilion, Ride and Control System development, USH, E.T.'s Adventure, Ride System evaluation and show start-up coordination, USH, Manage maintenance and upgrade of all shows and attractions, USH, Developed budget tracking system for ride/show upgrades and operation. As an independent consultant I am continually involved in the design and development of new permanent and portable amusement rides and water based rides and attractions.

CODES & STANDARDS COMPLIANCE: The U.S., European and Asian amusement industries have developed a wide range of codes and standards for amusement rides and devices. There are ancillary codes and standards that applied by Authorities Having Jurisdiction (AHJ). I have provided codes and standards compliance assessments and mitigation strategies for a world-wide list of amusement ride manufacturers. These assessments have also been provided as part of "owner's-representative" services.

OPERATION & MAINTENANCE MANUALS

Many of the rides I am involved with are manufactured overseas. I have been contracted by ride manufactures to develop Maintenance and Operation Manuals for their new rides. I also edit and verify foreign manufacturer manuals so they can be read and understood by US and Canadian Owners. These edits often require re-writes of major sections of the manuals to make the operation and maintenance requirements more understandable to the people operating and maintaining the rides I have also developed a number of Operations Manuals for a new water-park. These manuals expanded on the manufacturer's provided information and added customized Emergency Evacuation procedures for the water slides, lazy river and Flowrider.

RISK ASSESSMENT: Risk assessment and risk mitigation is a critical element of designing an amusement ride or device. I have produced risk assessment and mitigation studies and reports for amusement ride manufacturers and operators. The risk assessment studies related to rider containment, rider reach envelope, identification and elimination of single-point failure modes and control system risks.

BUSINESS DEVELOPMENT / MANAGEMENT: Managed a Commercial Laser Company & took the company from a loss to break-even, Owned and Managed SOLARGENICS a Designer and Manufacturer of Solar-Thermal Systems, Owner and Manager of TEAM IX an Amusement Industry Consulting and Management Company, Management Consulting for the Largest Theme Park in Europe, Provided Management Performance Assessment related to a Legal Matter, Developed Business Plans for New Ventures

More details regarding these Experience Categories available upon request.

Please refer to Appendix "A" of this CV for Supplemental Experience Details on Accessibility and Water Parks.

PROFESSIONAL SOCIETIES-ORGANIZATIONS

Long-term member of relevant professional societies involved in promulgation of product safety standards and codes. I contributed to development of relevant safety standards and codes through participation in Task-Groups, Working-Groups and Committees of these professional societies. I have maintained proficiency by review of literature and journals as well as participating in related seminars and conferences.

IEEE Institute of Electrical and Electronic Engineers, Senior Member (Elected grade based on recognition of professional standing)

ASTM American Society for Testing and Materials International, Member
Committee, Amusement Rides and Devices + Task and Working Groups
Committee, Forensic Engineering + Task Groups

NFPA National Fire Protection Association, Member

RRG Risk Reduction Group for Ageing Amusement Rides, Member

ASHRAE American Society for Heating, Refrigeration and Air Conditioning Engineers

NAARSO National Association of Amusement Ride Safety Officials

ACCESSIBILITY Project Accessibility to Amusement Parks for People with Special Needs (Italy)

CREDENTIALS & CERTIFICATIONS:

NAARSO National Association of Amusement Ride Safety Inspectors
Certified Amusement Ride Safety Inspector Level III (Senior) with Instructor and Supervisor endorsements (CN 139)

Clark County, Nevada (Las Vegas)
Listed Quality Assurance & Testing Agency under ICC Section 1702 Special Inspections
1994 through 2009.

AWS American Welding Society
Certified Level II Visual Weld Inspector

State of California
Qualified Safety Inspector (C-6266) through February 2012

ADIPS Independent Inspection Body (041512-0) U.K. (inactive)

PATENTS:

4,209,007 Solar Heating System & Control Devices Therefore

4,752,065 Motion Picture Amusement Ride

4,789,376 Amusement Ride w/ plurality of moving seat rows

4,874,162 Motion Picture Amusement Ride

6,042,382 Sustained G Force Centripetal Acceleration Apparatus and Method
(Developed the prior art for this technology)

7,905,789 B2 Specialized Restraint Systems for Amusement Rides

8,505,383 Specialized Restraint System for Amusement Rides.

