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Date of birth: May 30, 1987  
Nationality: Polish



## Education

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- 2016 – 2017**    **WARSAW UNIVERSITY OF TECHNOLOGY**, Poland.  
PhD thesis submitted, waiting for the defense, titled: *Lightweight, scalable and manageable link-layer authentication for security of the process of acquiring network access for the Internet of Things devices.*
- 2010 – 2016**    **POLISH ACADEMY OF SCIENCES**, Poland.  
Joint Computer Science PhD studies program (Technical Sciences) realized at the Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University in Krakow.
- 2009 – 2013**    **AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY IN KRAKOW**, Poland.  
Bachelor's of Engineering in Electronics and Telecommunications – 3.5-year program.  
Finished with thesis: *Analysis of efficiency of Xen virtualization environment.*  
Final grade: 4.5/5 (90%).
- 2007 – 2010**    **JAGIELLONIAN UNIVERSITY IN KRAKOW**, Poland.  
Uniform Master's Degree in Computer Science – 5-year program.  
Finished with thesis: *Assembly of laboratory for executing and analyzing attacks and threats in computer networks* (with great focus on wireless networks security).  
Final grade: 4.5/5 (90%).

## Summary

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I am interested in research and development projects that require expertise in security, networks and computing. My background is a combination of academia and business experience. I can work alone, in a team or lead a team. I am passionate and I am not afraid of any challenges.

## Current Research Focuses

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Lightweight security mechanisms for the Internet of Things.  
Optimization of security data processing using various computing architectures.  
Novel protocols and computing architectures for security and efficiency the Internet of Things.

## General Research Interests

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- Security:**        Wireless networks security, protocols security, embedded security, applied cryptography, operating systems security, networks security.
- Networks:**      Routing protocols, wired and wireless networks, telecommunication technologies, network protocols, sensor and low-power lossy networks.
- Computing:**    Cloud Computing, Edge Computing, Fog computing, High-Performance Computing, Constrained Computing.
- Applications:** Internet of Things, Wearable devices, eHealth, Networks, Autonomous Vehicles, Big Data.

## Publications

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- 04.2016** INTERNATIONAL JOURNAL OF DATA WAREHOUSING AND MINING.  
*I-BAT: A Data-Intensive Solution based on the Internet of Things to Predict Energy Behaviours in Microgrids*, Antonio J. Jara, Luc Dufour, Gianluca Rizzo, Marcin Piotr Pawlowski, Dominique Genoud, Alexandre Cotting, Yann Bocchi, Francois Chabbey.
- 11.2015** MOBILE INFORMATION SYSTEMS.  
*Compact Extensible Authentication Protocol for the Internet of Things: enabling scalable and efficient security commissioning*, Marcin Piotr Pawlowski, Antonio J. Jara and Maciej J. Ogorzalek.
- 10.2015** SENSORS.  
*Harvesting Entropy for Random Number Generation for Internet of Things Constrained Devices Using On-Board Sensors*, Marcin Piotr Pawlowski, Antonio J. Jara and Maciej J. Ogorzalek.
- 09.2015** SENSORS.  
*Optimized ECC Implementation for Secure Communication between Heterogeneous IoT Devices*, Leandro Marin, Marcin Piotr Pawlowski and Antonio J. Jara.
- 04.2015** IEEE JOURNAL ON SELECTED AREAS OF COMMUNICATION.  
*Toward a Lightweight Authentication and Authorization Framework for Smart Objects*, Jose Luis Hernandez Ramos, Marcin Piotr Pawlowski, Antonio J. Jara, Antonio Fernando Skarmeta Gomez and Latif Ladid.
- 01.2015** RESEARCH BRIEFS ON INFORMATION & COMMUNICATION TECHNOLOGY EVOLUTION (REBICTE).  
*Harvesting Entropy from On-board Sensors of Constrained Devices for Hardening Security of IoT Communication Mechanisms*, Marcin P. Pawlowski, Antonio J. Jara, and Maciej J. Ogorzalek.

