

# Jeff M. Smith

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## EDUCATION

### **M.Sc. Recording Arts - 2006**

University of Colorado Denver, Colorado. 3.9 GPA

Thesis: *The Accuracy and Consistency of Spectrographic Analysis for Voice Identification*

### **Ph.D. Computer Science and Information Systems – In Progress**

University of Colorado Denver, Colorado

## PROFESSIONAL AFFILIATIONS

Audio Engineering Society (AES)

Member

### **2003-present**

- Chair, *Technical Committee on Audio Forensics* since 2010
- Co-Chair, *AES 62<sup>nd</sup> Conference, Audio Forensics*, Arlington, VA, June 2017
- Co-Chair, *AES 54<sup>th</sup> Conference, Audio Forensics*, London, June 2014
- Chair, *AES 46<sup>th</sup> Conference, Audio Forensics*, Denver, June 2012
- Chair, *AES Colorado Section 04/11-04/13*
- Chair, *AES Colorado Student Chapter 08/04 – 01/06*

American Academy of Forensic Science (AAFS)

Fellow, Digital and Multimedia Sciences Section

### **2009-present**

- Chair, 2017 Conference, DMS Section Program Committee
- Co-Chair, 2016 Conference, DMS Section Program Committee

Scientific Working Group on Digital Evidence (SWGDE)

Member

### **2009-present**

- *Executive Board At-Large* Member
- Member *Audio Committee*

## PROFESSIONAL EXPERIENCE

Forensic Media Services, Ltd.

### **Forensic Audio, Video, and Image Analysis**

#### **2013-present**

- Provide expert forensic analysis and consultation regarding multimedia evidence including audio, video, and still images.
- Previously forensic expert with Salt Pro Audio from 2009 to 2013

## **PROFESSIONAL EXPERIENCE (CONT.)**

National Center for Media Forensics, University of Colorado Denver

**Associate Director, Professional Research Assistant**

**06/05 - present**

- Interim Director Summer 2009 to Fall 2010.
- Duties include oversight of facility and staff, development and implementation of Master's program in media forensics, and scientific research and experimentation with colleague Dr. Catalin Grigoras.
- Instructor in the Master's of Science in Recording Arts emphasis program in Media Forensics.
- Graduate Research Assistant 2005 to 2006.

University of Colorado Denver, College of Arts and Media

**Part-Time Faculty**

**01/05-05/07**

- Instructor for "Music Applications on the Computer"- an introductory course in music technology and a degree requirement for both Music Technology and Performance majors. Taught eight 20-student sections.

## **GRADUATE COURSES INSTRUCTED**

MSRA 5314 – Report Writing and Court Testimony, 3CH, UC-Denver

**2011-present**

MSRA 5054 – Experiential Lab, 1CH, UC-Denver

**2010-present**

MSRA 5224 – Forensic Video Analysis, 3CH, UC-Denver

*Primary Instructor, co-teach with Dr. Catalin Grigoras*

**2011-present**

MSRA 5004 – Topics in Media Forensics- Forensic Audio Workshop, 1CH, UC-Denver

*Co- Instructor Dr. Catalin Grigoras*

**2010-present**

MSRA 5124 – Forensic Science and Litigation, 3CH, UC-Denver

**2010-present**

MSRA 5014 – Research Practices in Media Forensics, 3CH, UC-Denver

**2012-present**

MSRA 6530 – Graduate Audio Forensics, 3CH, UC-Denver

**Spring 2010**

## **PUBLICATIONS**

### **Reference Works**

*Forensic Audio Analysis Review 2013-2016*

Grigoras C., Drygajlo, A., Smith J.M. Interpol 18th International Forensic Science Manager's Symposium, Lyon, France, October 2016

*Forensic Audio Analysis Review 2010-2013*

Grigoras C., Smith J.M., Morrison G.S., Enzinger E. Interpol 17th International Forensic Science Manager's Symposium, Lyon, France, October 2013

*Digital Imaging: Enhancement and Authentication*

Grigoras C., and Smith J.M. In: Siegel JA and Saukko PJ (eds.) Encyclopedia of Forensic Sciences, Second Edition, pp. 303-314. Waltham: Academic Press. 2013

