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Dealing with video source identification in social networks

Irene Amerini^{a,*}, Roberto Caldelli^b, Andrea Del Mastio^a, Andrea Di Fuccia^c,
Cristiano Molinari^c, Anna Paola Rizzo^c

^a*Media Integration and Communication Center (MICC), Università degli Studi di Firenze,
Viale Morgagni 65, 50134 Firenze, Italy*

^b*National Interuniversity Consortium for Telecommunications - CNIT, Parma, Italy*

^c*Polo Tecnologico, Presidenza del Consiglio dei Ministri, Rome, Italy*

Abstract

Certainly detecting the source of a digital video it is a crucial task to be tackled by the image forensic scientific community; in fact, knowing the brand and model of the device used for the video acquisition could be very useful to focus investigations in a specific direction. Nowadays, videos are mostly acquired through a smartphone and then shared on Social Networks (SNs). On such a basis, this paper proposes an analysis for the source identification of a video uploaded on social networks, specifically, Twitter and Facebook. Furthermore, the paper evaluates different methods to build a reliable fingerprint and also introduces a novel method to generate a composite fingerprint by resorting to the use of PRNU noise. A tool to examine videos, oriented to forensic analysts, is also presented. Experimental results carried out on various videos, firstly uploaded and then downloaded from Facebook or Twitter, witness that the identification is still possible and under which conditions.

Keywords: video source identification, social networks, fingerprint, PRNU

*Corresponding author.

Email addresses: irene.amerini@unifi.it (Irene Amerini), roberto.caldelli@unifi.it (Roberto Caldelli), andrea.delmastio@unifi.it (Andrea Del Mastio), (Andrea Di Fuccia), (Cristiano Molinari), (Anna Paola Rizzo)

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