

# Krzysztof Walkowiak

## Curriculum Vitae

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### Research profiles

Scholar Google: <https://scholar.google.pl/citations?user=cnLc7u4AAAAJ&h>  
Research Gate: [https://www.researchgate.net/profile/Krzysztof\\_Walkowiak](https://www.researchgate.net/profile/Krzysztof_Walkowiak)

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## **A. Background**

### **i. Education**

- 2017: Professorship in Technical Science, President of Poland.
- 2008: D.Sc. (habilitation) in Computer Science, Wroclaw University of Technology, (“Unicast and Anycast Flows Assignment in Survivable Connection-Oriented Networks”).
- 2000: Ph.D. in Computer Science, Wroclaw University of Technology, (“Optimization of Virtual Paths in Survivable ATM Networks”. Supervisor: Prof. A. Kasprzak).
- 1997: M.Sc. in Computer Science, Wroclaw University of Technology, distinguished (“Design of ATM Metropolitan Area Networks”).
- 1992-1997: Studies in computer science at Wroclaw University of Technology, Faculty of Electronics (Field of study: Computer Science, Specialization: Computer Networks). Final grade: Very Good, distinguished, 1st Rank in the Faculty of Electronics.

### **ii. Job history**

- 1997-now: Wroclaw University of Science and Technology, Faculty of Electronics, Department of Systems and Computer Networks:
- 2017-now: Full Professor
  - 2009-2017: Associate Professor
  - 2001-2009: Assistant Professor
  - 1997-2001: Research Assistant
- 2000-now: IT consulting projects conducted for big Polish companies (e.g., PZU, PKO BP, TP SA, Ernst&Young, BOŚ Bank, BNP, Energa, Skanska)

### **iii. Research Interests**

- ✓ Network optimization
- ✓ Machine learning methods for networking
- ✓ Application-aware networking
- ✓ Intent-based networking
- ✓ Optical networks (Elastic Optical Networks, Space Division Multiplexing)
- ✓ Network survivability
- ✓ Soft optimization methods
- ✓ Distributed computing systems (cloud computing, P2P)
- ✓ TinyML

## **B. Publications**

Over 300 articles in journals, international and local conference proceedings, including over 70 papers published in JCR (Journal Citation Reports) journals.

### **i. JCR Journal Papers (*selected*)**

1. Knapińska A., Goścień R., Lechowicz P., Walkowiak K., Link load prediction in an optical network with restoration mechanisms, *Journal of Optical Communications and Networking*, Vol. 15, No. 5, pp. B42-B52, 2023.
2. Walkowiak K., Szostak D., Włodarczyk A., Kasprzak A., Long-term Traffic Forecasting in Optical Networks Using Machine Learning, *International Journal of Electronics and Telecommunications*, Vol. 69, No. 4, pp. 751-762, 2023.
3. Mroziński D., Klinkowski M., Walkowiak K., Cost-Aware DU Placement and Flow Routing in 5G Packet xHaul Networks, *IEEE Access*, Vol. 11, pp. 12710-12726, 2023.
4. Knapińska A., Lechowicz P., Węgier W., Walkowiak K., Long-term prediction of multiple types of time-varying network traffic using chunk-based ensemble learning, *Applied Soft Computing*, Vol. 130, 2022.
5. Komarnicki M., Przewoźniczek M., Kwaśnicka H., Walkowiak K., Incremental Recursive Ranking Grouping for Large Scale Global Optimization, *IEEE Transactions on Evolutionary Computation*, Vol. 27, No. 5, pp. 1498-1513, 2023.
6. Piątkowski D., Walkowiak K., TinyML-Based Concept System Used to Analyze Whether the Face Mask Is Worn Properly in Battery-Operated Conditions, *Applied Sciences*, Vol. 12, No. 1, 2022.
7. Wojciechowski S., Goścień R., Ksieniewicz P., Walkowiak K., Hybrid Regression Model for Link Dimensioning in Spectrally-Spatially Flexible Optical Networks, *IEEE Access*, Vol. 10, pp. 53810 – 53821, 2022.
8. Barbosa F., De Sousa A., Agra A., Walkowiak K., Goścień R., RMSA algorithms resilient to multiple node failures in dynamic EONs, *Optical Switching and Networking*, Vol. 42, 2021.
9. Szostak D. Włodarczyk A., Walkowiak K. Machine learning classification and regression approaches for optical network traffic prediction, *Electronics*, Vol. 10, No. 13, 2021.
10. Przewoźniczek M., Goścień R., Lechowicz P., Walkowiak K., Metaheuristic Algorithms with Solution Encoding Mixing for Effective Optimization of SDM Optical Networks, *Engineering Applications of Artificial Intelligence*, Vol. 95, 2020.
11. Aibin M., Walkowiak K., Monte Carlo Tree Search with Last-Good-Reply Policy for Cognitive Optimization of Cloud-Ready Optical Networks, *Journal of Network and Systems Management*, 2020.
12. Walkowiak K., Klinkowski M., Włodarczyk A., Kasprzak A., Predeployment of Transponders for Dynamic Lightpath Provisioning in Translucent Spectrally–Spatially Flexible Optical Networks, *Applied Sciences*, Vol. 10, No. 8, 2020.
13. Kmieć W., Walkowiak K., A performance study of dynamic routing algorithm for SDM translucent optical networks with assistive storage, *Optical Switching and Networking*, Vol. 38, 2020.
14. Przewoźniczek M., Walkowiak K., Sen A., Lechowicz P., Komarnicki M., Splitting the fitness and penalty factor for temporal diversity increase in practical problem solving, *Expert Systems with Applications*, Vol. 145, 2020.
15. Lechowicz P., Tornatore M., Włodarczyk A., Walkowiak K., Fragmentation Metrics and Fragmentation-Aware Algorithm for Spectrally/Spatially-Flexible Optical Networks, *Journal of Optical Communications and Networking*, Vol. 12, No. 5, pp. 133-145, 2020.
16. Klinkowski M., Ksieniewicz P., Jaworski M., Zalewski G., Walkowiak K., Machine Learning Assisted Optimization of Dynamic Crosstalk-Aware Spectrally-Spatially Flexible Optical Networks, *IEEE Journal of Lightwave Technology*, Vol. 38, No. 7, pp. 1625-1635, 2020.
17. Lechowicz P., Goścień R., Rumipamba-Zambrano R., Perello J., Spadaro S., Walkowiak K., Greenfield Gradual Migration Planning toward Spectrally-Spatially Flexible Optical Networks, *IEEE Communications Magazine*, Vol. 57, No. 10, pp. 14-19, 2019.
18. Klinowski M., Walkowiak K., An Efficient Optimization Framework for Solving RSSA Problems in Spectrally and Spatially Flexible Optical Networks, *IEEE/ACM Transactions on Networking*, Vol. 27, No. 4, pp. 1474-1486, 2019.