*Audio Enhancement and Authentication*

Grigoras C., and Smith J.M. In: Siegel JA and Saukko PJ (eds.) Encyclopedia of Forensic Sciences, Second Edition, pp. 315-326. Waltham: Academic Press. 2013

### **Peer Reviewed Publications**

*Evaluation of the Average DC Offset Values for Nine Small Digital Audio Recorders*

Koenig, B., Lacey, D., Grigoras, C., Price, S.G., Smith, J.M. Journal of the Audio Engineering Society, Vol. 61, No. 6, June 2013.

### **Peer Reviewed Conference Proceedings**

*Triage Approach for the Forensic Analysis of Apple iOS Audio Files Recorded Using the "Voice Memos" App*

Smith, J.M., Lacy, D., Koenig, B., Grigoras, C. Proceedings of the 2017 International Conference of the Audio Engineering Society on Audio Forensics. Arlington, VA. June 2017.

*Advances in the Forensic Analysis of Digital Audio File Structure and Format*

Grigoras, C., Smith, J.M. Proceedings of the 2017 International Conference of the Audio Engineering Society on Audio Forensics. Arlington, VA. June 2017.

*Analysis of Apple iOS Version Effects on Format and Metadata Structure of Audio Files Recorded Using the Native "Voice Memos" App*

Smith, J.M., Lacey, D., Grigoras, C., Koenig, B. Proceedings of the 69th Annual Scientific Meeting of the American Academy of Forensic Sciences, New Orleans, February 2017

*Structure and Format Analysis of Lossy Compressed Audio Files*

Grigoras, C., Smith, J.M. Proceedings of the 69th Annual Scientific Meeting of the American Academy of Forensic Sciences, New Orleans, February 2017

*Proposed Analytical Framework for Electronically Frequency/Pitch-Modified Voices*

Bonilla, E., Grigoras, C., Smith, J.M. Proceedings of the 68th Annual Scientific Meeting of the American Academy of Forensic Sciences, Las Vegas, February 2016

**Peer Reviewed Conference Proceedings (cont.)**

*Source Identification of High-Definition Videos - A Forensic Analysis of Downloaders and YouTube Video Compression Using a Group of Action Cameras*

Giammarrusco, Z., Grigoras, C., Smith, J.M. Proceedings of the 68th Annual Scientific Meeting of the American Academy of Forensic Sciences, Las Vegas, February 2016

*Forensic Analysis of Digital Audio File Structures and Formats*

Grigoras, C., Smith, J.M. Proceedings of the 68th Annual Scientific Meeting of the American Academy of Forensic Sciences, Las Vegas, February 2016

*Quantitative Comparison of Frame Extraction Methods for Motion JPEG Video*

Smith, J.M., Grigoras, C. Proceedings of the 66th Annual Scientific Meeting of the American Academy of Forensic Sciences, Seattle, February 2014

*Quantization Level Analysis for Forensic Media Authentication*

Grigoras, C, Smith, J.M. Proceedings of the 54th Conference of the Audio Engineering Society "Techniques, Technologies, and Practice." London, June 2014.

*A Case Study in 3GP File Analysis and Repair*

Smith, J.M., Grigoras, C. Proceedings of the 65th Annual Scientific Meeting of the American Academy of Forensic Sciences, Washington, DC, 2013.

*Analytical Framework for Digital Audio Authentication*

Grigoras, C., Rappaport D., Smith, J.M. Proceedings of the 46th Conference of the Audio Engineering Society "Audio Forensics- Recording, Recovery, Analysis, and Interpretation." Denver, June 2012.

*Advances in ENF Analysis for Digital Media Authentication*

Grigoras, C, Smith, J.M. Proceedings of the 46th Conference of the Audio Engineering Society "Audio Forensics- Recording, Recovery, Analysis, and Interpretation." Denver, June 2012.