## Conferences

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- 12.2015** GLOBAL COMMUNICATIONS CONFERENCE, EXHIBITION AND INDUSTRY FORUM (GLOBECOM 2015), SAN DIEGO, CA, USA.  
*Maximizing the Extensible Authentication Protocol Maximum Transfer Unit to minimize the authenticating data transmission in the IEEE 802.15.4 networks*, Marcin P. Pawlowski, Antonio J. Jara and Maciej J. Ogorzalek.
- 04.2015** THE 29TH IEEE INTERNATIONAL CONFERENCE ON ADVANCED INFORMATION NETWORKING AND APPLICATIONS (AINA 2015), GWANGJU, SOUTH KOREA.  
*EAP for IoT: more efficient transport of authentication data - TEPANOM case study*, Marcin P. Pawlowski, Antonio J. Jara and Maciej J. Ogorzalek.
- 11.2014** THE 6TH INTERNATIONAL WORKSHOP ON MANAGING INSIDER SECURITY THREATS (MIST 2014), SEOUL, SOUTH KOREA.  
*Harvesting Entropy from On-board Sensors of Constrained Devices for Hardening Security of IoT Communication Mechanisms*, Marcin P. Pawlowski, Antonio J. Jara and Maciej J. Ogorzalek.

- 07.2014** THE EIGHTH INTERNATIONAL CONFERENCE ON INNOVATIVE MOBILE AND INTERNET SERVICES IN UBIQUITOUS COMPUTING (IMIS-2014), BIRMINGHAM CITY UNIVERSITY, BIRMINGHAM, UK.  
*Extending Extensible Authentication Protocol over IEEE 802.15.4 networks*, Marcin P. Pawlowski, Antonio J. Jara and Maciej J. Ogorzalek.
- 03.2014** SEVENTH ACADEMIC COMPUTER CENTER CYFRONET AGH USERS' CONFERENCE.  
P.M. Oramus, **M.P. Pawlowski**, and G. Surowka, *Automatic reconfiguration of DNAT rules by Java RMI application running on the Vyatta router*.
- 03.2014** SEVENTH ACADEMIC COMPUTER CENTER CYFRONET AGH USERS' CONFERENCE.  
**M.P. Pawlowski**, G. Surowka, and P. Oramus, *Performance analysis of the full-virtualization environments*.
- 08.2013** INTERNATIONAL SYMPOSIUM ON OPERATIONS RESEARCH AND ITS APPLICATIONS (ISORA 2013).  
Leszek A. Nowak, **Marcin P. Pawlowski**, Katarzyna Grzesiak-Kopec, Maciej J. Ogorzalek, *Color Calibration Model of Skin Lesion Images for Computer-Aided Diagnostic*.
- 11.2012** IEEE BIOMEDICAL CIRCUITS AND SYSTEMS CONFERENCE (BIOCAS 2012).  
Leszek A. Nowak, Maciej J. Ogorzalek, **Marcin P. Pawlowski**, *Texture Analysis for Dermoscopic Image Processing*.
- 09.2012** INTERNATIONAL CONFERENCE ON COMPUTER VISION AND GRAPHICS (ICCVG 2012).  
Weronika Piatkowska, Leszek Nowak, **Marcin Pawlowski**, Maciej Ogorzalek, *Stafflines Pattern Detection Using the Swarm Intelligence Algorithms*.  
Published in Lecture Notes in Computer Science (LNCS).
- 08.2012** IEEE INTERNATIONAL CONFERENCE ON SYSTEMS BIOLOGY (ISB).  
Leszek A. Nowak, Maciej J. Ogorzalek, **Marcin P. Pawlowski**, *Pigmented Network Structure Detection Using Semi-Smart Adaptive Filters*.
- 07.2012** ASSOCIATION OF ASIA-PACIFIC OPERATIONAL RESEARCH SOCIETIES (APROS 2012).  
Leszek A. Nowak, **Marcin P. Pawlowski**, Maciej J. Ogorzalek, *Dermoscopic Pattern Detection Using Swarm Intelligence Algorithm for Computer Aided Skin Lesion Diagnostics*.
- 09.2009** HAKIN9 POLISH EDITION.  
**Marcin Piotr Pawlowski**, *NetBSD*.
- 03.2009** HAKIN9 POLISH EDITION.  
**Marcin Piotr Pawlowski**, *Practical attack on WPA*.

## Research Projects

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- 2014 – 2015** UNIVERSITY OF APPLIED SCIENCES - WESTERN SWITZERLAND.  
BASTION - Analysis, design and evaluation of Bootstrapping, Authentication, Security and Trust for the Internet of Things Networks.
- 2013 – 2014** JAGIELLONIAN UNIVERSITY IN KRAKOW.  
Integration of 6LoWPAN networks with the Internet and Things.
- 2012 – 2013** JAGIELLONIAN UNIVERSITY IN KRAKOW.  
Analysis of communication mechanisms in LLN networks.