19. Przewoźniczek M., Walkowiak K., Sen A., Lechowicz P., Komarnicki M., The transformation of the k-Shortest Steiner trees search problem into binary dynamic problem for effective evolutionary methods application, *Information Sciences*, Vol. 479, pp. 1-19, 2019.
20. Ksieniewicz P., Woźniak M., Cyganek B., Kasprzak A., Walkowiak K., Data stream classification using active learned neural networks, *Neurocomputing*, vol. 353, pp. 74-82, 2019.
21. Lechowicz P., Walkowiak K., Klinkowski M., Greedy randomized adaptive search procedure for joint optimization of unicast and anycast traffic in spectrally-spatially flexible optical networks, *Computer Networks*, Vol. 146, pp. 167-182, 2018.
22. Walkowiak K., Lechowicz P., Klinkowski M., Dynamic Routing in Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration, *IEEE/OSA Journal of Optical Communications and Networking*, Vol. 10, No. 5, pp. 523-534, 2018.
23. Goścień R., Walkowiak K., On the Efficiency of Survivable Flex-grid SDM Networks, *IEEE Journal of Lightwave Technology*, Vol. 36, No. 10, pp. 1815-1823, 2018.
24. Klinkowski M., Lechowicz P., Walkowiak K., Survey of resource allocation schemes and algorithms in spectrally-spatially flexible optical networking, *Optical Switching and Networking*, Vol. 27, No. 1, pp. 58-78, 2018.
25. Goścień R., Walkowiak K., A column generation technique for routing and spectrum allocation in cloud-ready survivable elastic optical networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 27, No. 3, pp. 591-603, 2017.
26. Przewoźniczek M., Walkowiak K., Aibin M., The Evolutionary Cost Of Baldwin Effect in the Routing And Spectrum Allocation Problem in Elastic Optical Networks, *Applied Soft Computing*, vol. 52, pp. 843-862, 2017.
27. Goścień R., Walkowiak K., Modeling and optimization of data center location and routing and spectrum allocation in survivable elastic optical networks, *Optical Switching and Networking*, Vol. 23, Part 2, pp. 129-143, 2017.
28. Aibin M., Walkowiak K., Sen A., Software-Defined Adaptive Survivability for Elastic Optical Networks, *Optical Switching and Networking*, Vol. 23, Part 2, pp. 85-96, 2017.
29. Klinkowski M., Żotkiewicz M., Walkowiak K., Pióro M., Ruiz M., Velasco L., Solving Large Instances of the RSA Problem in Flexgrid Elastic Optical Networks, *IEEE/OSA Journal of Optical Communications and Networking*, Vol. 8, No. 5, pp. 320-330, 2016.
30. Klinkowski M., Walkowiak K., On Performance Gains of Flexible Regeneration and Modulation Conversion in Translucent Elastic Optical Networks with Super-channel Transmission, *IEEE Journal of Lightwave Technology*, Vol. 34, No. 23, 2016.
31. Perelló J., Walkowiak K., Klinkowski M., Spadaro PP., Careglio D., Joint Content Placement and Lightpath Routing and Spectrum Assignment in CDNs over Elastic Optical Network Scenarios, *Computer Communications*, Vol. 77, pp. 72-84, 2016.
32. Goścień R., Walkowiak K., Tornatore M., Survivable multipath routing of anycast and unicast traffic in elastic optical networks, *IEEE/OSA Journal of Optical Communications and Networking*, Vol. 8, No. 6, pp. 343-355, 2016.
33. Cyganek B., Graña M., Krawczyk B., Kasprzak A., Porwik P., Walkowiak K., Woźniak M., A Survey of Big Data Issues in Electronic Health Record Analysis, *Applied Artificial Intelligence*, Vol. 30, No. 6, pp. 497-520, 2016.
34. Tornatore M., Rottondi C., Goścień R., Walkowiak K., Rizzelli G. and Morea A., On the Complexity of Routing and Spectrum Assignment in Flexible-Grid Ring Networks, *IEEE/OSA Journal of Optical Communications and Networking*, Vol. 7, Issue 2, pp. A256-A267, 2015.
35. Walkowiak K., Charewicz W., Donajski M., Rak J., Metaheuristic Algorithms for Optimization of Resilient Overlay Computing Systems, *Logic Journal of IGPL*, Vol. 23, No. 1, pp. 31-44, 2015.
36. Goścień R., Walkowiak K., Klinkowski M., Tabu Search Algorithm for Routing, Modulation and Spectrum Allocation in Elastic Optical Network with Anycast and Unicast Traffic, *Computer Networks*, Vol. 79, pp. 148-165, 2015.
37. Kmiecik W., Walkowiak K., Flow Assignment (FA) and Capacity and Flow Assignment (CFA) Problems for Survivable Overlay Multicasting in Dual Homing Network, *Telecommunication Systems*, Vol. 60., No. 4., pp. 553-565, 2015.
38. Rak J., Pickavet M., Trivedi K., Lopez J., Koster A., Sterbenz J., Cetinkaya E., Gomes T., Gunkel M., Walkowiak K., Staessens D., Future Research Directions in Design of Reliable Communication Systems, *Telecommunication Systems*, Vol. 60., No. 4., pp. 423-450, 2015.

