

# NICK BARREIRO BAC, AVFA, DIVRT

Chief Forensic Analyst  
615-854-8055  
nick@principleforensics.com

Principle Forensics  
6688 Nolensville Rd, Suite 108-129  
Brentwood, TN 37027

## CURRICULUM VITAE

### CERTIFICATIONS

---

#### **Certified Audio Video Forensic Analyst (AVFA)**

Electronic Technicians Association

#### **Digital Imaging and Video Recovery Team (DIVRT)**

Federal Bureau of Investigation

#### **Certified Robbery/Homicide Investigator**

Robert Presley Institute of Criminal Investigation

#### **Advanced Peace Officer Certification**

California Commission on Peace Officer Standards and Training

### EXPERT DISCIPLINES

---

#### **Video, Audio, and Image Forensics**

- Evidence Recovery
- Authentication
- Enhancement
- Synchronization
- Analysis
- Redaction
- Photogrammetry
- Facial Recognition
- License Plate Recognition
- Court Exhibit Preparation
- Expert Testimony

### EDUCATION

---

#### **Yuba College - Administration of Justice**

2006

Police Academy  
Marysville, California

#### **University of California at Davis**

1998 - 2002

Major in Communications  
Davis, California

### **Fusion-Based Digital Visual Media Forensics**

May 26-27, 2023

eForensics, Hakin9 Media

- Fusion-based image and video forensics
- Recognizing uncertainty and ambiguity in digital visual media forensics
- Fusion-based techniques used in tamper detection, evidence authentication, and source identification
- Analysis of the factors that cause uncertainties and ambiguities in forensic artifacts
- Integration-based vs. fusion-based forensic solutions
- Theories and strategies for handling uncertain, conflicting, or incomplete pieces of evidence

### **Forensic Image and Video Enhancement**

March 20 - 24, 2023

Amped Software

- Fundamentals of image and video processing
- Artifacts introduced during the creation of recorded evidence
- Methods for addressing the most common forensic issues using enhancement, restoration, and analysis filters and tools
- Critical analysis of digital media, including image comparison, height analysis, timing analysis, etc.
- Forensically sound workflow and reporting according to scientific and judiciary constraints

### **Advanced Forensic Audio Analysis & Processing**

December 2, 2022

Resolution Video

- Advanced audio enhancement processes
- Multitrack mixing and editing techniques
- Batch processing of audio files
- Accurately capturing audio from proprietary players and websites
- Audio streams from video sources: stripping, muxing, synchronizing, and timing issues
- Background noise removal using cross-channel adaptive filtering
- Gunshot audio signal analysis

### **Adobe Premiere for Forensic Video Analysts**

November 8 - 10, 2022

Resolution Video

- Understanding the forensic video analysis workflow with Adobe Premiere
- Advanced toolset and filters for examining video evidence
- Utilizing Premiere to create and synchronize video timelines
- Processing techniques that enhance the quality of video evidence
- Methods for redacting video and audio for public release
- Producing derivative evidence and demonstrative products

**Advanced Forensic Audio Enhancement & Processing** May 9 - 12, 2022  
University of Colorado Denver, National Center for Media Forensics

- Deep exploration of digital multimedia processing
- Forensic audio equipment, software, and methods
- Advanced techniques for enhancing recorded audio
- Filtering, noise reduction, and cross-channel adaptive filtering
- Audio processing for increased intelligibility
- Working with audio files from video recordings
- Batch processing with ffmpeg and other command line utilities

**LEVA Digital Multimedia Evidence Training Symposium** October 18 - 22, 2021  
LEVA International, Inc.

- Interactive video authentication, detecting manipulations
- Integrating video data from disparate sources
- Photogrammetry and error calculation
- Calculating distance, time, and speed from digital video
- Emerging digital evidence considerations, challenges, and opportunities
- Report writing fundamentals for forensic video analysis
- Courtroom trial preparation of technical evidence

