

Curriculum Vitae

Personal data:

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Education:

- Ph. D. in Electrical Engineering, RWTH Aachen University, Germany.
- Faculty of Electrical Engineering and Information Technology, RWTH Aachen University, Germany, Ph.D. supervisors: Prof. P. Mahonen and Prof. B. Walke
- M. Eng. in Telecommunications, Warsaw University of Technology, Poland.
- Faculty of Electronics and Information Technology, Warsaw University of Technology, Poland, M.Eng. supervisors Prof. J. Lubacz and Dr R. Kossowski.

Professional experience:

- Visiting Research Professor, Military University Technology, Warsaw, Poland.
- Principal Scientist, Cyber Security Capability Design, NATO Communications and Information Agency, Den Haag, The Netherlands.
- Principal Investigator, mobile & wireless security, SAP Research, Sophia Antipolis, France.
- Visiting Scientist, Department of Wireless Networks, RWTH Aachen University, Germany.
- Research Affiliate, Media Lab Europe, Dublin, Ireland.
- Senior Research Engineer, secure distributed systems and wireless applications, Ericsson Systems Expertise Ltd., Dublin, Ireland.
- Senior Research Engineer, electronic commerce and mobile applications security, Ericsson Eurolab Deutschland GmbH, Herzogenrath, Germany.
- Visiting Scholar, Wireless Information Network Laboratory (WINLAB), Rutgers University, New Jersey, USA.
- Diploma student at the Ericsson Eurolab Deutschland, Herzogenrath, Germany.
- Teaching assistant at the Faculty of Electronics and Information Technology, Warsaw University of Technology; at the Postgraduate Courses on Applications of Mathematics in Polish Academy of Science and at the Postgraduate College of Computer Science, Telecommunications and Management CITCOM - PW.
- Operating own company specializing in data base programming and enterprise information security systems, Warsaw, Poland.

Publications

Books:

1. Amanowicz M., Szwaczyk S., Wrona K.: *Data-Centric Security in Software Defined Networks (SDN)*, Springer, 2024.
2. Wrona K.: *Cooperative communication systems*, Mainz Verlag, 2005.

Chapters:

1. Wrona K., Hallingstad G.: Securing Alliance Federation – a conceptual view on evolution of CERT capabilities and services for NATO operations, In A. Armando, M. Henauer, A. Rigoni (Eds) *Next Generation CERTs*, IOS Press, NATO Science for Peace and Security Series - D: Information and Communication Security, 2019, DOI: 10.3233/NICSP190007.
2. Winkler M., Street M., Tuchs K.-D., Wrona K.: Wireless Sensor Networks for Military Purposes. In D. Filippini (Ed.), *Autonomous Sensor Networks* (pp. 365–394). Springer, 2013, DOI: 10.1007/5346_2012_40.
3. Krco S., Wrona K.: Towards integrated real world sensing environment - applications and challenges, In *Theoretical Aspects of Distributed Computing in Sensor Networks*, Nikolettseas S. and Rolim J. (Eds.), Springer Verlag, 2011, DOI: 10.1007/978-3-642-14849-1_27.
4. Compagna L., Lotz V., Wrona K.: Towards adaptive security for ubiquitous computing systems: MOSQUITO and Serenity, In *Handbook of Research on Ubiquitous Computing Technology for Real Time Enterprises*, M. Mühlhäuser, I. Gurevych (Eds.), Idea Group Publishing, 2008, DOI: 10.4018/978-1-87828-991-9.ch161.
5. Pazzaglia J.-C., Wrona K., Laube A., Montagut F., Gomez L., Roudier Y., Trabelsi S.: Utilisation des informations contextuelles pour assurer la sécurité d'un processus collaboratif distribué: un exemple dans l'e-Santé, In *Informatique Diffuse*, Obs. Français des Techniques Avancées, Série ARAGO vol. 31, 2007.
6. Wrona K., Mähönen P.: Stability and security in wireless cooperative networks, In *Cooperation in Wireless Networks: Principles and Applications*, F. Fitzek, M. Katz (Eds.), Springer, 2006.

