

PERSONAL INFORMATION

Mateusz Gospodarczyk

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Gender Male | Date of birth 1 September 1982

Nationality Italian and Polish



WORK EXPERIENCE

19/03/2018 - current **Research grants in the area of technology.**

Laboratori Nazionali di Frascati INFN, Via Enrico Fermi 40 - 00044 Frascati (Roma) Italy

- Projects
- AAI project: Implementation of a scalable microservices system, based on OpenShift, Spring Boot and MongoDB.
 - !CHAOS (Control system based on Highly Abstracted and Open Structure) project. Implementation of the !CHAOS framework in C++.

April 2011 – December 2013 **Software Developer**

Vanguard System Srl, Bologna (BO), Italy

- Projects
- Implementation of the CMS CARD in Spring for Poste Italiane.
 - Implementation of the CMS INSEGNA in Spring for the Banca di Cariparma.
 - Implementation of the CMS CARDPLUS and Carta SI in Spring for Banca di Cariparma.
 - Portal Development Corporate Banking BNL (Banca BNL)

Development tools Eclipse , STS (spring source tool), Framework Spring , Spring Roo, JPA, Tomact, Sql Server, Web Services, IDE sts-tools Framework Spring, Portlet JSR286, WebSphere 7, DB2.

October 2010 – April 2011 **Software Developer Internship**

Solving Team Srl , Roma (RM), Italy

Development tools Java, J2EE and Sql server

EDUCATION AND TRAINING

1 November 2014 – 11 April 2018 **Doctor of Philosophy in Computer Science, Control and Geoinformation**

ISCED 6

University University of Rome "Tor Vergata" in collaboration with ENEA¹

Supervisor Ph.D Daniele Carnevale

Co-Supervisor Dr. Basilio Esposito and Ph.D. Luca Boncagni

Ph.D title Control, diagnostics and estimation techniques for runaway electrons beams

- Ph.D description Modeling and control of the runaway electrons (REs) beam in different experimental tokamak machines like Frascati Tokamak Upgrade (FTU), Tokamak à Configuration Variable (TCV), Axially Symmetric Divertor Experiment (ASDEX Upgrade or AUG) and COMPACT ASSEMBLY (COMPASS).
- Project ELIGERE: the distributed interactive decision support system based on fuzzy ahp logic. Fuzzy AHP Distributed Software Platform for Collaborative Engineering Design. Fuzzy AHP is a multiple criteria decision making method which uses a hierarchical structure to decompose a problem and a pairwise comparison of alternatives for developing priorities based on the judgments of the users. www.eligere.org
 - Project Update and develop a runaway electrons control system (RECS) on FTU (MARTE framework), TCV (Simulink) and COMPASS (MARTE framework)
 - Project Developing a new real-time acquisition and elaboration system that calculates the line averaged density using the two-color scanning beam interferometer, installed on FTU.
 - Project MST2-15 Project and MST1-15 project related to imaging of runaway electron beams. Supervision, development and construction of a portable Runaway Electron Imaging Spectroscopy (REIS) system for use in medium size tokamaks (AUG, TCV, MAST). The REIS detects the visible and infrared synchrotron radiation spectra emitted by runaway electrons (RE) during the various phases of a plasma discharges including the runaway plateaus following disruption events.
 - Project Participation in TCV15-1.3-6 Experimental Campaigns at EPFL (The École polytechnique fédérale de Lausanne). Development of RE (Runaway electron beam) linear control model and Position Control Experiments at TCV.

2006–2014 Master’s degree in Automation Engineering

- University University of Rome "Tor Vergata"
- Supervisor Ph.D Daniele Carnevale
- Co-Supervisor Dr. Basilio Esposito and Dr. Luca Boncagni
- Thesis title Study of runaway beam in relation to the control system design for the Frascati Tokamak Upgrade and plant identification
- Thesis description Developing of non-linear and linear control oriented models of runaway electron beam based on the grey-box identification and black box techniques.

2003–2006 Bachelor degree in Automation Engineering

- University University of Rome "Tor Vergata"
- Supervisor Ph.D Francesco Martinelli
- Thesis title Localization of the Nomad XR400 with EKF
- Thesis description
 - Linear systems modelling based on Kalman’s Filter
 - Robotic (NOMAD XR4000)

VISITS TO FOREIGN INSTITUTIONS AND RESEARCH CENTERS

2016 Visiting researcher at COMPASS Tokamak facility in Prague

Integration in MARTE system of the RE control algorithm.

2017 Visits to ASDEX Tokamak facility in Garching

MST-1 and MST-2 projects: installation, integration and data analysis of the REIS system

2017 Visits to TCV Tokamak facility in Lausanne

MST-1 and MST-2 projects: installation, integration and data analysis of the REIS system

COURSES

- 26-30 November 2018 Corso Red Hat per sistemisti INFN (Auditor)
- October 2018 DevOps - build reliable software at CNAF (Auditor)
- 21-25 May 2018 Corso di formazione: "Python per amministratori di sistema" - Piano formativo CCR 2018 (Auditor)
- 28 May 2018 - 4 June 2018 C++ Development Practices at LNF-INFN (Auditor)
- 01-05 March 2017 Programming paradigms for GPU devices
- 6-9 November 2016 Introduction to Scientific and Technical Computing in C++
- 28-30 September 2015 LabView Core 1 National Instruments
- September 2015 9th Summerschool Karlsruhe International School on Fusion Technologies

CONFERENCE

- 2nd European Conference on Plasma Diagnostics (ECPD 2017)
- 20th Real Time Conference (5-10 June 2016 Padova, Italy)
- PhD Event (FuseNet 2015)