39. Przewoźniczek M., Goścień R., Walkowiak K., Klinkowski M., Towards solving practical problems of large solution space using a novel pattern searching hybrid evolutionary algorithm – An elastic optical network optimization case study, *Expert Systems with Applications*, Vol. 21, Issue 21, pp. 7781–7796, 2015.
40. Kucharzak M., Walkowiak K., Kopeć, P. Bulira D., Kasprzak A., Integer Programming, Constraint Programming, and Metaheuristic Approaches for Static Optimization of Anycast Flows in Elastic Optical Networks, *Networks*, Vol. 66, No. 4, pp. 253–266, 2015.
41. Goścień R., Walkowiak K., Klinkowski M., Rak J., Protection in Elastic Optical Networks, *IEEE Network*, Vol. 29, No. 6, pp. 88-96, 2015.
42. Smutnicki A., Walkowiak K., A Heuristic Approach to Working and Spare Capacity Optimization for Survivable Anycast Streaming Protected by p-Cycles, *Telecommunication Systems*, Vol. 56, No. 1, pp. 141-156, 2014.
43. Kmiecik W., Goścień R., Walkowiak K., Klinkowski M., Two-layer optimization of survivable overlay multicasting in elastic optical networks, *Optical Switching and Networking*, 2014, Vol. 14, Part 2, pp. 164–178, 2014.
44. Goścień R., Walkowiak K., Klinkowski M., Distance-adaptive transmission in cloud-ready elastic optical networks, *IEEE/OSA Journal of Optical Communications and Networking*, Vol. 6, No. 10, pp. 816-828, 2014.
45. Kucharzak M., Walkowiak K., Modeling and Optimization of Maximum Flow Survivable Overlay Multicast with Predefined Routing Trees, *Telecommunication Systems*, Vol. 56, No. 1, pp. 121-139, 2014.
46. Ellinas E., Papadimitriou D., Rak J., Staessens D., Sterbenz J., Walkowiak K., Practical issues for the implementation of survivability and recovery techniques in optical networks, *Optical Switching and Networking*, 2014, Vol. 14, Part 2, pp. 179–193, 2014.
47. Walkowiak K., Rak J., Simultaneous Optimization of Unicast and Anycast Flows and Replica Location in Survivable Optical Networks, *Telecommunication Systems*, Vol. 52, No. 2, pp. 1043-1055, 2013.
48. Klinkowski M., Walkowiak K., On Advantages of Elastic Optical Networks for Provisioning of Cloud Computing Traffic, *IEEE Network*, Vol. 27, No. 6, pp. 44-51, 2013.
49. Chmaj G., Walkowiak K., A P2P computing system for overlay networks, *Future Generation Computer Systems*, Vol. 29, No. 1, pp. 242-249, 2013.
50. Walkowiak K., Przewoźniczek M., Pająk K., Heuristic Algorithms for Survivable P2P Multicasting, *Applied Artificial Intelligence*, Vol. 27, No. 4, pp.278–303, 2013.
51. Kmiecik W., Walkowiak K., Metaheuristic Algorithms for Optimization of Survivable Multicast Overlay in Dual Homing Networks, *Cybernetics and Systems*, Vol. 44, No. 6-7, pp. 606-626, 2013.
52. Rak J., Walkowiak K., Reliable Anycast and Unicast Routing: Protection against Attacks, *Telecommunication Systems*, Vol. 52, No. 2, pp. 889-906, 2013.
53. Kacprzak T., Walkowiak K., Woźniak M., Optimization of Overlay Distributed Computing Systems for Multiple Classifier System – Heuristic Approach, *Logic Journal of IGPL*, Vol. 20, No. 4, pp. 677-688, 2012.
54. Chmaj G., Walkowiak K., Tarnawski M., Kucharzak M., Heuristic Algorithms for Optimization of Task Allocation and Result Distribution in Peer-to-Peer Computing Systems, *International Journal of Applied Mathematics and Computer Science*, Vol. 22, No. 3, 733–748, 2012.
55. Chmaj G., Walkowiak K., Decision Strategies for a P2P Computing System, *Journal of Universal Computer Science*, Vol. 18, No. 5, pp. 599-622, 2012.
56. Przewoźniczek M., Walkowiak K., Woźniak M., Optimizing distributed computing systems for k-nearest neighbors classifiers - evolutionary approach, *Logic Journal of IGPL*, Vol. 19, No. 2., pp. 357-372, 2011.
57. Walkowiak K., Przewoźniczek M., Modeling and optimization of survivable P2P multicasting, *Computer Communications*, Vol. 34, No. 12, pp. 1410-1424, 2011.
58. Klinkowski M., Walkowiak K., Routing and Spectrum Assignment in Spectrum Sliced Elastic Optical Path Network, *IEEE Communications Letters*, Vol. 15., No. 8, pp. 884–886, 2011.
59. Gładysz J., Walkowiak K., Design of MPLS over DWDM Architecture for Unicast and Anycast, *Lecture Notes in Computer Science*, Vol. 6294, Springer Verlag, pp. 172-183, 2010.
60. Walkowiak K., Anycasting in connection-oriented computer networks: models, algorithms and results, *International Journal of Applied Mathematics and Computer Science*, Vol. 20, No. 2, pp. 207-220, 2010.
61. Walkowiak K., Lagrangean Heuristic for Primary Routes Assignment in Survivable Connection-Oriented Networks, *Computational Optimization and Applications*, Vol. 40, No. 2, pp. 119-141, 2008.