Journal articles:

1. Wrona K., Micevski-Scharf F., Jarosz M.: Security Accreditation and Software Approval with Smart Contracts, *IEEE Communications Magazine* 59(2), 2021.
2. Zieliński Z., Wrona K., Furtak J., Chudzikiewicz J.: Reliability and fault tolerance solutions for the military IoT, *IEEE Communications Magazine* 59(2), 2021.
3. Kanciak K., Wrona K.: Towards an Auditable Cryptographic Access Control to High-value Sensitive Data, *Intl Journal of Electronics and Telecommunications* 66(3), 2020.
4. Tortonesi M., Wrona K., Suri N.: Secured Distributed Processing and Dissemination of Information in Smart City Environments, *IoT Magazine* 2(2), 2019.
5. Wrona K., Moye T., Lagadec P., Street M., Lenk P., Jordan F., Cybersecurity Innovation in NATO: Lessons Learned and Recommendations, *Information & Security: An International Journal* 36, 2017.
6. Wrona K., Oudkerk S., Szwaczyk S., Amanowicz M.: Content-based security and protected core networking with software-defined networks, *IEEE Communications Magazine* 54(10), 2016.
7. Wrona K., Hallingstad G.: Real-time automated risk assessment in protected core networking, *Telecommunication Systems* 45(2), 2010.

8. Sorniotti A., Gomez L., Wrona K., Odorico L.: Secure and trusted in-network data processing in wireless sensor networks: a Survey, *International Journal of Information Assurance and Security* 2(4), 2007.
9. Wrona K., Gomez L.: Context-aware security and secure context-awareness in ubiquitous computing environments, *ANNALES UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA - SECTIO AI INFORMATICA vol. IV*, 2006.
10. Perlines-Hormann T., Wrona K., Holtmanns S.: Evaluation of certificate validation mechanisms, *Computer Communications* 29(3), 2006.
11. Wrona K., Mähönen P.: Analytical modeling of cooperation in ad hoc networks, *Journal of Telecommunication Systems* 27(2-4):347-369, 2004.
12. Wrona K., Mähönen P.: Cooperative and cognitive networks with reputation and trust, *China Communications Magazine*, 1(1): 64-75, 2004.
13. Wrona K., Keller R., Herwono I., Williams F.: Electronic Commerce in Deutschland und weltweit: Neue Zahlungssysteme und ihre Anwendungsbereiche (in German), *Praxis der Informationsverarbeitung und Kommunikation (PIK)* 21(1):3-10, 1998.

Invited talks:

1. Wrona K.: Chaining trust in 5G-enabled federations, *IEEE 5G & Blockchain Summit*, Venice, Italy (online), 2021.
2. Wrona K.: Implementing the Vision of Data-centric Security within NATO - and Beyond, *Military Communications and Information Systems (MilCIS) Conference*, Canberra, Australia, 2020.
3. Wrona K.: Cyber security challenges - between humans and technology, *Cyber Security Symposium Africa*, 2018.
4. Wrona K.: Military Applications of Internet of Things, *International Workshop on Connected Objects in Defence and Security*, Thun, Switzerland, 2017.
5. Wrona K.: DyNE: Dynamic Network Enumeration in Military and Governmental Systems, *International Conference on Cyber Conflict (CyCon)*, 2017.
6. Wrona K.: Security challenges and opportunities introduced by Content-Centric Networking and Software-Defined Networking, *Proc. of the STO IST-120 Symposium on Future Internet Architectures for Military Networks*, Oslo, Norway, 2014.
7. Wrona K.: Security in wireless sensor networks: a military perspective (Invited talk), *Proceedings of the Computer & Electronics Security Applications Rendez-vous (C&ESAR)*, Rennes, France, 2009.
8. Wrona K.: Context-aware security and trust (Invited talk), *Proceedings of the 2nd Workshop on ICT Security & Dependability Research Strategy (SecurIST)*, Brussels, Belgium, 2005.
9. Wrona K.: Trust and Accountability in Ad Hoc Systems - from File Sharing to Viral Communications (Invited talk), *Proc. of 1st Int. Workshop on Security in Ad-Hoc Networks*, Bochum, Germany, 2002.

Conference articles:

1. Batalla J., Wrona K., Brown D., Wiącek F., Ruuto U., Wichary T.: Threat assessment of 5G networks for military applications, in *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Koblenz, Germany, 2024. (*Best Paper Award*)
2. Śliwa J., Wrona K., Quantum in military applications - what should we pack for the journey? in *Proc. of the NATO STO Research Symposium on Quantum Technology for Defence and Security (IST-SET-198-RSY)*, Amsterdam, The Netherlands, 2023.