PAPERS & PRESENTATIONS:

International Association of Amusement Parks and Attractions, Fun EXPO 2006
Presentation - Due Diligence in Hiring Practices

Invited Paper –American Institute of Aeronautics & Astronautics, Space 2004
High Reliability Flight Sequencer–Controller for Precision Insertion of Ranger Class
Spacecraft for Lunar Orbit and Landing

Department of Energy, Division of Solar Energy
Paper - Solar Heating of Commercial Greenhouses

British Kinematograph Sound and Television Society (U.K.)
Society of Motion Picture and Television Engineers (U.S.)
Paper/Presentation – Electronic Intermediate Production Suite

More details regarding Papers and Presentations available upon request.

TRAINING CLASS DEVELOPMENT

I have been developing and presenting amusement ride and device training classes for over 18 years. These classes have been taught at schools put on by National Association of Amusement Ride Safety Officials, Northwestern Showmen’s Association, International Codes Council EDUCODE and Technical Standards and Safety Authority (Province of Ontario, Canada). Many of the classes are approved by the State of California and NAARSO for “self-directed” continuing education hours. The classes are approved for CEU’s issued by Darden College of Old Dominion University. These classes include but are not limited to:

HYDRAULICS: Basic Hydraulics, Hydraulic Components, Advanced Hydraulics, Hydraulics for Ride Inspectors, Hydraulics Troubleshooting

PNEUMATICS: Basic Pneumatics, Advanced Pneumatics

ELECTRICAL: Basic Electrical, Advanced Electrical, Arc Flash Safety

ELECTRONIC CONTROLS: Electronic Control Systems, Block Controls, Electronic Motor Controls

CODES & STANDARDS: International Codes Harmonization, Codes and Standards Changes, ASTM World Standards

SAFETY & EMERGENCIES: Identifying and Correcting At-Risk Behavior, Behavior Identification Issues, Emergency Response, Evacuation Training, Incident Investigation Tools

TRAINING: Train the Trainer, Developing a Training Program, Maintenance Training, Operations Training

More details regarding Training Class Development available upon request.

EDUCATION:

UNDERGRADUATE Studies: Electrical Engineering, University of Delaware
Business Administration, UCLA Extension

SPECIAL GRADUATE Studies: Business Administration, UCLA Extension
Contemporary Business Management, UCLA
Faster Cycle Time Management, Cal.Tech.
Taguchi Method (QA) Cal Poly Pomona

ANCILLARY EDUCATION:

NAARSO Safety Seminars (480+CEU's), Old Dominion U.

Northwestern Showmen's Safety Seminars (34+CEU's)

Technical Standards Safety Authority, Province of Ontario, Canada (11 years)

AWARDS & PROFESSIONAL RECOGNITION

Red Wood Safety Award –

For dedication to the Amusement Ride Industry – NAARSO 2009

Man of the Year Award – 2008

For Outstanding Service to the Amusement Industry – NAARSO

Jimmy Floyd Service Award –

For Outstanding Contributions to Amusement Ride Safety – NAARSO 2007

IEEE Senior Member –

In recognition of professional standing – Board of Directors IEEE 2006

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APPENDIX "A"

SUPPLEMENTAL EXPERIENCE DETAILS

SPECIAL SKILLS AUGMENTATION-RIDERS WITH SPECIAL NEEDS

The amusement ride industry has been dealing with the issue of accessibility of riders with handicaps. The ADA requirements are typically based on wheelchair accessibility. The industry is faced with a number of legal challenges.

On June 11 and 12, 2013, I participated as an expert, in the first controlled, quantitative testing of handicapped young people on amusement rides. *Project Accessibility to Amusement Parks for People with Special Needs* was a joint effort including, but not limited to, the following Italian organizations, *National Institute of Public Health; National Association of Operators of Traveling Shows; Bambino Gesù Pediatric Hospital; National Association for People with Down's Syndrome; Active Consortium of Special Skills; European Association Amusement Supplier Industry; IAAPA Europe; Planet Down; V4A Quality Brand for Accessible Tourism; Miragica Amusement Park; Leolandia Park, National Fire Brigade* and about 30 invited experts from Europe, Canada and the United States.