*Evaluation of the Average DC Offset Values for Nine Small Digital Audio Recorders*

Koenig, B., Lacy, D., Grigoras, C., Price, S.G., Smith, J.M. Proceedings of the 46th Conference of the Audio Engineering Society "Audio Forensics- Recording, Recovery, Analysis, and Interpretation." Denver, June 2012.

*Advances in ENF Database Configuration for Forensic Authentication of Digital Media*

Grigoras, C., Jenkins C., Smith, J.M.. Proceedings of the 131st Convention of the Audio Engineering Society, New York 2011.

*Computer Forensics for the Audio Forensics Professional*

Rogers, M., Smith, J.M. Proceedings of the 39th Conference of the Audio Engineering Society "Audio Forensics- Practices and Challenges." Denmark, June 2010

*Building a Database of ENF Variations for Use in Digital Media Authenticity*

Proceedings of the 62nd Annual Scientific Meeting of the American Academy of Forensic Science, Seattle 2010.

*Forensic Voice Identification Utilizing Digitally Extracted Speech Characteristics*

Proceedings of the 125th Convention of the Audio Engineering Society, San Francisco 2008.

## **Peer Reviewed Conference Proceedings (cont.)**

*Further Investigation into Speaker Identification by a Simple Code-Matching Technique*  
Proceedings of the 33rd Conference of the Audio Engineering Society “Audio Forensics- Theory and Practice,” Denver 2008.

## **ORGANIZED AND INVITED PRESENTATIONS**

### ***Forensic Digital Multimedia: Enhancement and Authentication***

Presented on Digital Image, Video, and Audio Enhancement methods and techniques. 69th Annual Scientific Meeting of the American Academy of Forensic Sciences, New Orleans, February 2017

### ***Audio Forensics: An Overview***

Chaired workshop covering various aspects of forensic audio analysis. Presented on forensic speaker comparison. 139<sup>th</sup> and 137<sup>th</sup> Conventions of the Audio Engineering Society, NY and Los Angeles respectively, October 2014 and 2015.

### ***Multimedia Authentication: Searching for Truth in the Digital World***

Presented on Audio Authentication methods and techniques. 66th Annual Scientific Meeting of the American Academy of Forensic Sciences, Seattle, February 2014

### ***Digital Image Authentication Workshop***

26th Annual Training Conference & Digital Multimedia Evidence Symposium, San Diego, CA, October 2012

### ***Forensic Authentication of Digital Audio***

Chair for workshop on current and future trends in audio authenticity. 133<sup>rd</sup> Convention of the Audio Engineering Society, San Francisco, October 2012.

### ***Authentication of Forensic Audio – Then and Now***

Chair for workshop on historical and state of the art methods in forensic audio authentication. 131<sup>st</sup> Convention of the Audio Engineering Society, New York, October 2011.

### ***Basic Audio Enhancement***

Co-taught class for registered conference attendees with Sgt. David Hallimore of the Houston Police Dept. Digital Summit International, Las Vegas, August 2011

### ***An Introduction to Audio Forensics***

Invited panel speaker on education possibilities in the field of Audio Forensics. 127<sup>th</sup> Convention of the Audio Engineering Society, New York, October 2009.

### ***New Frontiers in Audio Forensics***

Invited panel speaker on biometric voice identification. 125<sup>th</sup> Convention of the Audio Engineering Society, San Francisco 2008.

## **RELEVANT TRAINING**

### **Digital Video Processing Techniques Workshop, August 2013**

Resolution Video. Certificate of Training

### **Comparison Analysis of Video and Image Evidence, September 2011**

Resolution Video. Certificate of Training

### **Cognitech Forensic Video Certification Training for the End-User, March 2011**

Cognitech, Inc. Certificate of Training

### **Premiere Pro for Forensics, August 2011**

Digital Summit International Conference. Certificate of Training

### **Introduction to Forensic Video Analysis, June 2010**

Ocean Systems, Maryland. Certificate of Achievement

### **Audio Enhancement and Authenticity Seminar, June 2009**

New York Institute of Forensic Audio. Certificate of Achievement

### **Grants 101: Professional Grant Proposal Writing Workshop, June 2007**

The Grant Institute. Certificate of Achievement