62. Walkowiak K., A Unified Approach to Survivability of Connection-Oriented Networks, *Lecture Notes in Computer Science*, Vol. 3733, Springer Verlag, pp. 3-12, 2005.
63. Walkowiak K., QoS Dynamic Routing in Content Delivery Networks, *Lecture Notes in Computer Science*, Vol. 3462, Springer Verlag, pp. 1120-1132, 2005.
64. Przewoźniczek M., Walkowiak K., Evolutionary Algorithm for Congestion Problem in Connection-Oriented Networks, *Lecture Notes in Computer Science*, Vol. 3483, Springer Verlag, pp. 802-811, 2005.
65. Walkowiak K., Heuristic Algorithm for Anycast Flow Assignment in Connection-Oriented Networks, *Lecture Notes in Computer Science*, Vol. 3516, Springer Verlag, pp. 1092-1095, 2005.
66. Walkowiak K., A Branch and Bound Algorithm for Primary Routes Assignment in Survivable Connection Oriented Networks, *Computational Optimization and Applications*, Vol. 27, No. 1, pp. 149-171, 2004.
67. Walkowiak K., On Application of Ant Algorithms to Non-Bifurcated Multicommodity Flow Problem, *Lecture Notes in Computer Science*, Vol. 3070, Springer Verlag, pp. 922-927, 2004.
68. Walkowiak K., Survivable Online Routing for MPLS Traffic Engineering, *Lecture Notes in Computer Science*, Vol. 3266, Springer Verlag, pp. 288-297, 2004.
69. Walkowiak K., A New Method of Primary Routes Selection for Local Restoration, *Lecture Notes in Computer Science*, Vol. 3042, Springer Verlag, pp. 1024-1035, 2004.
70. Walkowiak K., A New Approach to Survivability of Connection Oriented Networks, *Lecture Notes in Computer Science*, Vol. 2657, Springer Verlag, pp. 501-510, 2003.