**Adobe Photoshop for Forensic Video Analysts** May 10 - 13, 2021  
Resolution Video

- Maximizing image quality when exporting a forensic video image
- Workflow efficiency for processing images from video evidence
- Pixel aspect ratio correction techniques
- Photogrammetry, measurements, reverse projection, error calculation
- Custom filters for de-blurring, sharpening, and pattern elimination
- Applying color isolation processes for image clarification

**Digital Video Forensics** May 3 - 5, 2021  
eForensics, Hakin9 Media

- Contemporary video forensic technologies and processes
- Video forensic investigation procedures
- Technical issues related to digital video processing
- Video content authentication and forgery/tampering detection
- Digital videos as evidence within and beyond the justice system
- Recovery, enhancement, analysis, and interpretation of video evidence

**Forensic Analysis and Enhancement of Digital Audio** March 29 - April 1, 2021  
University of Colorado Denver, National Center for Media Forensics

- Practical fundamentals in digital audio theory
- Forensic audio handling and enhancement
- Digital evidence tools and noise reduction
- Recovery of digital audio and stereo source separation
- Spectral tools for forensic analysis
- FFT spectrum and spectrogram

**Forensic Analysis and Authentication of Digital Audio** March 15 - 18, 2021  
University of Colorado Denver, National Center for Media Forensics

- Digital audio authentication techniques
- Admissibility of digital audio evidence
- Counterfeit detection and digital data analysis
- Compression level analysis
- ENF collection and comparison

**Forensic Analysis and Authentication of Digital Images** March 1 - 4, 2021  
University of Colorado Denver, National Center for Media Forensics

- Authentication of digital images and manipulation detection
- Image evidence admissibility
- Image manipulation detection
- EXIF data analysis
- Recompression analysis
- Photo response non-uniformity

**Robbery Investigation (ICI)** September 30 - October 4, 2019  
Robert Presley Institute of Criminal Investigation

- Video evidence analysis
- Examination of robbery case studies
- Elements of the crime, developing patterns, and dynamics
- Techniques and strategies to develop a successful investigation
- Interpretation and application of laws related to robbery
- Suspect identification techniques
- Courtroom testimony

**Digital Imaging and Video Recovery** March 19 - 20, 2019  
Federal Bureau of Investigation

- Video forensics
- Evidence retrieval from digital video recorders
- Documentation of critical system information
- Preservation of collected evidence
- Enhancing video evidence
- Considerations when releasing video to the media

**Homicide Investigation (ICI)** January 21 - February 1, 2019  
Robert Presley Institute of Criminal Investigation

- Evidence collection, crime scene analysis, and chain-of-custody
- Electronic investigations and video forensics
- Arson and terrorism investigations
- Forensic pathology, odontology, entomology, and anthropology
- The role of the media
- Interpretation of homicide law and preparation for testimony

- Officer-Involved Shooting/Force Investigation (ICI)** December 10 - 14, 2018  
Robert Presley Institute of Criminal Investigation
- Critical incidents: officer-involved shootings, use of force, etc.
  - The importance of video forensics in critical incidents
  - Contemporary critical incident case studies
  - Administrative investigations, legal considerations, media relations, and courtroom testimony

- Death Investigation** May 21 - 22, 2018  
3<sup>rd</sup> Degree Communications
- Crime scene management
  - Officer-involved shootings and in-custody deaths
  - Wound recognition, apparent suicide, and apparent accidental death
  - Evidence recognition, photography, and documentation

- Robbery Investigation** November 14, 2017  
3<sup>rd</sup> Degree Communications
- Management of major robbery investigations
  - Surveillance video and evidence collection
  - Identification of crime patterns and resources
  - Suspect identification, interview, and interrogation techniques

- Electronic Surveillance** June 9, 2017  
State of California Department of Justice
- Electronic surveillance and pen registers
  - Intercepting and recording wire communications
  - Practical and tactical aspects of operating and monitoring a wiretap

