Quoc-Tin Phan

Contact Information

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Research Interests

Modern photography is losing its innocency under the presence of an adversary, who can perform imperceptible modifications on images in order to fool human visual system. I am passionate on the exploitation of machine learning and optimization techniques to detect imperceptible patterns, towards protecting and recovering the trustworthiness of digital images.

Education

University of Trento, Trento, Italy

Ph.D., Multimedia Analysis, *Expected:* April 2019

- Concentration: *Modern digital images are being created, manipulated, and diffused in uncontrolled manners. My Ph.D study focuses on the exploitation of machine learning and optimization techniques towards uncovering digital image provenance.*
- Advisors: Giulia Boato, Ph.D and Francesco G. B. De Natale, Ph.D

University of Science, HCMC, Ho Chi Minh city, Vietnam

M.S., Computer Science, June 2014

- Concentration: *In encrypted domain, searching is unallowed without decrypting data. My master thesis studies the discrete logarithm problem on matrix group and proposes a solution for searchable encryption.*
- Advisor: Thuc D. Nguyen, Ph.D

Academic & Research Experience

Research Visiting Student Sep. 2018 to Feb. 2019
Visual Information Processing and Protection (VIPP)
Department of Information Engineering and Mathematics
University of Siena, Italy
Concentration: *Copying the source region and pasting into the target region is an easy-to-perform image manipulation to hide objects or to deceive viewers. My research aims at building an end-to-end system for detecting duplications and disambiguating source-target.*
Supervisor: Mauro Barni, Ph.D

Doctoral Research Fellow Oct. 2015 to present
Doctoral School in Information and Communication Technology
University of Trento, Italy
Supervisor: Giulia Boato, Ph.D, and Francesco G. B. De Natale, Ph.D

Teaching Assistant Sep. 2017 to Mar. 2018
Multimedia Data Security (codice 145614), University of Trento
Collaborator in EUREGIO challenge, hosted by University of Trento, Italy, and University of Innsbruck, Austria.

Research Assistant May. 2011 to Oct. 2015
Faculty of Computer Network and Communication
University of Information Technology, HCMC
Supervisor: Hong-Hai Dam-Quang, Ph.D

Technical Skills

Programming languages: Python, Matlab, C++, Bash Script.
Machine learning frameworks: Tensorflow, Keras, scikit-learn.
Platforms: Linux, MacOS, Windows.

Publications

1. **Q.-T. Phan**, G. Boato, R. Caldelli, I. Amerini, "Tracking Multiple Image Sharing on Social Networks", 2019. To appear in *Int. Conference on Acoustics, Speech, and Signal Processing*.
2. **Q.-T. Phan**, G. Boato, F. G. B. De Natale, "Accurate and Scalable Image Clustering Based On Sparse Representation of Camera Fingerprint", *IEEE Transactions on Information Forensics & Security*, 2019. Early access: *https://ieeexplore.ieee.org/abstract/document/8576558*.
3. **Q.-T. Phan**, C. Pasquini, G. Boato, F. G. B. De Natale, "Identifying image provenance: an analysis of mobile instant messaging apps", *Int. Workshop on Multimedia Signal Processing*, 2018.
4. F. Lago, **Q.-T. Phan**, G. Boato, "Image Forensics on Online News", *Int. Workshop on Multimedia Signal Processing*, 2018.
5. **Q.-T. Phan**, D.-T. Dang-Nguyen, G. Boato, F. G. B. De Natale, "Using LDP-TOP In Video Based Spoofing Detection", *Int. Conference on Image Analysis and Processing*, 2017.
6. **Q.-T. Phan**, G. Boato, F. G. B. De Natale, "Image Clustering by Source Camera via Sparse Representation", *Int. Workshop on Multimedia Forensics and Security*, 2017.
7. **Q.-T. Phan**, A. Budroni, C. Pasquini and F. G. B. De Natale, "A Hybrid Approach for Multimedia Use Verification", *MediaEval*, 2016.
8. **Q.-T. Phan**, D. T. Dang-Nguyen and G. Boato and F. G. B. De Natale, "Face spoofing detection using LDP-TOP", *Int. Conference on Image Processing*, 2016.
9. **Tin Q. Phan**, Van H. Dang and Thuc D. Nguyen, "A Novel Construction for PEKS Scheme Using Matrix Group", *Ubiquitous Information Technologies and Applications*, 2014.

Submitted Publications

1. E. Sansone, **Q.-T. Phan**, F. G. B. De Natale, "Coulomb Autoencoders", 2019. Submitted to *International Conference on Machine Learning*.

Presentations

Conferences and Workshops

- Int. Conference on Image Processing, Arizona, USA Sep 2016
- MediaEval Workshop, Hilversum, Netherlands Oct 2016
- Int. Workshop on Multimedia Forensics and Security, Bucharest, Romania June 2017
- Int. Conference on Image Analysis and Processing, Sicily, Italy Sep 2017
- GTTI Thematic Meeting on Multimedia Signal Processing, Trento, Italy 2018

References

Upon request