## ii. Other Journals Papers and Chapters (*selected*)

1. Goścień R., Ellinas G., Furdek M., Kolios P., Lechowicz P., Manousakis K., Savva G., Skorin-Kapov N., Walkowiak K., Security-Aware Carrier Network Planning, pp. 193-217, in: *Guide to Disaster-Resilient Communication Networks*, Springer, 2020.
2. Walkowiak K., Woźniak M., Klinkowski M., Kmiecik W., Optical Networks for Cost-Efficient and Scalable Provisioning of Big Data Traffic, *International Journal of Parallel, Emergent and Distributed Systems*, Vol. 30, No. 1, pp. 15-28, 2015.
3. Walkowiak K., Kasprzak A., Andrusieczko K., Optimization of Overlay Computing Systems with Many-to-Many Transmissions, *Theoretical and Applied Informatics*, Vol. 24, No. 4, pp. 271-291, 2013.
4. Walkowiak K., A Lagrangean Relaxation Algorithm for Flow Optimization in Survivable MPLS Networks, *Theoretical and Applied Informatics*, Vol. 22, No. 1, pp. 19-47, 2010.
5. Walkowiak K., Maximizing residual capacity in connection-oriented networks, *Journal of Applied Mathematics and Decision Sciences*, Hindawi Publishing Corporation, 2006.
6. Przewoźniczek M., Walkowiak K., Quasi-hierarchical Evolution Algorithm for Flow Assignment in Survivable Connection-Oriented Networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 16, No. 4, pp. 101-116., 2006.
7. Walkowiak K., Ant algorithm for flow assignment in connection-oriented networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 15, No. 2, pp. 205-220, 2005.
8. Walkowiak K., Ant Algorithms for Solution of Graph Related optimization Problems, *Journal of Applied Computer Science*, Vol. 11, No. 2, pp. 83-97, 2003.
9. Walkowiak K., The Branch and Bound Algorithm for Backup Virtual Path Assignment in Survivable ATM Networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 12, No. 2, pp. 257-268, 2002.

## iii. Books (*selected*)

1. Walkowiak K., Modeling and Optimization of Cloud-Ready and Content-Oriented Networks, *Studies in Systems, Decision and Control*, Vol. 56, Springer Verlag, 2016.
2. Walkowiak K., Modeling and optimization of computer networks, Textbook, Łódź, PRINTPAP, 2011.

## iv. International Conference Proceedings Refereed Papers (*selected*)

1. Knapieńska A., Lechowicz P., Walkowiak K., Agnostic Prediction of Multiple Types of Time-Varying Traffic in Optical Networks, Proceedings of the IEEE Global Communications Conference Globecom 2023 (Kuala Lumpur, Malaysia, December 4-8, 2023), 2023.