- Criminal Investigation Core Course (ICI)** January 9 - 20, 2017  
Robert Presley Institute of Criminal Investigation
- Surveillance techniques, interview and interrogation
  - Crime scene management and reconstruction
  - Search & seizure law and preparation of search warrants
  - Documentation, case management, case presentation
  - Courtroom testimony

- FaceSearch Facial Recognition** July 28, 2016  
Vigilant Solutions
- Forensic facial recognition technology and databases
  - Image comparison and facial identification
  - Filtering and editing techniques

- Automated License Plate Reader** September 26, 2014  
Central California Intelligence Center, Sacramento RTAC
- License plate reader cameras, databases, and technology
  - Data analysis, advanced queries, and geo-fence analysis

## WORK EXPERIENCE

---

### Forensics

#### Principle Forensics, Nashville, TN

##### Chief Forensic Analyst

2020 - Present

- Forensic Video, Audio, and Image Investigations
- Authentication of Recorded Evidence
- Enhancement and Analysis of Video, Audio, and Images
- Synchronization and Redaction of Evidence
- Derivative Evidence and Demonstrative Exhibits
- Professional Litigation Support
- Expert Witness Testimony

### Law Enforcement

#### West Sacramento Police Department, West Sacramento, CA

##### Patrol Sergeant

2019 - 2020

- Patrol Supervisor
- Technology Project Manager
  - Media Forensics
  - Body-Worn & Dash Cameras
  - Digital Evidence System
  - License Plate Readers
  - Facial Recognition Technology

##### Detective

2016 - 2019

- Forensic Video Investigations
- Crimes Against Persons Investigations
  - Robbery, Homicide, Felony Assaults
  - Officer-Involved Shootings

##### Patrol Officer

2006 - 2016

- Digital Evidence Specialist
- Surveillance Video Recovery Expert

### Audio Engineering / Production

#### KBMB Radio, Sacramento, CA

2001 - 2003

- On-Air Audio Mixing

#### The Graduate, Davis, CA

1998 - 2002

- Audio Mixing and Production

## ACHIEVEMENTS & AWARDS

---

### Audio Video Forensic Analyst Certification

2021

Electronic Technicians Association

Certification in the enhancement and analysis of audio and video digital recordings, handling of evidence in accordance with the highest ethical standards, preparation of expert testimony in the service of justice, industry best practices, and rules of evidence.

- Certificate of Commendation** 2020  
 West Sacramento Police Department  
 In recognition of exceptional performance of duty utilizing specialized skills in video forensics that were vital in several major investigations and resulted in significant arrests and convictions.
- ICI Certificate of Achievement in Homicide Investigation** 2019  
 Robert Presley Institute of Criminal Investigation  
 Individuals who have demonstrated a sustained desire, discipline, and determination to refine their investigative craft by devoting approximately 200 hours of training to qualify for an ICI Certificate in Homicide Investigation.
- ICI Certificate of Achievement in Robbery Investigation** 2019  
 Robert Presley Institute of Criminal Investigation  
 Individuals who have demonstrated a sustained desire, discipline, and determination to refine their investigative craft by devoting approximately 200 hours of training to qualify for an ICI Certificate in Robbery Investigation.
- Digital Imaging and Video Recovery Team Member** 2019  
 Federal Bureau of Investigation  
 The Digital Imaging and Video Recovery Team (DIVRT) is comprised of state, local and federal law enforcement officers working jointly with FBI's Forensic Audio, Video and Image Analysis Unit (FAVIAU) to provide instruction in the retrieval and dissemination of digital video evidence.
- Commanding Officer's Citation** 2017  
 West Sacramento Police Department  
 In recognition of dedication, professionalism, compassion, and teamwork in response to a homicide investigation in September of 2017.
- Advanced Peace Officer Certificate** 2012  
 California Commission on Peace Officer Standards and Training  
 Awarded to full-time peace officers who have fulfilled the requirements for character, education, training, and experience, as prescribed in Title 11, Division 2, of the California Code of Regulations.
- Intermediate Peace Officer Certificate** 2010  
 California Commission on Peace Officer Standards and Training  
 Awarded to full-time peace officers who possess a Basic Certificate and who have acquired the specified training and education points and/or college degree and the prescribed years of law enforcement experience.
- Basic Peace Officer Certificate** 2008  
 California Commission on Peace Officer Standards and Training  
 Awarded to full-time peace officers who have satisfactorily completed the prerequisite Basic Course requirement and the employing agency's probationary period.

