



THE JOURNAL OF
**DIGITAL FORENSICS,
SECURITY AND LAW**

**Journal of Digital Forensics,
Security and Law**

Volume 9

Article 19

2014

Front Matter

Follow this and additional works at: <https://commons.erau.edu/jdfsl>



Part of the [Computer Law Commons](#), and the [Information Security Commons](#)

Recommended Citation

(2014) "Front Matter," *Journal of Digital Forensics, Security and Law*: Vol. 9 , Article 19.

DOI: <https://doi.org/10.58940/1558-7223.1343>

Available at: <https://commons.erau.edu/jdfsl/vol9/iss2/19>

This Front Matter/Back Matter is brought to you for free and open access by the Journals at Scholarly Commons. It has been accepted for inclusion in Journal of Digital Forensics, Security and Law by an authorized administrator of Scholarly Commons. For more information, please contact commons@erau.edu.

EMBRY-RIDDLE | PURDUE
Aeronautical University | UNIVERSITY

(c)ADFSL



JDFSL

The Journal of
Digital Forensics,
Security and Law



6th International Conference on

DIGITAL FORENSICS & CYBER CRIME



ICDF2C

Digital Forensics & Cyber Crime

CO-HOSTED WITH THE

Systematic Approaches to Digital Forensic Engineering (SADFE)

New Haven, CT • September 18–20 2014

ORGANIZED BY:



University of New Haven

TAGLIATELA COLLEGE OF ENGINEERING



EAI | European Alliance
for Innovation

www.UNHcFREG.com

ICDF2C Special Issue
Volume 9 Number 2
2014

JDFSL

The Journal of Digital Forensics, Security and Law

Volume 9, Number 2 (2014)

Editorial Board

Editor-in-Chief

Ibrahim (Abe) Baggili, PhD
University of New Haven
Connecticut, USA

Associate Editor-in-Chief

Linda K. Lau, PhD
Longwood University
Virginia, USA

Frank Adelstein, PhD
Cayuga Networks
New York, USA

John W. Bagby, JD
The Pennsylvania State University
Pennsylvania, USA

Diane Barrett, PhD, CISSP
Bloomsburg University
Pennsylvania, USA

David P. Biros, PhD
Oklahoma State University
Oklahoma, USA

Raymond Choo, PhD
University of South Australia
South Australia, Australia

Kam Pui (KP) Chow, PhD
University of Hong Kong
Hong Kong, China

Fred Cohen, PhD, CEO
Management Analytics
California, USA

Philip Craiger, PhD, CISSP, CCFP
Daytona State College
Florida, USA

Glenn S. Dardick, PhD, CCE, CCFP
ADFSL
Virginia, USA

David Dampier, PhD.
Mississippi State University
Mississippi, USA

Denis Edgar-Neville, PhD
Canterbury Christ Church University
Canterbury, UK

Barbara Endicott-Popovsky, PhD
University of Washington
Washington, USA

Nick V. Flor, PhD
University of New Mexico
New Mexico, USA

Simson Garfinkel, PhD
Naval Postgraduate School
California, USA

Pavel Gladyshev, PhD
University College Dublin
Ireland

Gregg Gunsch, PhD, PE, CISSP
Defiance College
Ohio, USA

Joshua James, PhD
Soonchunhyang University
South Korea

Andy Jones, PhD
University of South Wales
UK

Erin Kenneally, MFS, JD
Elchemy, Inc.
University of California San Diego
California, USA

Gary C. Kessler, PhD, CCE, CCFP, CISSP
Embry-Riddle Aeronautical University
Florida, USA

Jigang Liu, PhD
Metropolitan State University
Minnesota, USA

Michael M. Losavio, JD
University of Louisville
Kentucky, USA

Andrew Marrington, PhD
Zayed University
UAE

Martin Oliver, PhD, CCFP
University of Pretoria
South Africa

Denise Pheils, PhD, CISSP, PMP
Texas A&M
Texas, USA

Pedro Luís Próspero Sanchez, PhD
University of Sao Paulo
Sao Paulo, Brazil

John Riley, PhD
Bloomsburg University
Pennsylvania, USA

Marcus K. Rogers, PhD, CISSP
Purdue University
Indiana, USA

Neil Rowe, PhD
U.S. Naval Postgraduate School
California, USA

Vassil Roussev, PhD
University of New Orleans
Louisiana, USA

Kathryn C. Seigfried-Spellar, PhD
The University of Alabama
Alabama, USA

Il-Yeol Song, PhD
ACM Distinguished Scientist
Drexel University
Pennsylvania, USA