- 2012 – 2013** JAGIELLONIAN UNIVERSITY IN KRAKOW.  
Analysis of virtualization environments for purposes of virtualization of computer laboratories.
- 2008 – 2009** SEMIHALF COMPANY.  
Deep Packet Inspection research.

## Teaching Experience

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- 2012** WiMAX NETWORKS.  
FreeBSD system Administration.
- 2011 – 2012** JAGIELLONIAN UNIVERSITY.  
Open Source Networks Workshops.
- 2011 – 2012** JAGIELLONIAN UNIVERSITY.  
Data Transmission Fundamentals.
- 2011 – 2012** JAGIELLONIAN UNIVERSITY.  
IPv6 Workshops.

## Trainings

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- 2010** Advanced Juniper Networks Routing in the Enterprise.
- 2010** Networks Security.
- 2010** Operating Juniper Networks Routing in the Enterprise.
- 2009** WWW Application Security.

## Professional Experience

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- 2016** HOP UBIQUITOUS.  
**Principal Security Researcher:** research and development of security mechanism for the Internet of Things; IoT solutions security investigation; Envisioning and designing new security solutions for IoT products; Integration of security standards with the company solutions; Representation of the company in standards development working groups.
- 2014 – 2015**  
(18 months) UNIVERSITY OF APPLIED SCIENCES - WESTERN SWITZERLAND.  
**Researcher:** Analysis, design and evaluation of Bootstrapping, Authentication, Security and Trust for the Internet of Things Networks - Extending IEEE 802.15.4 with IEEE 802.1X support on MSP430 devices with ContikiOS; ECC optimization for Jennic MCUs; EAP authentication methods design; EAP protocol optimization; Design and develop security scheme for Internet of Things networks; Analyze and optimize designed solution; C programming – embedded for MSP430 constrained devices; IEEE 802.15.4 MAC (link) layer modifications of ContikiOS implementation; Implement various authentication mechanisms; Design and implement authentication protocols.

- 2013 – 2014** WiMAX NETWORKS.  
**Developer:** Development and integration of provisioning system for simplifying installation process; Development and integration of provisioning system for simplifying installation process, embeded linux programming; Design automatic client device commissioning solution for large area wireless internet service provider; Develop firmware based on embedded Linux for access point devices with an automatic configuration service; Protect all process with wireless security solutions (WPA-Enterprise); Design a frontend for the solution (hardest one); Prepare solution documentation.
- 2010 – 2014** NINTHELL.  
**Owner and researcher:** Wireless networks security, penetration testing and wireless networks solution development.
- 2012 – 2013** VISIONCUBE.  
**Contract Integrator:** Implementation of integrated system of control for videoconference rooms.
- 2012**  
 (3 months) GOOGLE.  
**Contract Developer:** NAT64/46 and NPTv6 integration with NPF NetBSD Packet Filter.
- 2010 – 2012** WiMAX NETWORKS.  
**Contract Integrator:** Implementation of wireless network based on IEEE 802.16 Standard.
- 2010**  
 (3 months) EVIZONE POLAND.  
**Contract Penetration Tester:** Conducting various security related application tests.
- 2007 – 2009** HAKIN9 ENGLISH EDITION.  
**Volunteer:** Merit support.

## Organizations

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- 2016** IPSO ALLIANCE.  
 Security and Identity Working Group Member.
- 2011 – 2016** IEEE.  
 Communications Society Student Member.

## Language

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- Polish: mother tongue.  
 English: fluent.  
 French: basic.  
 German: basic.  
 Spanish: basic.

## Professional skills

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Coding in C and also various assemblers, Python, C++, Perl, Shell...  
 Running Unix-like, ContikiOS and FreeRTOS operating systems.  
 Working with AVR, MSP430, Cortex-M3, Cortex-A8 and i386+ processors.  
 Computing with FPGA, CUDA technologies.  
 Building networks using OSPF, BGP, RIP, MPLS, RPL.  
 Communicating by IPv4, IPv6, 6LoWPAN, TCP, UDP, ICMPv4, ICMPv6, CoAP.

Networking with 802.11, 802.15.4, BLE, 802.16 and basic GSM, UMTS, LTE.

Protecting using WPA, EAP, TLS, DTLS, Radius, pf.

Attacking using appropriate tools.

Knowing ways around HP Blade and Intel Modular Server solutions.

Virtualizing thanks Xen, vSphere, Hyper-V, KVM, LXC, Jail, OpenStack and OpenNebula.

Soldering electronics at basic level.

Describing electronics using VHDL, Verilog, SystemC.

Despising Java.