



Nicholas J. Spruill, IAAI-CFI, CFEI

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PROFESSIONAL PROFILE

Nicholas J. Spruill is a certified fire investigator (IAAI-CFI & NAFI CFEI) and an experienced failure analysis consultant with over fifteen years of consulting experience. His specialties include fire and explosion origin and cause, failure analysis, mechanical failure investigations, forensic imaging, and digital documentation. With deep cross disciplinary knowledge in safety investigations, building construction, and materials testing, Mr. Spruill supports litigation, insurance claims, and failure analysis projects for commercial, residential, and industrial cases.

AREAS OF SPECIALIZATION

- Fire & Explosion Investigations
- Mechanical & Materials Failure Analysis
- Water loss damage inspections
- Digital Microscopy & Forensic Photography
- 3D Laser Scanning & Aerial Documentation (Drone)
- Appliance & Plumbing System Investigations

POSITIONS

Brillouin Consulting **Manager**

Orange County Area, CA
Sep 2025 - Present

Lead expert in legal and claims files pertaining to fire origin and cause investigations. Experienced in fire investigations involving wildfires, vehicles, property and products. Deposition/trial experience.

Engineering Systems Inc. **Staff Consultant**

Irvine, CA
Oct 2022 - Sep 2025

Senior Technologist

Aug 2010 - Oct 2022

Led forensic investigations of fire/explosion incidents in residential, commercial, and industrial settings. Conducted laboratory testing, mechanical failure analysis, and evidence examination. Utilized drones and 3D laser scanners for scene documentation and reconstruction. Managed large, multi-party forensic sites and coordinated with law enforcement and federal agencies

ACADEMIC CREDENTIALS

California State University, Fullerton
Bachelors of Art, History

Fullerton, CA
2009

CERTIFICATIONS

- Certified Fire Investigator (IAAI-CFI)
- Certified Fire and Explosion Investigator (CFEI), NAFI #16135-8563
- FAA Part 107 Certified sUAS Commercial Drone Operator
- FARO Focus Certified 3D Laser Scanner Operator
- OSHA 30-Hour – General Industry & Construction Safety
- Crash Data Retrieval (CDR) Technician – Collision Safety Institute
- PC 832 – Laws of Arrest, Orange County Sheriff-Coroner Department

PROFESSIONAL AFFILIATIONS

- International Association of Arson Investigators (IAAI)
 - Certified Fire Investigator (IAAI-CFI)
 - Fire Investigation Technician (IAAI-FIT)
 - Member
- National Association of Fire Investigators (NAFI)
 - Certified Fire and Explosion Investigator (CFEI)
 - Member
- National Fire Protection Association (NFPA) – Member
- California Conference of Arson Investigators (CCAI) – Member

TECHNICAL PROFICIENCIES

- FAA-Certified Drone Operations for Aerial Mapping, Imagery, Videography
- FARO Focus 3D Laser Scanning & Modeling
- Digital & Optical Microscopy
- Forensic Photography & Videography
- Load Testing Equipment and Custom Test Fixtures
- Scene Documentation and Reconstruction Tools
- Experience with high-pressure gas systems (SCBA/SCUBA)
- Welding and Fabrication

SELECTED PROJECT EXPERIENCE

- Residential, commercial, vehicle, and lithium-ion battery fire investigations
- Appliance and plumbing system failure evaluations
- Load, torque, and deformation testing of components
- 3D scanning of tunnels, accident scenes, and equipment
- Explosion investigations with multi-agency coordination
- Documentation and testing of solar, mechanical, and electrical systems
- Analysis of UV degradation in materials and failure of structural hardware

RELATED TECHNICAL EXPERIENCE

- Custom automotive and SEMA show vehicle modifications
- Off-highway vehicle event supervision
- Vessel customization and maintenance
- Extensive experience with compressed gas systems and regulators
- Welding, fabrication, and construction of test equipment

CONTINUING EDUCATION

Includes more than 60 specialized courses, including:

- Fire Chemistry, Fire Flow Analysis, and Explosion Dynamics (IAAI)
- Complex Fire Investigation for the Insurance Industry
- Expert Witness Courtroom Testimony Course – IAAI/CCAI
- Motor Vehicle Fire Investigation
- Wildland Fire Investigation
- Fundamentals of Interviewing & Ethical Investigations
- OSHA 30-Hour General and Construction Industry
- 3D Laser Scanning – FARO Technologies
- National Electrical Code (NEC) Essentials – NFPA
- Crash Data Retrieval Technician (CDR)
- Fire Investigation 1A, 1B, 2A, 2B – California State Fire Marshal