The testing was conducted with a group of Down Syndrome young people and a control group of similar age non-handicapped people. In addition to the Down syndrome young people there were two, special wheel chair-bound participants. The rides used for testing had no special accommodations for handicapped riders. The rides included simple round rides, small and large log flume rides to a 100 foot drop tower and several roller coasters including a spinning wild mouse type. The testing to measure individual rider stress was accomplished using the collection of cortisol (stress hormone) samples from all participants before and after each ride. The results of the clinical testing are not yet available.

Planning is now underway for a follow-up program to continue the quantitative and technical work of *Project Accessibility to Amusement Parks for People with Special Needs*. From a personal point of view this experience gave me a better insight into the joy this unique group of riders showed by having access to amusement rides. My attitude shifted from challenges to potential solutions for accommodation. I will be continuing my participation in this ground-breaking project.

I am a Member of the *ASTM F 24 Committee for Amusement Rides and Devices* Task Group that is working on developing methods for providing greater accessibility for riders with special needs.

SPECIAL SKILLS_WATER PARK/WARER RIDES

I have over 14 years of experience with a full spectrum of water rides and Water Park development. I performed inspections of manufactured and built-in-place water rides. I have made selections of water rides for both indoor and outdoor Water Parks. I have designed water treatment and pumping systems for water rides. I have also commissioned water rides.

My first major Water Park project was for an indoor/outdoor Water Park located just outside Istanbul, Turkey. The H2O Project included a full range of open and tube water slides, a lazy river and a rapids ride. I developed the Purchase Specifications for all of the water rides and the central water filtration and pumping system.

My second major Water / Theme Park rides development project is now, to a large extent, operational in at Park called Carthage Land in Yasmine Hamamet, Tunisia. I developed the designs and purchase specifications, including the animation and special effects systems for the following water-based rides and attractions:

1. Themed Wet / Dry Coaster that combined the features of a Flume Ride with a Non-Looping, Roller Coaster. This ride has become a very elaborate Flume Ride without the coaster and is operational.
2. African Adventure Ride that was much like the Disney Jungle Cruise. This ride has become a rapids river ride and is operational.
3. Hannon's Adventure was a float-through dark ride. It was a themed ride telling the adventures of a pioneering Tunisian explorer and trader. It was like a miniature version of the Disney's Pirates of the Caribbean.

Although Flume Rides are generally not considered Water Park rides, they have a lot in common with many of the newer water propelled rider types of rides. I developed the Purchase Specification for a Flume Ride and then performed the Design Review, Factory Inspection and Commissioning of a custom version of the ride. The TATILYA Park, Istanbul Turkey, Flume Ride was designed to have two lifts inside a themed mountain and water courses that, at times were elevated above ground level. After commissioning the ride I was responsible for the operational training of the operators. That training included emergency evacuation training.

A project called Kerswell Mains was my next step in the development of an indoor Water Park located between Glasgow and Edinburgh, Scotland. This Water Park was part of a larger resort development project with golf course, lake, resort village and a railroad. During the conceptual stage, I was instrumental in developing a system for the Water Park to be fully self-sustaining using rain water collection and recycling and methane powered electrical system. The Water Park was designed to have a full range of open and closed tube water slides, a lazy river and a rapids ride.

As a California QSI (Qualified Amusement Ride Inspector) and NAARSO Level III Certified Amusement Ride Inspector, I performed annual inspections of municipal water slides and related systems. I also did annual inspections for the water slides in a small amusement park.

Based on my experience in doing California Codes Compliance work for my Water Park clients, I was contracted by a major engineering and construction management company to provide Design Review, Code Compliance and Commissioning of all of the water rides and attractions in a small water park in Southern California. This Water Park had open and closed tube water slides, a small lazy river, a children's water play area and a Flowrider®. My scope of work included developing Operations Manuals for all rides and attractions including emergency evacuation and extraction of injured riders from open and closed tube water slides that went well beyond the information provided by the manufacturers. I also developed proposed signage that included both the manufacturer's requirements but also met the California requirements.