3. Śliwa J., Wrona K., Shabanska T., Solmaz A., Lightweight quantum-safe cryptography in underwater scenarios, Proc. of the 48th IEEE Conference on Local Computer Networks (LCN), Daytona Beach, FL, USA, 2023.
4. Rigolin Lopes, R. F., Loevenich J. F., Wrona K., Rettore P. H. L., Falkcrona J., Mathews J., Nordbotten N., Vasilache B., Lampe T., Worthington O. L., Roning J., Accelerating NATO Transformation with SnTEE: Experiments with Network Security Function Virtualization in Coalition Networks, in Proc. of the International Conference on Military Communications and Information Systems (ICMCIS), Skopje, North Macedonia, 2023.
5. Śliwa J., Wrona K., Quantum Computing Application Opportunities in Military Scenarios, in Proc. of the International Conference on Military Communications and Information Systems (ICMCIS), Skopje, North Macedonia, 2023.
6. Wrona K., Jarosz M., Applicability of distributed ledgers to NATO, Proc. of the NATO STO Specialists Meeting on Blockchain Technology for Coalition Operations (IST-186-RSM), Ankara, Turkey, 2023.
7. Kukliński S., Szczypiorski K., Wrona K., Bieniasz J., 5G-Enabled Defence-in-Depth for Multi-domain Operations, in Proc. of the Military Communications Conference (MILCOM), North Bethesda, USA, 2022.
8. Manso M., Furtak J., Guerra B., Michaelis J., Ota D., Suri N., Wrona K.: Connecting the Battlespace: C2 and IoT Technical Interoperability in Tactical Federated Environments. 1045-1052, in Proc. of the Military Communications Conference (MILCOM), North Bethesda, USA, 2022.
9. Jarosz M., Wrona K., Zieliński Z., Formal verification of security properties of the Lightweight Authentication and Key Exchange Protocol for Federated IoT devices, Proc. of the 17th Conference on Computer Science and Intelligence Systems, Sofia, Bulgaria, 2022.
10. Kanciak K., Wrona K., Jarosz M., Secure Onboarding and Key Management in Federated IoT Environments, Proc. of the 17th Conference on Computer Science and Intelligence Systems, Sofia, Bulgaria, 2022.
11. ten Brink W., Vasilache B., Wrona K., Suri N., Towards integration of Command and Control systems with Internet of Things, Proc. of the International Conference on Military Communications and Information Systems (ICMCIS), Udine, Italy, 2022.
12. Wrona K.: Data-centric security as an enabler for integration with third party CIS, *Proc. of the 15th NATO Operations Research and Analysis (OR&A) Conference*, (online) 2021.
13. Wrona K.: Data-Centric Security in Maritime Operations, in *Proc. of the NATO Maritime Interdiction Operational Training Centre (NMIOTC) 5th Cyber Security Conference*, Chania, Crete, 2021.
14. Pizzimenti S., Oberti A., Wrona K., Calzarossa M. C.: Sensitive or not? How to attack and defend document security classification models, in *Proc. of the NATO STO IST-190 Research Symposium on AI, ML and BD for Hybrid Military Operations (AI4HMO)*, (online), 2021.
15. Lopes R., Bildsten C., Wrona K., Huopio S., Eidenskog D., Worthington O.: Cyber Security in Virtualized Communication Networks: Open Challenges for NATO, in *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, (online), 2021.
16. Kanciak K., Jarosz M., Głębocki P., Wrona K.: Enabling civil-military information sharing infederated smart environments, in *Proc. of the IEEE World Forum on Internet of Things (WF-IoT)*, New Orleans, USA, (online) 2021.
17. Wrona K.: Towards data-centric security for NATO operations, in *Proc. of the Digital Transformation, Cyber Security and Resilience (DIGILIENCE) Conference*, Varna, Bulgaria, (online) 2020.

