Cédric RICHARD

Born January 24, 1970, in Sarrebourg (France)
French, Married, 1 child
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PROFESSIONAL CAREER

Full Professor (Top-ranked Exceptional Class) at University Côte d'Azur, since 2009, in Electrical and Computer Engineering
Research work at Lagrange Lab. (UMR CNRS 7293), Côte d'Azur Observatory, France.

Senior Chair at Interdisciplinary Institute for AI Côte d'Azur (2020-2024) – Chair "AI for smart cities and secure territories"

Member of the Institut Universitaire de France (2010-2015)
The IUF is a French service of the Ministry of Higher Education that distinguishes a small number of Professors for their research excellence, as evidenced by their international recognition. Only 2% of French Professors have been distinguished.

ACTIVITIES AND RESPONSABILITIES

Key responsibilities

2024-... **Editor-in Chief of the journal ELSEVIER Signal Processing**

2023-2024 **Chair of the Signal Processing Theory and Methods (SPTM) Technical Committee of the IEEE-SPS**
Vice-Chair of the SPTM TC in 2021-2022

2019-2023 **General Chair of the federative CNRS research group GdR ISIS (4500 members, 205 academic labs, 19 companies)**
ISIS: Information, Signal, Image, viSion (and Machine Learning since 2019)
http://www.gdr-isis.fr

2019-2020 **Director-at-Large of Region 8 (Europe, Africa, Middle East) of the IEEE Signal Processing Society**
Member of the Board of Governors of the IEEE Signal Processing Society

International conferences and workshops

2023 Plenary session Chair of the IEEE SSP'23 Workshop (02-05/07/2023, Hanoi)
2022 Technical Chair of the IEEE MLSP'22 Workshop (22-25/07/2022, Xi'an)
2020 **Co-general Chair of the EUSIPCO'20 (24-28/08/2020, Amsterdam), with R. Heusdens**
2019 Co-local Chair of the IEEE CAMSAP'19 Workshop (15-18/12/2019, West Indies), with G. Ginolhac
2016 Special session Chair of the IEEE SAM'16 Workshop (10-13/07/2016, Rio de Janeiro)
2015 Co-technical Chair of the IEEE CAMSAP'15 Workshop (13-16/12/2015, Cancun), with F. Gini
2015 **Co-technical Chair of the EUSIPCO'15 (31/08-04/09/2020, Nice), with M. Antonini and N. Evans**
2011 Co-general Chair of the IEEE SSP'11 Workshop (28-30 June 2011, Nice), with A. Ferrari

International journals

2019-... **EURASIP Best Paper Award committee member for SP and JASP**
2020-2022 Senior Area Chair of the IEEE Signal Processing Letters
2019-2022 Associate Editor of the IEEE Open Journal on Signal Processing
2009-2019 **Associate Editor of Signal Processing Elsevier**
2015-2018 Senior Area Chair of the IEEE Transactions on Signal Processing
2015-2018 Associate Editor of the IEEE Transactions on Signal and Information Processing over Networks
2006-2010 Associate Editor of the IEEE Transactions on Signal Processing

International technical committees

2016-2021 **Elected Member of EURASIP TMTSP TC (Theoretical and Methodological Trends in Signal Processing)**
Chair of the Award subcommittee

2009-2014 Elected Member of the IEEE SPTM TC (Signal Processing Theory and Methods)
2018-... Reelected, Vice-Chair (2021-2022), Chair (2023-2024)

2012-2018 Elected Member and Award Chair of the IEEE MLSP TC (Machine Learning for Signal Processing)
Chair of the Award subcommittee

2016-2021 **Elected Member of EURASIP SIG-DML TC (Signal and Data Analytics for Machine Learning)**

National responsibilities

2019-2023 **General Chair of the federative CNRS research group GdR ISIS (4000 members, 210 academic labs, 20 companies)**
ISIS: Information, Signal, Image, viSion (and Machine Learning since 2019)
Member of the executive committee in 2009-2019
http://www.gdr-isis.fr

2013-2019 Elected Member of the French National University Council (Conseil National des Universités, CNU61)
2012-2019 General Chair of the annual French Summer School on Signal and Image Processing (with P. Flandrin)
2005-2019 Member of the Board of the French Learned society GRETSI on Signal and Image Processing
2017 General Chair of the 26th Colloque GRETSI on Signal and Image Processing (with M. Antonini), 480 attendees
2007 General Chair of the 21th Colloque GRETSI on Signal and Image Processing, 430 attendees

Local responsibilities

2013-2021 Head of the Group "Signal and Image Processing" at the Lagrange Lab., University Côte d'Azur
2013-2015 Chair of the Human Resources Committee in "Comp. Eng., Autom. and Signal Proces.", University Côte d'Azur
2006-2009 Head of the Lab. "Systems Modeling and Dependability" (23 faculty members), Troyes University of Technology

RESEARCH PROJECTS AND GRANTS

More than 4M€ (salaries of academic staff not included) since 2005

Academic research grants since 2011

IUF (2010-2015): PI

ANR HYPANEMA (2012-2015): PI
Non-linear unmixing algorithms for hyperspectral data analysis
with: Grenoble INP (J. Chanussot), Toulouse INP (J.-Y. Tourneret), UT Troyes (H. Snoussi)

ANR ODISSEE (2013-2016): local PI
Distributed optimization for environment estimation by autonomous agent networks
with: Telecom ParisTech (P. Bianchi, PI), UT Troyes (H. Snoussi)

ANR MAGELLAN (2014-2018): in charge of a workpackage
Learning methods for very large antenna arrays in radio astronomy
with: Univ. Côte d'Azur (A. Ferrari, PI), Telecom ParisTech (W. Hachem), ENS Cachan (P. Larzabal)