2. Komarnicki M., Przewoźniczek M., Kwaśnicka H., Walkowiak K., Incremental Recursive Ranking Grouping -- A Decomposition Strategy for Additively and Nonadditively Separable Problems Proceedings of the Companion Conference on Genetic and Evolutionary Computation, GECCO '23, (Lisbon, Portugal, July 15-19, 2023), 2023.
3. Knapińska A., Lechowicz P., Spadaro S., Walkowiak K., Performance Analysis of Multilayer Optical Networks with Time-Varying Traffic, Proceedings of the 23rd International Conference on Transparent Optical Networks (ICTON), (Bucharest, Romania, July 2-6, 2023), 2023.
4. Mroziński D., Klinkowski M., Walkowiak K., Performance Analysis of Network Slicing in Packet-Switched 5G xHaul Access Network, Proceedings of the 23rd International Conference on Transparent Optical Networks (ICTON), (Bucharest, Romania, July 2-6, 2023), 2023.
5. Ulanowicz B., Dopart D., Knapińska A., Lechowicz P., Walkowiak K., Combining Random Forest and Linear Regression to Improve Network Traffic Prediction, Proceedings of the 23rd International Conference on Transparent Optical Networks (ICTON), (Bucharest, Romania, July 2-6, 2023), 2023.
6. Puślecki T., Walkowiak K., Hyperparameters Optimization Using GridSearchCV Method for TinyML Models, Proceedings of the 13th International Conference on Computer Recognition Systems (CORES), (June 29, 2023), 2023
7. Knapińska A., Lechowicz P., Spadaro S., Walkowiak K., On Advantages of Traffic Prediction and Grooming for Provisioning of Time-Varying Traffic in Multilayer Networks, Proceedings of the 2023 International Conference on Optical Network Design and Modeling (ONDM), (Coimbra, Portugal, May 8-11, 2023), 2023.
8. Puślecki T., Walkowiak K., On the Selection of a Machine Learning model in TinyML Devices-- Preliminary Study, Proceedings of the 4th Polish Conference on Artificial Intelligence PP-RAI'2023 (Łódź, Poland, April 24-26, 2023), 2023.
9. Knapińska A., Lechowicz P., Walkowiak K., Prediction of Multiple Types of Traffic with a Novel Evaluation Metric Related to Bandwidth Blocking, Proceedings of the IEEE Global Communications Conference Globecom 2022 (Rio de Janeiro, Brazil, December 4-8, 2022), 2022.
10. Ganowicz A., Starosta B., Knapińska A., Walkowiak K., Short-Term Network Traffic Prediction with Multilayer Perceptron, Proceedings of the 6th SLAAI International Conference on Artificial Intelligence (SLAAI-ICAI), (December 1-2, 2022), 2022.
11. Dulas D., Maraj-Zygmunt K., Walkowiak K., Method of 5G TDD Midhaul Multiplexing Gain Estimation based on System-Level Traffic Measurements, Proceedings of the 2022 International Conference on Software, Telecommunications and Computer Networks SoftCOM, (Split, Croatia, 22-24 September 2022), 2022.
12. Lechowicz P., Knapińska A., Walkowiak K., Delayed Squeezed Dedicated Path Protection in Spectrally-Spatially Flexible Optical Networks, Proceedings of the 12th International Workshop on Resilient Networks Design and Modeling RNDM, (Compiègne, France, 19-21 September 2022), 2022.
13. Lechowicz P., Knapińska A., Walkowiak K., Delayed Squeezed Dedicated Path Protection in Spectrally-Spatially Flexible Optical Networks, Proceedings of the 12th International Workshop on Resilient Networks Design and Modeling RNDM, (Warsaw, Poland, 16-19 May 2022), 2022.
14. Cembaluk P., Aniszewski J., Knapińska A., Walkowiak K., Forecasting the network traffic with PROPHET, Proceedings of the 3rd Polish Conference on Artificial Intelligence PP-RAI'2022 (Gdynia, Poland, April 25-27, 2022), 2022.
15. Walkowiak K., Goścień R., Lechowicz P., Włodarczyk A., Comparison of Various Sharing Approaches in Survivable Translucent Optical Networks, Proceedings of the 2021 International Conference on Computer Communications and Networks ICCCN (Athens, Greece, 19-22 July, 2021), 2021.
16. Knapińska A., Lechowicz P., Walkowiak K., Machine-learning based prediction of multiple types of network traffic, Proceedings of the International Conference on Computational Science ICCS 2021 (Cracow, Poland, June 16-18, 2021), 2021.
17. Walkowiak K., Goścień R., Lechowicz P., Włodarczyk A., Klinkowski M., Transponder Placement for Dynamic Lightpath Provisioning in Survivable Translucent Optical Networks, Proceedings of the 22nd International Conference on Transparent Optical Networks ICTON 2020, (Bari, Italy, July 19-23, 2020), 2020.