## SELECT CASES & TESTIMONY

---

I have conducted hundreds of forensic audio, video, and image investigations in the United States and internationally. I have enhanced and analyzed thousands of digital files, ranging from simple slip-and-fall cases and minor traffic accidents to complex investigations such as homicides and officer-involved shootings. I am a court-certified expert and have provided testimony in criminal cases, civil litigation, and arbitrations. Below is a sample of cases in which I was involved:

### **State vs. Steve G. Wade**

(2022-CR-00366)

Ohio Court of Common Pleas – County of Licking  
Child abuse case

- Forensic video analysis and authentication
- Forensic comparative analysis
- Expert witness testimony

### **Rodriguez vs. FedEx Freight**

(2021-63834)

District Court of Texas - County of Harris  
Wrongful death case

- Forensic video enhancement
- Exemplar recording creation
- Forensic video analysis
- Demonstrative court exhibit preparation
- Expert witness testimony

### **Johnson vs. Johnson**

(FAMBA2301208)

Superior Court of California - County of San Bernardino  
Family law case with falsified evidence

- Forensic audio authentication and analysis
- Exemplar recording creation
- Detection of evidence tampering
- Expert witness testimony

### **R. vs. Beryl Musila**

(170772719Q1)

Alberta Court of King's Bench, Canada  
First-degree murder case

- Forensic video authentication
- Forensic video analysis
- Motion detection analysis
- Expert witness testimony



**Thomas vs. Wren**

(22-CVD-1159)

North Carolina General Court of Justice - County of Henderson  
Family law case with false accusation of evidence tampering

- Opposing expert report analysis
- Forensic audio analysis and authentication
- Confirmation of evidence authenticity
- Demonstrative court exhibit preparation
- Expert witness testimony

**State vs. Deangelo Wiggins**

(21CR0615001)

Circuit Court of Cook County – State of Illinois  
Carjacking case

- Forensic video analysis
- Still frame capture
- Forensic image enhancement
- Forensic comparative analysis
- Demonstrative court exhibit preparation
- Expert witness testimony

**Hobbs vs. Select Property Management, Inc.**

(RG19030825)

Superior Court of California - County of Alameda  
Civil harassment case

- Forensic video authentication
- Forensic video and image analysis
- Surveillance system layout analysis
- Expert witness testimony

**Hong vs. Yang**

(FL-2020-768, FL-2021-1434)

Superior Court of California - County of Yolo  
Family law case with falsified evidence

- Forensic video and image authentication
- Forensic image analysis
- Detection of evidence tampering
- Demonstrative court exhibit preparation
- Expert witness testimony

**Crummy vs. Sonoco Products Company**

(2020-CP-16-00592)

South Carolina Court of Common Pleas – County of Darlington  
Wrongful Death Case

- Forensic video authentication and enhancement
- Timeline sequence reconstruction and synchronization
- Distance and speed calculation
- Forensic audio enhancement
- Expert witness testimony

**Baxter vs. City of Hemet**

(5:21-cv-0133-JWH-SP)

US District Court – Central District of California

Law enforcement excessive force allegation

- Opposing expert report analysis
- Forensic audio & video authentication
- Chain of custody analysis
- Expert witness testimony

**State vs. Christian Braun**

(22-M-00319)

Madison District Court – Commonwealth of Kentucky

Assault case

- Forensic audio authentication and analysis
- Exemplar recording creation
- Detection of evidence tampering
- Expert witness testimony
- Falsified evidence excluded in court

**William Sands vs. District of Columbia et al.**

(2021-CA-000699-B)