18. Wrona K., Tortonesi M., Suri N., Marks M.: Leveraging and Fusing Civil and Military Sensors to Support Disaster Relief Operations in Smart Environments, in *Proc. of the Military Communications Conference (MILCOM)*, Norfolk, VA, USA, 2019.
19. Szwaczyk S., Amanowicz A., Wrona K., Karbowski A.: Risk-aware routing approach for software-defined networks, in *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Budva, Montenegro, 2019.
20. Wrona K., Pradhan M., Tortonesi M., Suri N.: Civil-Military Collaboration in Smart Environments under Adversarial Conditions, in *Proc. of the International Workshop on Internet of Things for Adversarial Environments (in conjunction with IEEE INFOCOM)*, Paris, France, 2019.
21. Wrona K., Jarosz M.: Use of blockchains for secure binding of metadata in military applications of IoT, in *Proc. of the IEEE World Forum on Internet of Things (WF-IoT)*, Limerick, Ireland, 2019.
22. Wrona K., Jarosz M.: Does NATO need a blockchain?, in *Proc. of the Military Communications Conference (MILCOM)*. Los Angeles, CA, USA, 2018.
23. Johnsen F., Zielinski Z., Wrona K., Suri N., Fuchs C., Pradhan M., Furtak J., Vasilache B.D., Pellegrini V., Dyk M., Marks M., Krzyszton M., Application of IoT in Military Operations in a Smart City, in *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Warsaw, Poland, 2018.
24. Szwaczyk S., Wrona K., Amanowicz M., Applicability of risk analysis methods to risk-aware routing in software-defined networks, in *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Warsaw, Poland, 2018.
25. Suri N., Zielinski Z., Tortonesi M., Fuchs C., Pradhan M., Wrona K., Furtak J., Vasilache B.D., Street M., Pellegrini V., Benincasa G., Morelli A., Stefanelli C., Casini E., Dyk M., Exploiting Smart City IoT for Disaster Recovery Operations, in *Proc. of the IEEE World Forum on Internet of Things (WF-IoT)*, Singapore, 2018.
26. Wrona K., Szwaczyk S., Amanowicz M., Gierłowski K., SDN testbed for validation of cross-layer data-centric security policies, in *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Oulu, Finland, 2017.
27. McLaughlin S., Schutz R., Luoma M., Varis N., Hancock R., Mishra V. K., Wrona K., Carlén P., Spencer J., Belci A. M., National Mobility in Coalition Tactical Networks, in *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Oulu, Finland, 2017.
28. Richter, M., Wrona, K.: Devil in the details: Assessing automated confidentiality classifiers of NATO documents, *Proc. of the Italian Conference on Cybersecurity (ITASEC)*, Venice, Italy, 2017.
29. Wrona, K., de Castro, A., Vasilache, B.: Data-centric Security in Military Applications of Commercial IoT Technology, *Proc. of the IEEE World Forum on Internet of Things (WF-IoT)*, Reston, VA, USA, 2016.
30. Buriro, A., Crispo, B., DelFrari, F., Wrona, K.: Hold & Sign: A Novel Behavioral Biometrics for Smartphone User Authentication, *Proc. of the Mobile Security Technologies (MOST), in conjunction with the IEEE Symposium on Security and Privacy*, San Jose, CA, 2016.
31. Wrona, K., Oudkerk, S., Armando, A., Ranise, S., Traverso, R., Ferrari, L., McEvoy, R.: Assisted content-based labeling and classification of documents, *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Brussels, Belgium, 2016.
32. Melrose, J., Wrona, K., Guenther, T., Haakseth, R., Nordbotten, N., Westerdahl, L.: Labelling for Integrity and Availability, *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Brussels, Belgium, 2016.