TEMPORARY AND OCCASIONAL EMPLOYMENT

- 2017 Mentoring and training programme at Dipartimento di Ingegneria Civile e Ingegneria Informatica, University of Rome "Tor Vergata" in: Ottimizzazione nei sistemi di controllo
- 2016 Mentoring and training programme at Dipartimento di Ingegneria Civile e Ingegneria Informatica, University of Rome "Tor Vergata" in: Fondamenti di controlli
- 2016 Mentoring and training programme at Dipartimento di Ingegneria Civile e Ingegneria Informatica, University of Rome "Tor Vergata" in: Ottimizzazione nei sistemi di controllo

PERSONAL SKILLS

Mother tongue Italian and Polish

Other languages

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	

English	C1	C1	C1	C1	C1
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Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
[Common European Framework of Reference \(CEF\) level](#)

Communication skills – Inter-cultural skills: I am experienced at working in different European research institutes like FTU, COMPASS, ASDEX, and TCV.

Computer skills – Competent with most of Microsoft Office tools
 – Programming languages: Python, C++, Java (J2SE, J2EE), LabView, php, C++, sql
 – Utilities: Matlab, Simulink and Maple
 – PLC S7-1200
 – Frameworks: MARTe framework and ICHAOS
 – Application Server /Servlet Container: JBOSS, WEBSPPHERE 7, TOMCAT
 – Operating system know: Linux and Windows.
 – Ide: IntelliJ IDEA, Eclipse and Visual Code

Theoretical skills and technical skills – Data Analysis
 – Industrial sensors
 – Dynamic system identification
 – Control systems and embedded systems
 – Real-time systems
 – Advanced C and Java programming

Driving licence B

SCIENTIFIC PUBLICATION

1 Journal

References

- B Esposito, L. B., Buratti, P., Carnevale, D., Causa, F., and M Gospodarczyk, o. (2016). Runaway electron generation and control. *Plasma Physics and Controlled Fusion*, 59(1):014044.
- Carnevale, D., Ariola, M., Artaserse, G., Bagnato, F., Bin, W., Boncagni, L., Bolzonella, T., Bombarda, F., Buratti, P., Calacci, L., Causa, F., Coda, S., Cordella, F., Decker, J., Tommasi, G. D., Duval, B., Esposito, B., Ferro, G., Ficker, O., Gabellieri, L., Gabrielli, A., Galeani, S., Galperti, C., Garavaglia, S., Havranek, A., Gobbin, M., Gospodarczyk, M., Granucci, G., Joffrin, E., Lennholm, M., Lier, A., Macusova, E., Martinelli, F., Martin-Solis, J. R., Mlynar, J., Panaccione, L., Papp, G., Passeri, M., Pautasso, G., Popovic, Z., Possieri, C., Pucella, G., Sheikh, U. A., Ramogida, G., Reux, C., Rimini, F., Romano, A., Sassano, M., Tilia, B., Tudisco, O., Valcarcel, D., the FTU team, the EUROfusion MST1 team, and Contributors, J. (2019). Runaway electron beam control. *Plasma Physics and Controlled Fusion*, 61(1):014036.
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- Dinca, P., Dolci, V., Galperti, C., and M. Gospodarczyk, o. (2017). Overview of the ftu results. *Nuclear Fusion*, 57(10):102004.
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- Gnucci Manuel, G. M., Daniele, C., Marco, T., and Tomei Patrizio, V. C. M. (2017). A learning control algorithm for periodic robot synchronization: experimental results. *International Journal of Adaptive Control and Signal Processing*.
- Gobbin Marco, L. L. Y.-Q., Lionello, M., Massimo, N., Gergely, P., Gabriella, P., Piovesan, Paolo, Valisa, M., Daniele, C., Esposito, B., Giacomelli, L., and Mateusz Gospodarczyk, o. (2017). Runaway electron mitigation by 3d fields in the asdex-upgrade experiment. *Plasma Physics and Controlled Fusion*.
- Gospodarczyk, M., Gabrielli, A., Carnevale, D., Boncagni, L., Ferró, G., Esposito, B., Sassano, M., Martinelli, F., Galeani, S., and Popovic, Z. (2018). Control-oriented model of disruption generated re beam at ftu. *Fusion Engineering and Design*, 135:42 – 49.
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2 Proceedings and poster

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- Boncagni, L., Carnevale, D., Ferró, G., Galeani, S., Gospodarczyk, M., and Sassano, M. (2015). Performance-based controller switching: An application to plasma current control at ftu. In *Proc. 54th IEEE Conf. Decision and Control (CDC)*, pages 2319–2324.
- Carnevale, D., Ferró, G., , Galeani, S., Gospodarczyk, M., and Sassano, M. (2017). Optimization of two-controller switchings per lti plants. In *Control and Automation (MED), 2017 25th Mediterranean Conference on*, pages 111–116. IEEE.
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- Gospodarczyk, M. et al. (2017). Runaway electron imaging spectrometry (reis) at the frascati tokamak. poster.
- Grazioso Stanislao, S. M., Domenico, M., and Di Gironimo Giuseppe, G. M. (2017). Eligere: a fuzzy ahp distributed software platform per group decision making in engineering design. In *Fuzzy Systems (FUZZ-IEEE), 2017 IEEE International Conference on*, pages 1–6. IEEE.
- Luca Boncagni, D. C., Basilio Esposito, G. C., Cianfarani, C., Gabrielli, A., Ferrò, G., Galeani, S., and Mateusz Gospodarczyk, o. (2015). Control oriented dynamical model of disruption generated re beam. In *42th EPS Conference on Plasma Physics, 2015*.
- M. Gospodarczyk, D. C., Esposito, B., Boncagni, L., and the FTU Team (2015). Control oriented dynamical model of disruption generated re beam. Poster. FuseNet 2015 PhD Event.
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