Superior Court of the District of Columbia

Law enforcement excessive force allegation

- Forensic video authentication
- Forensic video enhancement and analysis
- Timeline sequence reconstruction and synchronization
- Photogrammetry
- Expert witness testimony

**State vs. Albert Rodriguez Lewis**

(21-CF-006935AMB)

15<sup>th</sup> Judicial Circuit of Florida – County of Palm Beach

Attempted homicide case

- Forensic video authentication
- Forensic video analysis
- Expert witness testimony

**Double Murder Investigation**

(OPD-18-021678)

Oakland Police Department, California

- Forensic video authentication
- Forensic video enhancement and analysis
- Timeline sequence reconstruction and synchronization
- Demonstrative court exhibit preparation

**Kenneth Frazier Jr. vs. Norfolk Southern Railway Co.**

(CA-20-C-69)

Circuit Court of West Virginia – County of Mingo

Personal injury case

- Forensic audio analysis
- Forensic audio enhancement
- Expert witness testimony

**Riffel vs. Redding West Senior Living, LLC**  
Superior Court of California - County of Shasta  
Wrongful death case

(19-7446)

- On-site surveillance system analysis
- Forensic digital video recorder examination
- Forensic video authentication and analysis
- Timeline sequence reconstruction

**Clewett vs. New Wave Power et al.**  
US District Court – Northern District of Texas, Dallas Division  
Class action lawsuit

(3:21-CV-00692-S)

- Forensic audio authentication and analysis
- Forensic comparative analysis
- Detection of evidence tampering
- Demonstrative court exhibit preparation

**Rodock vs. Moore et al.**  
US District Court – District of Kansas  
Personal injury malpractice case

(21-2050-DDC-JPO)

- Forensic audio analysis
- Forensic audio enhancement
- Expert witness testimony

**Rowan Altahrawi vs. Jafar Altahrawi**  
17<sup>th</sup> Judicial Circuit Court of Illinois – County of Winnebago  
Family law case with falsified evidence

(2019-OP-0002424)

- Forensic audio authentication and analysis
- Detection of evidence tampering
- Expert witness testimony
- Falsified evidence excluded in court

**State of North Carolina vs. James William Durner**  
Superior Court of North Carolina – County of Carteret  
Homicide case

(21-CR-50487)

- Forensic video enhancement
- Forensic video analysis
- Demonstrative court exhibit preparation

**Officer-Involved Shooting of Jonathan Ramirez**  
Oakland Police Department, California

(OPD-20-054365)

- Forensic video authentication
- Forensic video enhancement and analysis
- Forensic audio analysis
- Timeline sequence reconstruction and synchronization

**Provatas vs. Creek House Seafood and Grill, LLC**

(STCV19-00197)

Georgia State Court – County of Chatham

Wrongful death case

- Forensic video evidence recovery and authentication
- Forensic video enhancement and analysis
- Super-resolution imaging
- Demonstrative court exhibit preparation
- Expert witness testimony

**State of North Carolina vs. Ramone Alston**

(COA-19-346)

Court of Appeals of North Carolina

Homicide conviction appeal

- Forensic video and image authentication
- Forensic video and image enhancement
- Forensic video analysis
- Still frame capture

**People vs. Daryoush Sameyah**

(LAC9CJ04260-01)

Superior Court of California - County of Los Angeles

Assault with a deadly weapon

- Forensic audio analysis
- Forensic audio authentication
- Detection of evidence tampering

**McCray vs. Alexander Jr.**

(2018-164)

Circuit Court of the 21<sup>st</sup> District – Williamson County, TN

Wrongful death case

- Opposing expert report analysis
- Forensic audio and image analysis
- Forensic video enhancement
- Demonstrative court exhibit preparation
- Expert witness testimony

**Evans vs. Gorgenkon et al.**

(0300631/2017)

Superior Court of New York – County of Bronx

Vehicle accident case

- Forensic video enhancement
- Forensic video authentication
- Forensic video analysis

