

Frédéric RAYNAL

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Birth date : 17th March 1972

Nationality : French

EMPLOYMENT HISTORY

- Since June 2006 - Head of IT security lab .** SOGETI / CAP GEMINI.
Creation and development of a research team dealing with System security. Focusing on applied cryptanalysis, malwares, protocol analysis and information based attacks.
- Oct. 2004 - Mars 2006 Co-head of IT security lab.** EADS COMMON RESEARCH CENTER.
Research in program analysis (source/binary), kernel and application security, reverse engineering, malwares...
▷ Referred as **IT Expert** for the whole EADS group
- June 2003 - Sept. 2004 Security Engineer (R&D).** EADS.
Contributions to several projects on IT security for the French Ministry of Defense (DGA)
- Since Jan. 2001 Editor-in-Chief.** MISC (MULTI-SYSTEMS & INTERNET SECURITY COOKBOOK).
New French magazine specialized in IT security
- Nov 2002 - May 2003 Engineer R&D.** SPEKA NETWORKS.
Design of a secure Access Point for wireless networks. Early warning system to monitor changes on web sites.
- 1997 - Nov. 2001 Research Assistant.** INRIA - FRACTALES LAB.
Data hiding (fractals for watermarking, evaluation protocols for watermarking, issues on the links between cryptography and data hiding), Genetic Programming applied to inverse problem for IFS (Iterated Functions Systems), experiments on ants sort algorithms, contributions in the development of *FracLab* toolbox for MatLab, Unix system administrator. Mainly worked under Linux in C/C++

EDUCATION : COMPUTER SCIENCE ENGINEERING AND RESEARCH

- 2007 Professional diploma.** ÉCOLE DE GUERRE ÉCONOMIQUE.
Competitive intelligence, Graduated with honors as vice-major
- 1998 - Nov. 2001 Ph. D. in Computer Science.** PARIS XI ORSAY.
(3 years) Ph. D. thesis prepared at the Fractales Lab. (INRIA)
Research areas : cryptography and data hiding (steganography, watermarking and fingerprinting)
Graduated with honors
- 1997 DEA IARFA (Masters).** PIERRE & MARIE CURIE UNIVERSITY (PARIS VI JUSSIEU).
Graduated with honors
- 1990 - 1996 Engineering degree at ESIEA (SCHOOL OF COMPUTER SCIENCE, ELECTRONICS AND CONTROL).**
Graduated with honors

COMMITTEE

- Sept. 2007 Redaction committee .** JOURNAL OF VIROLOGY.
IEEE Journal dealing with malwares
- Since 2006 Organization & Program committee.** HACK.LU.
2nd International conference organized by the Luxembourg's Honeynet
- 2003 - 2006 Head of the Organisation & Program Committee.** SSTIC.
Creation of SSTIC in 2002, first issue in June 2003, Rennes, France

TEACHING EXPERIENCES

- January 2008 Professor.** RESEARCHERS SCHOOL.
Invited teacher on software flaws
- Since 2005 Professor.** MASTER SSI - ESIEA.
Lectures on Operating Systems & Forensics
- Since 2004 Professor.** AGENCE INTERNATIONALE POUR LA FRANCOPHONIE ON IT SECURITY.
Lectures on cryptography, Operating Systems, Forensics & programming at Ouagadougou (Burkina Faso, 2004), Libreville (Gabon, 2005), Dakar (Sénégal, 2006), Rabat (Maroc, 2007)
- Since 2003 ESIEA. LAST YEAR ENGINEER DEGREE .**
Lectures on *(In)Secure Programming* (18h)
▷ Also given at University of Limoges (Master Degree) since 2006
- June - July 2004 Professor.** CEA/INRIA/EDF'S SUMMER SCHOOL ON CS SECURITY.
Lectures on cryptography, Operating Systems, Forensics & programming
- Jan. - Apr. 2003 Lecturer.** UNIVERSITY PARIS XII VAL DE MARNE : DESS (MASTER) ISYDIS.
Lectures on *cryptography and CS security*
- 1998 - 2000 Teaching Assistant.** UNIVERSITY PARIS IX DAUPHINE.
(2 × 1 year) Lectures in CS (Algorithms applied in Java) for undergraduate students
Supervision of the end of year project (JPEG compression and multi-agents systems simulation)
- 1998 - 2000 Teaching Assistant.** ESIEA.
(2 × 6 months) senior year projects supervision : simulation of a wasps' nest organization

Publications with reviews

Journals

Petit traité de manipulation à l'usage des honnêtes gens

F. RAYNAL, F. GASPARD

Guerre de l'information et lutte informatique, IHEDN

Paris, France, Déc. 2008

Malicious Origami in PDF

F. RAYNAL, G. DELUGRÉ

6th PacSec

Tokyo, Japon, Oct. 2008

Encrypted communications : what if the worm was not only inside ?