18. Włodarczyk A., Lechowicz P., Szostak D., Walkowiak K., An Algorithm for Provisioning of Time-Varying Traffic in Translucent SDM Elastic Optical Networks, Proceedings of the 22nd International Conference on Transparent Optical Networks ICTON 2020, (Bari, Italy, July 19-23, 2020), 2020.
19. Szostak D., Walkowiak K., Włodarczyk A., Short-Term Traffic Forecasting in Optical Network using Linear Discriminant Analysis Machine Learning Classifier, Proceedings of the 22nd International Conference on Transparent Optical Networks ICTON 2020, (Bari, Italy, July 19-23, 2020), 2020.
20. Ksieniewicz P., Goścień R., Klinkowski M., Walkowiak K., Pattern recognition model to aid the optimization of dynamic spectrally-spatially flexible optical networks, Proceedings of the 20th International Conference on Computational Science ICCS 2020, (Amsterdam, Netherlands, June 3-5, 2020), 2020.
21. Lechowicz P., Perello J., Spadaro S., Walkowiak K., Brown-field Gradual Migration Planning Toward Spectrally-Spatially Flexible Optical Networks, Proceedings of the 24th International Conference on Optical Network Design and Modeling ONDM 2020, (Barcelona, Spain, May 18-21, 2020), 2020.
22. Sen A., Zhou C., Mazumder A., Das A., Basu K., Walkowiak K., On the Number of Steiner Trees in a Graph, Proceedings of the 16th International Conference on the Design of Reliable Communication Networks DRCN 2020, (Milano, Italy, March 24-27, 2020), 2020.
23. Szostak D., Walkowiak K., Influence of Traffic Type on Traffic Prediction Quality in Dynamic Optical Networks with Service Chains, Proceedings of the Polskie Porozumienie na Rzecz Rozwoju Sztucznej Inteligencji PP-RAI 2019 (Wroclaw, Poland, October 16-18, 2019), 2019.
24. Ksieniewicz P., Klinkowski M., Walkowiak K., Employing supervised learning algorithms in the task of dynamic spectrally-spatially flexible optical networks optimization, Proceedings of the Polskie Porozumienie na Rzecz Rozwoju Sztucznej Inteligencji PP-RAI 2019 (Wroclaw, Poland, October 16-18, 2019), 2019.
25. Barbosa F., de Sousa A., Agra A., Walkowiak K., Goścień, A RMSA Algorithm Resilient to Multiple Node Failures on Elastic Optical Networks, Proceedings of the 11th International Workshop on Reliable Networks Design and Modeling RNDM 2019 (Nicosia, Cyprus, October 14-16, 2019), 2019.
26. Walkowiak K., Goścień R., Lechowicz P., Włodarczyk A., Klinkowski M., Data Analytics for Re-dimensioning of SDM Links in Spectrally-Spatially Flexible Optical Networks, Proceedings of the OSA Advanced Photonics Congress (AP), (Burlingame, US, July29-August 1, 2019), 2019.
27. Walkowiak K., Włodarczyk A., Klinkowski M., Effective Worst-Case Crosstalk Estimation for Dynamic Translucent SDM Elastic Optical Networks, Proceedings of the IEEE International Conference on Communications ICC 2019, (Shanghai, China, May 20-24, 2019), 2019.
28. Szostak D., Walkowiak K., Machine Learning Methods for Traffic Prediction in Dynamic Optical Networks with Service Chains, Proceedings of the 21th International Conference on Transparent Optical Networks ICTON 2019, (Angers, France, July 9-13, 2019), 2019.
29. Walkowiak K., Goścień R., Lechowicz P., Włodarczyk A., Klinkowski M., Data Analytics for Improving Performance of Spectrally-Spatially Flexible Optical Networks, Proceedings of the 21th International Conference on Transparent Optical Networks ICTON 2019, (Angers, France, July 9-13, 2019), 2019.
30. Lechowicz P., Tornatore M., Włodarczyk A., Walkowiak K., Fragmentation Metrics in Spectrally-Spatially Flexible Optical Networks, Proceedings of the 23th International Conference on Optical Network Design and Modeling ONDM 2019, (Athens, Greece, May 13-16, 2019), 2019.
31. Walkowiak K., Włodarczyk A., Klinkowski M., Effective Worst-Case Crosstalk Estimation for Dynamic Translucent SDM Elastic Optical Networks, Proceedings of the IEEE International Conference on Communications ICC 2019, (Shanghai, China, May 20-24, 2019), 2019.
32. Lechowicz P., Rumipamba-Zambrano R., Perelló J., Spadaro S., Walkowiak K., Inter-Core Crosstalk Impact on Migration Planning from Elastic Optical Networks to Spectrally-Spatially Flexible Optical Networks, Proceedings of the Optical Fiber Communication Conference and Exposition OFC 2019, (San Diego, US, March 3-7, 2019), 2019.
33. Walkowiak K., Lechowicz P., Klinkowski M., Transceiver Sharing in Survivable Spectrally-Spatially Flexible Optical Networks, Proceedings of the IEEE Global Communications Conference Globecom 2018 (Abu Dhabi, UAE, December 9-13, 2018), 2018.
34. Lechowicz P., Rumipamba-Zambrano R., Perelló J., Spadaro S., Walkowiak K., Migration Planning from Elastic Optical Networks to Spectrally-Spatially Flexible Optical Networks, *Proceedings of the International Conference on Photonics in Switching and Computing PSC 2018*, (Limassol, Cyprus, September 19-21, 2018), 2018.