**A.W. vs. Stellar Restaurant Group, Inc.**

(2084-CV-00657)

Superior Court of Massachusetts – County of Suffolk

Personal injury case

- Opposing expert report analysis
- Forensic video authentication and enhancement
- Forensic video analysis

**Officer-Involved Shooting of Robert Coleman** (DPD-20-03981)  
West Sacramento Police Department, California

- Forensic video authentication and analysis
- Forensic video enhancement
- Forensic video synchronization
- Video preparation for public release

**State of California vs. Jacob Oehlcke** (CR-2020-4149)  
Superior Court of California - County of Yolo  
Robbery/Homicide case

- Forensic video analysis
- Forensic video enhancement
- Court testimony

**Officer-Involved Shooting of Christopher Gray** (WSP-19-07523)  
Davis Police Department, California

- Forensic video enhancement
- Forensic video synchronization
- Forensic video analysis
- Still frame capture
- Demonstrative exhibit preparation

**State of California vs. Tuala Auimatagi** (CR-2019-4995)  
Superior Court of California - County of Yolo  
Homicide case involving hundreds of hours of surveillance video

- Forensic video evidence recovery and authentication
- Forensic video enhancement and synchronization
- Forensic video analysis and still frame capture
- Demonstrative exhibit preparation
- Court testimony

**State of California vs. Dominique Jackson** (CR-2019-6376)  
Superior Court of California - County of Yolo  
Sexual assault case

- Forensic video evidence recovery
- Forensic video authentication and enhancement
- Forensic video analysis and still frame capture
- Court Testimony

**State of California vs. Joshua Bolden** (CR-2019-4186)  
Superior Court of California - County of Yolo  
Armed robbery case

- Forensic video evidence recovery
- Forensic video authentication and analysis
- Court testimony

**State of California vs. Steven Ferris** (CR-2019-2476)  
Superior Court of California - County of Yolo  
Robbery case

- Forensic video authentication
- Forensic video enhancement
- Forensic video analysis
- Still frame capture
- Court testimony

**State of California vs. Terrance Ivory** (CR-2018-5165)  
Superior Court of California - County of Yolo  
Child abuse case

- Forensic video authentication and analysis
- Still frame capture
- Court testimony

**State of California vs. Larry Duncan** (CR-2018-4948)  
Superior Court of California - County of Yolo  
Assault with a deadly weapon case

- Forensic video evidence recovery
- Forensic video authentication and analysis
- Court testimony

**State of California vs. Bryant Coulson** (CR-2018-4292)  
Superior Court of California - County of Yolo  
Burglary case

- Forensic video authentication and analysis
- Still frame capture
- Facial recognition match

## **PUBLICATIONS, SPEAKING ENGAGEMENTS, INSTRUCTION, & MEDIA**

---

**The Power of Audio, Video, and Image Evidence** June 2023  
Instructor, Tennessee Defense Lawyers Association

**Nigerian Military Execution – Video Enhancement and Analysis** March 2023  
Media Consultant, Reade Levinson, Reuters News

**Ghislaine Maxwell Photograph Authenticity** January 2023  
Media Consultant, Fox News

**Understanding Video and Audio Forensics** November 2022  
Instructor, Georgia Association of Professional Private Investigators

**Why Security Camera Footage Still Sucks – Cheddar Explains** August 2022  
Interview, Cheddar News, cheddar.com

<b>Orsolya Gaal Murder, Queens New York</b> Media Consultant, Fox News	April 2022
<b>Stop posting pictures with your clients</b> Interview, Athena Worldwide, ebacktobasics.com	March 2022
<b>Photoshop's Deadly Consequences</b> Published Article, eForensics Magazine, ISSN 2300 6986	August 2021

#### **PROFESSIONAL AFFILIATIONS**

---

**International Association for Identification** - Active Member  
theiai.org

**Audio Engineering Society** - Active Member  
aes2.org

**Electronics Technicians Association International** - Active Member  
etai.org

#### **REFERENCES**

---

References are available on request.