F. RAYNAL, E. FILIOL

Revue de Défense Nationale, special issue on cybercrime

Mai 2008

Rootkit modeling and experiments under Linux

F. RAYNAL, É. LACOMBE, V. NICOMETTE

Journal in Computer Virology 4(2) : 137-157

2008

New Threats and Attacks on the World Wide Web

T. HOLZ, S. MARECHAL, F. RAYNAL

IEEE Security & Privacy Journal

March 2006

Attacking attackers (2 parts)

T. HOLZ, F. RAYNAL

SecurityFocus,

<http://www.securityfocus.com/infocus/1856>

<http://www.securityfocus.com/infocus/1857>

January 2006

Defeating Honeypots : System Issues (2 parts)

T. HOLZ, F. RAYNAL

SecurityFocus,

<http://www.securityfocus.com/infocus/1826>

<http://www.securityfocus.com/infocus/1828>

April 2005

Honeypot forensics : analyzing system and files

F. RAYNAL, Y. BERTHIER, P. BIONDI, D. KAMINSKY

IEEE Security & Privacy Journal

August 2004

Honeypot forensics : analyzing the network

F. RAYNAL, Y. BERTHIER, P. BIONDI, D. KAMINSKY

IEEE Security & Privacy Journal

June 2004

Les Canaux cachés

F. RAYNAL

Techniques de l'Ingénieur

Special issue on Computer Security - Dec. 2003

Stéganographie : visite de l'univers numérique pour dissimuler des informations

F. RAYNAL, F. PETITCOLAS, C. FONTAINE

In *Pour la Science*

Special issue on Cryptography - July 2002

Évaluation automatique des méthodes de tatouage

F. RAYNAL, F. PETITCOLAS, C. FONTAINE

In *Journal du Traitement du signal (TSI)*

Special Issue on Watermarking 2001

Polar IFS + Individual Genetic Programming = Efficient IFS Inverse Problem Solving

P. COLLET, E. LUTTON, F. RAYNAL, M. SCHONAUER

Genetic Programming and Evolvable Machines Journal

Volume 1, Issue 4, pp. 339-361, October 2000

Polar IFS and Individual Genetic Programming to solve IFS Inverse Problem

P. COLLET, E. LUTTON, F. RAYNAL, M. SCHONAUER

Research Report INRIA 3849

December 1999

Conferences

Cryptography : attacking everywhere

F. RAYNAL, E. FILIOL, J.B. BEDRUNE
6th SSTIC Annual Conference
Rennes, France, June 2008

Small treatise about e-manipulation for honest people

F. RAYNAL, F. GASPARD
17th EICAR Annual Conference
Laval, France, May 2008

Malicious cryptography...reloaded : über-malware

E. FILIOL, F. RAYNAL
9th CanSecWest Annual Conference
Vancouver, Canada, Mars 2008

Attacks : from technical to informational field

F. RAYNAL
Bellua Cyber Security (BCS)
Jakarta, Indonesia, Oct. 2007

De l'invisibilité des rootkits : application sous Linux

É. LACOMBE, F. RAYNAL, V. NICOMETTE
Symposium sur la Sécurité des Technologies de l'Information et des Communications (SSTIC)
Rennes, France, June 2007