Bernd Carsten Stahl, PhD
De Montfort University
Leicester, UK

Craig Valli, DIT
Edith Cowan University
Western Australia, Australia

Eli Weintraub, PhD, CISA
Afeka Tel Aviv Academic College of
Engineering
Israel

Nigel Wilson
The University of Adelaide
South Australia, Australia

Copy Editor

Alexandra K. Greene
ADFSL

Copyright © 2014 ADFSL, the Association of Digital Forensics, Security and Law. Permission to make digital or printed copies of all or any part of this journal is granted without fee for personal or classroom use only and provided that such copies are not made or distributed for profit or commercial use. All copies must be accompanied by this copyright notice and a full citation. Permission from the editor is required to make digital or printed copies of all or any part of this journal for profit or commercial use. Permission requests should be sent to Editor, JDFSL, 1642 Horsepen Hills Road, Maidens, Virginia 23102, or emailed to editor@jdfsl.org. ISSN 1558-7215



Technical Program Committee

General Chair - ICDF2C and SADFE

Ibrahim Baggili
University of New Haven
Director of UNHcFREG

ICDF2C TPC Chairs

Frank Breitinger
University of New Haven

Joshua I. James
Digital Forensic Investigation Research
Laboratory
Soon Chun Hyang University

SADFE TPC Chairs

Ricci Jeong
University of Hong Kong

Andrew Marrington
Zayed University

Grey Eminence

Eugene Spafford
CERIAS, Purdue University

Publicity Chair

David Baker
MITRE

TPC Members

Frank Adelstein
ATC-NY

Glenn Dardick
Longwood University

James Lyles
NIST

Shahzad Saleem
Stockholm University

Irfan Ahmed
University of New Orleans

Barbara Endicott-Popovsky
University of Washington

Richard Mislán
Rochester Institute of
Technology

Bradley Schatz
Queensland University of
Technology, Australia

Ibrahim Baggili
University of New Haven
(UNHcFREG)

Ernest Foo
Queensland University of
Technology

Stig Mjolsnes
Norwegian Univ. of Science
and Technology NTNU

Kathryn Seigfried-Spellar
The University of Alabama

Dave Baker
MITRE

Simson Garfinkel
Naval Postgraduate School

David Naccache
Panthéon-Assas University

Hossain Shahriar
Kennesaw State University

Nicole Beebe
University of Texas at San
Antonio

Pavel Gladyshev
University College Dublin

Bruce Nikkel
Director of IT and Forensics

Jill Slay
Australian Centre for Cyber
Security

Harlan Carvey
Dell SecureWorks

Farkhund Iqbal
Zayed University

Martin Olivier ICSA
University of Pretoria

Timothy Vidas
Carnegie Mellon University

K P Chow
University of Hong Kong

Meng-Chow Kang
Cisco Systems, Inc

Marcus Rogers
Purdue

David Wolinsky
Yale University

Fred Cohen
Management Analytics

Thomas Kemmerich
University of Bremen, IS-
Bremen

Vassil Roussev
University of New Orleans

York Yannikos
Fraunhofer SIT

Dave Dampier
Mississippi State University

Michael Losavio
University of Louisville

Neil Rowe
U.S. Naval Postgraduate
School

Conference Sponsors

MICRO SYSTEMATION

celebrite
delivering mobile expertise



University of
New Haven

TAGLIATELA COLLEGE
OF ENGINEERING



EAI | European Alliance
for Innovation



Contents

JDFSL Editorial Board	1
ICDF2C 2014 Technical Program Committee	3
From the Editor-in-Chief	7
On Identities in Modern Networks	9
Libor Polčák, Radek Hranický and Tomáš Martínek	
File Detection on Network Traffic using Approximate Matching	23
Frank Breitinger and Ibrahim Baggili	
Accurate Modeling of the Siemens S7 SCADA Protocol for Intrusion Detection and Digital Forensics	37
Amit Kleinman and Avishai Wool	
Understanding Computer Forensics Requirements in China via the “Panda Burning Incense” Virus Case	51
Frank Law, K P Chow and Y H Mai	
Mutli-Stakeholder Case Prioritization in Digital Investigations	59
Joshua I. James	
Forensics of Software Copyright Infringement Crimes: The Modern POSAR Test Juxtaposed with the Dated AFC Test	73
P Vinod Bhattathiripad	
Leveraging Decentralisation to Extend the Digital Evidence Acquisition Window: Case Study on BitTorrent Sync	85
Mark Scanlon, Jason Farina, Nhien-An Le-Khac and Tahar Kechadi	
Fast RTP Detection and Codecs Classification in Internet Traffic	101
Petr Matousek, Ondrej Rysavy and Martin Kmet	
Developing A Conceptual Framework for Modeling "Deviant Cyber Flash Mob": A Socio-Computational Approach Leveraging Hypergraph Constructs	113
Samer Al-Khateeb and Nitin Agarwal	
AUDIT: Automated Disk Investigation Toolkit	129
Umit Karabiyik and Sudhir Aggarwal	
Exploring Forensic Implications of the Fusion Drive	145
Shruti Gupta and Marcus Rogers	
An Efficient Similarity Digests Database Lookup - A Logarithmic Divide and Conquer Approach	155
Frank Breitinger, Christian Rathgeb and Harald Baier	
“Time for Some Traffic Problems”: Enhancing E-Discovery and Big Data Processing Tools with Linguistic Methods for Deception Detection	167
Erin Smith Crabb	
Relating Admissibility Standards for Digital Evidence to Attack Scenario Construction	181
Changwei Liu, Anoop Singhal and Duminda Wijesekera	