MASTODONS DISPLAY (2013-2015): CNRS Big Data program, member
Big data processing in extremely large radio-telescopes
with: Univ. Côte d'Azur (A. Ferrari, PI), Telecom ParisTech (E. Moulines), ENS Cachan (P. Larzabal)

MASTODONS AGADIR (2017-2018): CNRS Big Data program, PI
Adaptation and dynamic graphs for distributed learning on large networks
with: ENS Lyon (P. Borgnat), CentraleSupélec (R. Couillet, E. Chouzenoux), Univ. Grenoble-Alpes (S. Achard)

IMAG'IN ALOHA (2017-2018): CNRS New Imagery program, local PI
Online analysis of hyperspectral data for the agri-food industry
with: EC Nantes (S. Moussaoui, PI), UL Nancy (D. Brie, C. Carteret), INRA Nantes (B. Jailais)

PICS NOSIKAAH (2014-2016): CNRS International Cooperation program CoopIntEer with Brasil, PI
Online identification of nonlinear systems. Applications in hyperspectral imaging
with: UFSC Florianópolis, Brazil (Prof. J.-C. M. Bermudez)

PRC DIALOG (2018-2020): joint CNRS-CSC International Cooperation program with China, PI
Distributed and adaptive learning on graphs
with: Northwestern Polytechnical University at Xi'an, China (Prof. J. Chen)

IDEX ACADY (2017-2019): Idex project Univ. Côte d'Azur, PI
Collaborative and adaptive learning on dynamic graphs for large networks
with: I3S@UCA (L. Fillatre)

ANR DARLING (2020-2024): PI
Distributed adaptation and learning for graph signals
with: ENS Lyon (P. Borgnat, P. Gonçalves), Univ. Grenoble-Alpes (R. Couillet), CEA Neurospin (Ph. Ciuciu)

ANR SITcomOptics (2023-2026):
Seismic monitoring of the subsurface along transportation infrastructure using passive measurement on telecom fibers
with: BRGM, SNCF, Telecom ParisTech, ISTerre

STARTUP

Cofounder of SEQUOIA Analytics

SEQUOIA offers an alternative to conventional road traffic monitoring solutions by diverting from their initial use the fiber optic telecommunication cables of major operators, which are omnipresent in urban environments and along major roads. SEQUOIA has developed an artificial intelligence that exploits the weak noise caused by road traffic that disturbs the optical signal. The spatial resolution achieved is metric, the distance monitored is greater than 150 kilometers, and the analysis is performed at the speed of light. SEQUOIA also explores other ways to diversify its activities, including pedestrian areas and public transport.

DISSEMINATION AND OUTREACH

Member of the Institut Universitaire de France (2010-2015)

Visiting professor (since 2010)

Since 2011: 10 one-month stays at Universidade Federal do Santa Catarina (UFSC) at Florianopolis, Brazil
Laureate of international program "Programa Ciência sem Fronteira" in 2013-2016, as Pesquisador Visitante Especial
Contact: Prof. Jose Carlos M. Bermudez (UFSC)

Since 2011: 7 two-week stays at Northwestern Polytechnical University (NPU), Xi'an, China
Contact: Prof. Jie Chen (NPU), Prof. Jingdong Chen (NPU, Bell Labs/Alcatel Lucent)

2018: one-week stay at École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
Contact: Prof. Ali H. Sayed (EPFL, UCLA)

Member of more than 80 Ph.D. thesis defense committees and 20 tenure track (HdR) committees

Supervision of 26 Ph.D. students since 1999

100% of doctoral theses defended with at least 2 publications in top-ranked international conferences or journals
85% of doctoral theses defended with at least 1 publication in a top-ranked international journal
67% of doctoral theses defended with at least 2 publications in top-ranked international journals
36% of doctoral theses defended with at least 3 publications in top-ranked international journals

TEACHING

Information Theory: MSc Data Science & AI (Univ. Côte d'Azur), MSc Electrical Engineering (Univ. Côte d'Azur)
Machine Learning: MSc Electrical Engineering (Univ. Côte d'Azur)
Digital Communications: BSc Electrical Engineering (Univ. Côte d'Azur)
Signals and systems: BSc Electrical Engineering (Univ. Côte d'Azur)

RESEARCH ACTIVITIES

Research areas: Signal Processing and Machine Learning, in particular:
Online learning, nonlinear system identification, adaptive signal processing, distributed and online learning over networks, graph signal processing, novelty detection, multispectral and hyperspectral imaging

More than 350 publications in top-ranked journals and conferences
Available at www.cedric-richard.fr

One book:
P. M. Djuric and C. Richard, Cooperative and Graph Signal Processing, 824 p., Academic Press, 2018.

Some selected publications:

1. C. Richard, J.-C. M. Bermudez, P. Honeine. "Online prediction of time series data with kernels", IEEE Transactions on Signal Processing, vol. 57, no. 3, 1058-1067, 2009.
2. N. Dobigeon, J.-Y. Tourneret, C. Richard, J.-C. M. Bermudez, S. McLaughlin, A. O. Hero. "Nonlinear unmixing of hyperspectral images: Models and algorithms", IEEE Signal Processing Magazine, vol. 31, no. 1, 82-94, 2014.
3. J. Chen, C. Richard, A. H. Sayed. "Multitask diffusion adaptation over networks", IEEE Transactions on Signal Processing, vol. 62, no. 16, 4129-4144, 2014.
4. J. Chen, C. Richard, A. H. Sayed. "Diffusion LMS over multitask networks", IEEE Transactions on Signal Processing, vol. 63, no. 11, 2733-2748, 2015.