

Matthieu DE MARI



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CURRENT POSITION

✓ **Post-doc research fellow: SUTD (Singapore University of Technology and Design)**

Aug 2016 – Now

Research: Proactive Wireless Networks Optimization, using tools from Stochastic Game Theory, Game Theory, Mean Field Game Theory, Machine Learning, Deep Learning, and Reinforcement Learning.

In addition, part-time teaching: Optimization, Ordinary Differential Equations, Introduction to Python Programming, Data Science and Machine Learning.

Supervisor: Prof. Tony Q.S. Quek.

EDUCATION

✓ **PhD: CEA Leti and CentraleSupélec LANEAS**

Oct 2011 – Jul 2015

Radio Resource Management for Green Wireless Networks.

Topics: Game Theory, Optimization Theory, Mean Field Games Theory, Matching Theory, Green Wireless Networks, Proactive Networks, Interference Classification, Radio Resource Management, Self-Organizing Heterogeneous Networks.

Supervisors: Prof. Mérouane Debbah and Prof. Emilio Calvanese Strinati.

✓ **Eng. M.Sc. Degree: Centrale Marseille Eng. School**

Sep 2008 – Jun 2011

Broad-based interdisciplinary scientific and engineering training.

Specialization: Engineering of Signals and Images.

Double diploma: Research M.Sc. in Applied Optics and Physics for Signal and Image Theory, from Aix-Marseille University.



SKILLS & ABILITIES

✓ Languages

French: Native
English: Fluent
German: Technical
Japanese: Learning

✓ Computer Science

Formal calculus: Matlab, Mathematica.
Programming: C, C++, Python, SQL, HTML5, CSS.
Machine Learning, Deep Learning and Reinforcement Learning Libraries: Python, Scikit Learn TensorFlow, Keras, OpenCV, OpenGym, GoRL.

PREVIOUS EXPERIENCES AND INTERNSHIPS

✓ Sabbatical: Volunteering and Travelling

Sep 2015- Mar 2016

To celebrate my PhD, I traveled and volunteered through America. This experience greatly improved my English language proficiency.

✓ Eng. Internship: NEC Technologies UK

Mar 2011- Aug 2011

Project: Software Defined Radio Proof-of-Concept of Sensing Algorithms for opportunistic access in TV White Spaces Frequency Bands.

Studying sensing algorithms, for opportunistic access to TV White Spaces, and design of a proof-of-concept for these algorithms using SDR Devices (RICE WARP).

✓ Eng. Internship: former Supélec Alcatel-Lucent Chaire on Flexible Radio (now Supélec LANEAS)

Apr 2010- Jun 2010

Project: Comparative Performance Survey of two SDR devices (USRP and SDR4All)

✓ Eng. Internship: SNECMA – SAFRAN Group

Jun 2009- Aug 2009

Project: Immersion in an industrial firm, working as operator in the chain of production for plane reactors and space engines.



RESEARCH PUBLICATIONS

More information about my papers and publications can be found on my website at http://matthieu_de_mari.fr. Feel free to ask me for digital copies.

✓ Journal Papers

[J5] De Mari, M., & Quek, T., “AI-assisted proactive power control: training an AI on Mean Field Games”, to be submitted 2019.

[J4] De Mari, M., & Quek, T., “Proactive Energy-Efficient Power Control with Sleeping Strategies”, to be submitted 2019.

[J3] De Mari, M., Calvanese Strinati, E., & Debbah, M., “Interference Classification and Matching: Twofold Optimization for Improving Spectral Efficiency”, under review in IEEE Trans. on Wireless Communications.

[J2] De Mari, M., Calvanese Strinati, E., Debbah, M., & Quek, T., “Energy-Efficiency in Proactive Delay-Tolerant Networks with Mean Field Games”, IEEE Trans. on Cognitive Communications and Networking, 2018.

[J1] De Mari, M., Cardoso, L. S., Azarian, S., Debbah, M., & Jallon, P. (2010), REPÈRES La radio logicielle décrit un exemple d'application Face à la multiplication des standards de communication radio, la solution SDR4All permet de simplifier et accélérer l'implantation d'algorithmes de radio flexible. L'article SDR4All: Faire de la radio logicielle une réalité accessible à tous. Revue De L'électricité Et De L'électronique, (10), 46.

✓ Conference Papers

[C10] De Mari, M. & Quek, T., “Training AIs on Mean Field Games: Case Study of Energy-Efficient Proactive Power Control”, submitted to IJCAI 2019.

[C9] De Mari, M. & Quek, T., “Harnessing the Proactive Knowledge vs. Proactivity Gain Trade-off in Energy-Efficient Power Control”, submitted to INFOCOM 2019.

[C8] De Mari, M. & Quek, T., “Dynamic Stochastic Games for Energy-Efficient Proactive Power Control with Sleep Modes”, submitted to ICCCN 2018.

[C7] De Mari, M., Calvanese Strinati, E., & Debbah, M., “A Game Theoretical Approach to Interference Classification in M-Users Gaussian Interference Channels”, submitted to CLEEN 2017.

[C6] De Mari, M. & Quek, T., “Energy-Efficient Proactive Scheduling in Ultra Dense Networks”, ICC 2017.

[C5] De Mari, M., Becvar, Z., Calvanese Strinati, E., & Debbah, M., “Interference Empowered 5G Networks”, 5GU Conference, 2015.

[C4] De Mari, M., Calvanese Strinati, E., & Debbah, M., “Matching Coalitions for Interference Classification in Large Heterogeneous Networks”, PIMRC 2014.

[C3] De Mari, M., Calvanese Strinati, E., & Debbah, M., “Energy-Efficiency and Future Knowledge Tradeoff in Small Cells Prediction-Based Strategies”, IOSC 2014.

[C2] De Mari, M., Calvanese Strinati, E., & Debbah, M., “Two-Regimes Interference Classifier: an Interference-Aware Resource Allocation Algorithm”, WCNC 2014.

[C1] De Mari, M., Couillet, R., Calvanese Strinati, E., & Debbah, M. (2012, August), “Concurrent data transmissions in green wireless networks: When best send one’s packets?”, In Wireless Communication Systems (ISWCS), 2012 International Symposium on (pp. 596-600). IEEE.

✓ **Patents**

[P1] E. Calvanese Strinati, M. De Mari, M. Debbah, “PROCEDE DE PRISE DE DECISION D’UN TRANSFERT DE COMMUNICATION DANS UN CONTEXTE INTERFERENTIEL INTRA-BANDE”, Filed in February 2015, Accepted in March 2016.

CONFERENCES ORGANIZATION AND REVIEW

✓ **TPC**

TPC in EUCNC 2019,
TPC in CLEEN 2018-2019,
TPC in GlobalSIP 2018-2019,
IEEE Machine Learning for Communications ETI

✓ **Regularly reviewing in**

IEEE Trans. In Green Communications and Networking,
IEEE Trans. In Communications,
IEEE Trans. In Wireless Communications,
IEEE Trans. on Signal and Information Processing over Networks,
IEE Trans. on Vehicular Technologies
IEEE Communication Magazine,
IEEE Communication Letters,
Wireless Communications and Mobile Computing.

REFERENCES LETTERS

References letters can be provided upon request.