33. Armando, A., Costa, G., Merlo, A., Verderame, L. Wrona, K.: Developing a NATO BYOD Security Policy, *Proc. of the International Conference on Military Communications and Information Systems (ICMCIS)*, Brussels, Belgium, 2016.
34. Armando, A., Ranise, S., Traverso, R., Wrona, K.: SMT-based Enforcement and Analysis of NATO Content-based Protection and Release Policies. *Proc. of the 1st ACM Workshop on Attribute Based Access Control (ABAC), in conjunction with the 6th ACM Conference on Data and Applications Security and Privacy (CODASPY)*, New Orleans, LA, USA, 2016.
35. Wrona, K.: Securing Internet of Things - a Military Perspective. *Proc. of the IEEE 2nd World Forum on Internet of Things (WF-IoT)*, Milan, Italy, 2015.
36. Buriro, A., Crispo, B., Delfrari, F., Klardie, J., Wrona, K.: ITSME: Multi-modal and Unobtrusive Behavioural User Authentication for Smartphones. *Proc. of the 9th International Conference on Passwords (PASSWORDS)*, Cambridge, UK, 2015.
37. Wrona, K., Oudkerk, S.: Integrated Content-based Information Security for Future Military Systems. *Proc. of the Military Communications Conference (MILCOM)*. Tampa, FL, USA, 2015.
38. Armando, A., Ranise, S., Travrso, R., Wrona, K.: Compiling NATO Authorization Policies for Enforcement in the Cloud and SDNs. *Proc. of the IEEE Conference on Communications and Network Security (CNS)*, Florence, Italy, 2015.
39. Szwaczyk, S., Wronsa, K., Oudkerk, S.: Implementation of Content-based Protection and Release in Software Defined Networks. *Proc. of the National Telecommunications Symposium (KST)*, Bydgoszcz, Poland, published in *Przegląd Telekomunikacyjny*, 8-9, 2015.
40. Buriro, A., Crispo,, B, Del Frari, F., Wrona, K.: Touchstroke: Smartphone User Authentication based on Touch-typing Biometrics. *Proc. of the International Workshop on Recent Advances in Digital Security: Biometrics and Forensics (BioFor)*, Genova, Italy, 2015.
41. Armando, A., Ranise, S., Traverso, R., Wrona, K.: A SMT-based Tool for the Analysis and Enforcement of NATO Content-based Protection and Release Policies. *Proc. of the 20th ACM Symposium on Access Control Models and Technologies (SACMAT)*, Vienna, Austria, 2015.
42. Oudkerk, S., Wrona, K.: A Common Approach to the Integration of Object Level Protection in NATO, *Proc. of the STO Symposium on Cyber Security Science & Engineering*, Tallinn, Estonia, 2014.
43. Wrona, K., Oudkerk, S.: Content-based Protection and Release Architecture for Future NATO Networks. *Proc. of the Military Communications Conference (MILCOM)*. San Diego, CA, USA, 2013.
44. Armando, A., Oudkerk, S., Ranise, S., Wrona, K.: Content-based Protection and Release for Access Control in NATO Operations. *Proc. of the 6th International Symposium on Foundations & Practice of Security (FPS)*. La Rochelle, France, 2013.
45. Oudkerk, S., Wrona, K.: Cryptographic Access Control in support of Object Level Protection. *Proc. of the Military Communications and Information Systems Conference (MCC)*. St. Malo, France, 2013.
46. Szpyrka, M., Jasiul, B., Wrona, K., Dziedzic, F.: Telecommunications Networks Risk Assessment with Bayesian Networks. *Proc. of International Conference on Computer Information Systems and Industrial Management Applications (CISIM)*. Krakow, Poland, 2013.
47. Oudkerk, S., Wrona, K.: Using NATO Labelling to support controlled information sharing between partners. *Proc. of International Conference on Critical Information Infrastructures Security*. Amsterdam, The Netherlands, 2013.
48. Armando, A., Grasso, M., Oudkerk, S., Ranise, S., Wrona, K.: Content-based information protection and release in NATO operations. *Proc. of the ACM Symposium on Access Control Models and Technologies (SACMAT)* (pp. 261–264). Amsterdam, The Netherlands, 2013.