Malicious crypto : (ab)using cryptology

F. RAYNAL
EuSecWest
London, England, Feb. 2006

Kernel rootkits for fun and profit

É. LACOMBE & F. RAYNAL
Libre Software Meeting (LSM)
Dijon, France, July 2005

Detecting suspicious execution environments

T. HOLZ, F. RAYNAL
Information Assurance Workshop 05 (IAW05)
West Point, USA, June 2005

From vulnerabilities to exploits : technical and legal issues

F. RAYNAL, M. BAREL
Eurosec 2005
Paris, France, March 2005

Développement, sécurité et Logiciels Libres

F. RAYNAL, C. BLANCHER
Rencontres Africaines du Logiciel Libre (RALL)
Ouagadougou, Burkina Faso, Nov. 2004

Methods for honeypot forensics

F. RAYNAL, Y. BERTHIER, P. BIONDI, D. KAMINSKY
Information Assurance Workshop 04 (IAW04)
West Point, USA, June 2004

Honeypot forensics : a case study

F. RAYNAL, P. BIONDI
Eurosec 2004
Paris, France, March 2004

Covert Channels

F. RAYNAL
Libre Software Meeting (LSM)
Metz, France, July 2003

(In)secure Programming

F. RAYNAL
Libre Software Meeting (LSM)
Bordeaux, France, July 2002

About the links between cryptography and data hiding

C. FONTAINE AND F. RAYNAL

Society for Imaging Science and Technology (IS&T) and International Society for Optical Engineering (SPIE)
San Jose, USA, January 2002

StirMark Benchmark : audio watermarking attacks

M. STEINEBACH, F. A. P. PETICOLAS, F. RAYNAL, J. DITTMAN AND C. FONTAINE, C. SEIBEL, N. FATÈS
Information Technology : Coding and Computing (IEEE ITCC'2001)
Las Vegas, USA, April 2001

A public automated web-based evaluation service for watermarking schemes : StirMark Benchmark

F. A. P. PETICOLAS, M. STEINEBACH, F. RAYNAL, J. DITTMAN, C. FONTAINE, N. FATÈS
Society for Imaging Science and Technology (IS&T) and International Society for Optical Engineering (SPIE)
San Jose, USA, January 2001

Individual GP : an alternative viewpoint for the resolution of complex problems

P. COLLET, E. LUTTON, F. RAYNAL, M. SCHONAUER
Genetic and Evolutionary Computation Conference (GECCO99)
Orlando, USA, July 1999

Manipulation of IFS attractors using Genetic Programming

F. RAYNAL, P. COLLET, E. LUTTON, M. SCHONAUER
Congress on Evolutionary Computation (CEC99)
Washington DC, USA, July 1999

Publications related to Computer Security

MISC

Num.	Title
36	Information as heart of new wars (with F. Gaspard)
SI1	Information gathering, what one can do with Internet (with F. Gaspard)
28	New protections on system, new ways to bypass them ? (with P. Bétouin, S. Duverger)
26	Attacking attackers (with T. Holz)
20	Cryptographic polymorphism : when <i>opcodes</i> do esthetic surgery
16	Eating Apple for fun & profit
13	Injecting code in memory under Unix (with P. Biondi, S. Dralet and Y. Fourastier)
12	Programming cryptography (with P. Junod)
10	Key exchange made easy with Diffie-Hellman
7	Threats on information (with R. Bidou, P. biondi and E. Detoisien)
6	WEP insecurities (with E. Filiol)
5	Virus : virus under Unix (with S. Dralet)
4	Network (d)DoS (with V. Vuillard)
3	Playing with protocol ARP (with C. Blancher et E. Detoisien)
2	Automatic exploitation of remote format bugs
1	Authentication with protocol HTTP
	Protections against exploitation of vulnérabilities - 1 : introduction (with S. Dralet)
	Introduction to steganography (with F. A. Petitcolas and C. Fontaine)

Special issues Linux Magazine France

Num.	Title
17	Voyage to au centre du kernel - Episode II (Chief Editor) – Linux Security Modules (with P. Biondi)
16	Voyage au centre du kernel - Episode I (Chief Editor)
13	Firewall, your best enemy - Act II (chief editor) – Firewalk
12	Firewall, your best enemi - Act I (chief editor)
8	Security (chief editor) – penetration testing (with É. Detoisien) – Root-kits and integrity

Linux Magazine France - www.linuxmag-france.org

Num.	Title
48	Using wireless devices with Linux
42	Programming a sniffer : with <code>/dev/bpf</code> (BSD), with sockets <code>PF_PACKET</code> (Linux), and with <code>libpcap</code> (with C. Grenier)
39	Main article on kernel patches Openwall and PaX (with S. Dralet) Avoiding security holes when developing an application (with C. Blaess et C. Grenier) – introduction, UID/EUID, escape shells – memory management, stack and functions, shellcode
23 à 28	– buffer overflows – format bug – race conditions and temporary files – CGI scripts
22	Managing <code>xinetd</code>
21	Main article on IPv6 (with M. Souissi)
20	Security with Bastille-Linux
19	NFS
16 à 18	Yellow Pages (NIS) for Linux
15	<code>automount</code> and <code>autofs</code>