Contents (continued)

Evidentiary Power and Propriety of Digital Identifiers and the Impact on Privacy Rights in the United States	197
Michael Losavio and Deborah Keeling	
Effects of the Factory Reset on Mobile Devices	205
Riqui Schwamm and Neil Rowe	
Testing Framework for Mobile Device Forensics Tools	221
Maxwell Anobah, Shahzad Saleem and Oliver Popov	
Announcements and Upcoming Events	235

FROM THE EDITOR-IN-CHIEF

We are proud to share with you this special edition issue of the *JDFSL*. This year, *JDFSL* partnered with both the 6th International Conference on Digital Forensics and Cyber Crime (ICDF2C) and Systematic Approaches to Digital Forensic Engineering (SADFE)—two prominent conferences in our field that were co-hosted. Fifty-three papers were submitted, and the Technical Program Committee accepted only 17 after a rigorous review process.

A lot has happened since our last issue. We have accomplished a variety of goals. We list some of them below:

1. Our journal is now fully indexed with Open Academic Journal Index (OAJI)
2. All our issues are now indexed by DBLP
3. We still accept submissions in PDF format but can now accept the final accepted manuscript in either LaTeX or Word
4. We now have a new upgraded general Website more integrated with the submission website for access to published manuscripts
5. We were granted access to archive our journal with arxiv.org
6. All our issues are now open access and now made available under the *Creative Commons Attribution-NonCommercial-NoDerivatives* 4.0 International License
7. The *JDFSL* continues its policy of not requiring authors to pay a fee in order to publish in the regular issues of the *JDFSL*. The *JDFSL* is indeed very grateful to our many sponsors who make this possible.
8. We have added many new members to our editorial board increasing our scope and depth

We hope to continue to forge strong relationships with other high-impact conferences so that we can provide research academics and practitioners the possibility of publishing high impact articles in a quality peer-reviewed open access form.

In this special issue, we are especially proud of the quality of the published research presented. It reflects our tradition of remaining a truly multi-disciplinary publication venue.

The seventeen papers in this issue can be categorized into the following themes: (1) Network Forensics; (2) Digital Investigations and Case Studies; (3) Online/Internet Forensics; (4) Digital Investigations—Tools and Approaches; (5) Digital Forensic Analysis Techniques; (6) Laws and Standards; and (6) Small Scale Digital Device Forensics.

Besides the diversity of the topics in this issue, we also note the international nature of our authors. Papers published in this issue, in no particular order, come from authors in the following countries: (1) United States; (2) Czech Republic; (3) Israel; (4) Hong Kong; (5) South Korea; (6) India; and (7) Ireland. However, the conference

received audience from fourteen countries, and eight US states—which we hope increases *JDFSL*'s international visibility.

At this point, I would like to thank the hard work of our Associate Editor-in-Chief Linda Lau, our publisher Glenn Dardick and our Administrative Assistant Alex Greene for working hard to make sure this issue is released in a timely fashion.

I would also like to thank our new board members and the TPC committee from the ICDF2C and SADFE conferences for helping ensure a quality peer-reviewed process for this edition. I would like to especially thank the TPC Chairs Joshua James, Frank Breiting, Andrew Marranting and Ricci Jeong.

We hope that with all these activities, we continue to solidify our goal of making *JDFSL* the top venue for the publication of open-access, multidisciplinary cyber forensics and security research.

Sincerely,
Ibrahim (Abe) Baggili PhD
Editor-in-Chief, *JDFSL*
IBaggili@newhaven.edu