49. Wrona, K., Oudkerk, S., Hein, C., Menz, N., & Ritter, T.: High-Level Design Process For NATO High Assurance ABAC Guard. *Proc. of STO-MP-IST-115 - Architecture Definition and Evaluation*. Toulouse, France, 2013.
50. Wrona, K., Hallingstad, G.: Development of High Assurance Guards for NATO. *Proc. of the Military Communications and Information Systems Conference (MCC)*, Gdansk, Poland, 2012.
51. Wrona K., Hallingstad G.: Controlled information sharing in NATO operations, *Proceedings of the Military Communications Conference (MILCOM)*, Baltimore, USA, 2011.
52. Hallingstad G., Wrona K.: Multisensor cyber defence data fusion, *Proc. of the Military Communications and Information Systems Conference (MCC)*, Amsterdam, The Netherlands, 2011.
53. Wrona K., Oudkerk S., Hallingstad G.: Designing medium assurance XML-labelling guards for NATO, *Proc. of the Military Communications Conference (MILCOM)*, San Jose, USA, 2010.
54. Wrona K., Hallingstad G., Oudkerk S.: Risk-aware and policy-compliant approach to network configuration, *Proc. of the Military Communications and Information Systems Conference (MCC)*, Wroclaw, Poland, 2010.
55. Lagadec P., Dandurand L., Bouillon E., Wrona K., Torrente S.: Cyber Defence Situational Awareness and Dynamic Risk Assessment, *Proc. of the RTO Symposium on Information Assurance and Cyber Defence*, Antalya, Turkey, 2010.
56. Goode R., Hallingstad G., Wrona K.: Dynamic federated accreditation, *Proc. of the Military Communications and Information Systems Conference (MCC)*, Prague, Czech Republic, 2009.
57. Wrona K., Hallingstad G.: Real-time automated risk assessment in Protected Core Networking, *Proc. of the RTO Symposium on Information Assurance for Emerging and Future Military Systems*, Ljubljana, Slovenia, 2008.
58. Wrona K., Torrente S., Russo R.: Secure virtual infrastructure: How to implement virtualization in NATO, *Proc. of the Military Communications and Information Systems Conference (MCC)*, Cracow, Poland, 2008.
59. Gomez L., Moraru L., Simplot-Ryl D., Wrona K.: Using sensor and location information for context-aware access control, *Proc. of the IEEE International Region 8 Conference (EUROCON)*, Belgrade, Serbia & Montenegro, 2005.
60. Wrona K., Mähönen P.: Investigation and visualization of dynamics of cooperation and trust in distributed communication systems, *Proc. of the IEEE/IFIP International Conference on Wireless and Optical Communications Networks (WOCN)*, Muscat, Oman, 2004.
61. Wrona K., Mähönen P.: Analytical modeling of cooperation in ad hoc networks, *Proc. of the IEEE/IEE International Conference on Networking*, Point-a-Pitre, Guadeloupe, 2004.
62. Wrona K.: Distributed security: ad hoc networks and beyond, *Proc. of the Pioneering Advanced Mobile Privacy And Security (PAMPAS) Workshop*, Royal Holloway University of London, UK, 2002.
63. Wrona K., Schuba M.: Mobile payments – state of the art and open problems, *Proc. of the ACM International Workshop on Electronic Commerce (Middleware)*, Heidelberg, Germany, 2001.
64. Schuba M., Wrona K.: Security for mobile commerce applications, *Proc. of the IEEE/WSES International Conference on Multimedia, Internet, and Video Technologies (MIV)*, Malta, 2001.
65. Tracz R., Wrona K.: Fair electronic cash withdrawal and change return for wireless networks, *Proc. of the ACM Workshop on Mobile Commerce (MobiCom)*, Rome, Italy, 2001.
66. Wrona K., Tracz R.: Electronic cash payments in mobile networks, *Proc. of the International Conference on Internet and Multimedia Systems and Applications (IMSA)*, Honolulu, USA, 2001.

67. Wrona K.: Standardization initiatives in mobile commerce (in Polish), *Proc. of the National Conference on Cryptography and Information Security (Enigma)*, Warsaw, Poland, 2001.
68. Wrona K., Tracz R.: Implementation of electronic cash transactions in wireless networks (in Polish), *Proc. of the National Conference on Cryptography and Information Security (Enigma)*, Warsaw, Poland, 2001.
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70. Schuba M., Wrona K.: Electronic commerce transactions in wireless environment, *Proc. of the International Workshop on Transactions in Electronic Commerce (IWTEC)*, Perth, Australia, 1999.
71. Wrona K., Zavagli G.: Adaptation of the SET protocol to mobile networks and to the Wireless Application Protocol, *Proc. of the European Wireless Conference*, Munich, Germany, 1999.
72. Wrona K.: Information security in wireless ATM networks (in Polish), *Proc. of the National Conference on Cryptography and Information Security (Enigma)*, Warsaw, Poland, 1998.
73. Wrona K.: Information security in wireless communications systems (in Polish), *Proc. of the National Telecommunications Symposium (KST)*, Bydgoszcz, Poland, 1997.
74. Szczypiorski K., Wrona K.: Information security in ATM networks (in Polish), *Proc. of the National Telecommunications Symposium (KST)*, Bydgoszcz, Poland, 1996.

Patents:

1. WO9944387: Authentication method and authentication device for secured communications between an ATM mobile terminal and an ATM access node of a Wireless ATM radio communication network.
2. EP1047028: Communication system and method for efficiently processing electronic transactions in mobile communication networks.
3. WO0186909: Method for the authorization of transactions.
4. WO0063854: Communication system and method for efficiently implementing electronic transactions in mobile communication networks.
5. WO0217253: Initiation of an electronic payment transaction.
6. WO0239391: Returning of change in an electronic payment system.
7. WO02073542: Method for the safe use and transmission of biometric data for authentication purposes.
8. EP05292519.5, US20070180036 A1: Context-Aware Message Notification.
9. EP2023528 A1: Method and system for performing an untraceable secret matching
10. EP1795983B1, US8548627 B2: Method and system for automatically organizing and achieving a pre-given task by means of robot functionalities