35. Walkowiak K., Lechowicz P., Klinkowski M., Survivable Routing in Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration, *Proceedings of the 10th International Workshop on Reliable Networks Design and Modeling RNDM 2018*, (Longyearbyen, Svalbard, Norway, August 27-29, 2018), 2018.
36. Aibin M., Walkowiak K., Monte Carlo Tree Search for Cross-Stratum Optimization of Survivable Inter-Data Center Elastic Optical Network, *Proceedings of the 10th International Workshop on Reliable Networks Design and Modeling RNDM 2018*, (Longyearbyen, Svalbard, Norway, August 27-29, 2018), 2018.
37. Walkowiak K., Klinkowski M., Lechowicz P., Scalability Analysis of Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration, *Proceedings of the 20th International Conference on Transparent Optical Networks ICTON 2018*, (Bucharest, Romania, July 1-5, 2018), 2018, paper Mo.B3.4.
38. Walkowiak K., Lechowicz P., Klinkowski M., Impact of Inter-Core Crosstalk on Performance of Spectrally-Spatially Flexible Optical Networks with B2B Regeneration, *Proceedings of the 20th International Conference on Transparent Optical Networks ICTON 2018*, (Bucharest, Romania, July 1-5, 2018), 2018, paper We.D1.4.
39. Klinkowski M., Walkowiak K., Impact of Crosstalk Estimation Methods on the Performance of Spectrally and Spatially Flexible Optical Networks, *Proceedings of the 20th International Conference on Transparent Optical Networks ICTON 2018*, (Bucharest, Romania, July 1-5, 2018), 2018, paper Mo.B3.3.
40. Klinkowski M., Zalewski G., Walkowiak K., Optimization of Spectrally and Spatially Flexible Optical Networks with Spatial Mode Conversion, *Proceedings of the 22th International Conference on Optical Network Design and Modeling ONDM 2018*, (Dublin, Ireland, May 14-17, 2018), 2018.
41. Walkowiak K., Klinkowski M., Predeployment of Transceivers for Dynamic Lightpath Provisioning in Translucent Flexgrid Optical Networks, *Proceedings of the Optical Fiber Communication Conference and Exposition OFC*, (San Diego, US, March 11-25, 2018), 2018.
42. Aibin M., Walkowiak K., Haeri S., Trajkovic L., Traffic Prediction for Inter-Data Center Cross-Stratum Optimization Problems, *Proceedings of the 2018 International Conference on Computing, Networking and Communications ICNC*, (Maui, HI, USA, March 5-8, 2018), 2018.
43. Klinkowski M., Lechowicz P., Walkowiak K., A Study on the Impact of Inter-Core Crosstalk on SDM Network Performance, *Proceedings of the 2018 International Conference on Computing, Networking and Communications ICNC*, (Maui, HI, USA, March 5-8, 2018), 2018.
44. Walkowiak K., Klinkowski M., Energy Efficiency of Dynamic Routing in Elastic Optical Networks with Back-to-Back Regeneration, *Proceedings of the 2018 International Conference on Computing, Networking and Communications ICNC*, (Maui, HI, USA, March 5-8, 2018), 2018.
45. Walkowiak K., Klinkowski M., Performance Analysis of Dynamic Routing in Elastic Optical Networks with Back-to-Back Regeneration, *Proceedings of the 43th European Conference on Optical Communications ECOC*, (Gothenburg, Sweden, September 17-21, 2017), 2017.
46. Lechowicz P., Walkowiak K., Klinkowski M., Spectrum Usage for Various SDM Scenarios, *Proceedings of the 19th International Conference on Transparent Optical Networks ICTON*, (Girona, Spain, July 2-6, 2017), 2017.
47. Walkowiak K., Klinkowski M., Lechowicz P., Influence of Modulation Format Transmission Reach on Performance of Elastic Optical Networks, *Proceedings of the 19th International Conference on Transparent Optical Networks ICTON*, (Girona, Spain, July 2-6, 2017), 2017.
48. Aibin M., Walkowiak K., Analysis of inter-data center elastic optical network, *Proceedings of the 19th International Conference on Transparent Optical Networks ICTON*, (Girona, Spain, July 2-6, 2017), 2017.
49. Lechowicz P., Walkowiak K., Klinkowski M., Selection of Spectral-Spatial Channels in SDM Flexgrid Optical Networks, *Proceedings of the 21th International Conference on Optical Network Design and Modeling ONDM*, (Budapest, Hungary, May 15-17, 2017), 2017.
50. Klinkowski M., Walkowiak K., Performance Analysis of Flexible Regeneration and Modulation Conversion in Elastic Optical Networks, *Proceedings of the Optical Fiber Communication Conference and Exposition OFC*, (Los Angeles, US, March 19-23, 2017), 2017.
51. Aibin M., Walkowiak K., Defragmentation Algorithm for Joint Dynamic and Static Routing Problems in Elastic Optical Networks with Unicast and Anycast Traffic, *Proceedings of the 2016 International Conference on Computing, Networking and Communications ICNC*, (Kauai, HI, USA, February, 15-18, 2016), pp. 1-5, 2016.

52. Aibin M., Walkowiak K., Resource Requirements in Fixed-Grid and Flex- Grid Networks for Dynamic Provisioning of Data Center Traffic, *Proceedings of the 29th Annual IEEE Canadian Conference on Electrical and Computer Engineering CCECE*, (Vancouver, Canada, May 15-18, 2016), 2016.
53. Aibin M., Goścień R., Walkowiak K., Multicasting versus Anycasting: How to Efficiently Deliver Content in Elastic Optical Networks, *Proceedings of the 18th International Conference on Transparent Optical Networks ICTON*, (Trento, Italy, July 10-14, 2016), 2016, paper Th.A1.2, 2016.
54. Klinkowski M., Walkowiak K., A Heuristic Algorithm for Routing, Spectrum, Transceiver and Regeneration Allocation Problem in Elastic Optical Networks, *Proceedings of the 18th International Conference on Transparent Optical Networks ICTON*, (Trento, Italy, July 10-14, 2016), paper We.D3.3. 2016.
55. Lechowicz P., Walkowiak K., Genetic Algorithm for Routing and Spectrum Allocation in Elastic Optical Networks, *Proceedings of the 3rd European Network Intelligence Conference ENIC*, (Wroclaw, Poland, September 5-7, 2016), pp. 273-28, 2016.
56. Goścień R., Walkowiak K., Klinkowski M., On the complexity of routing and spectrum allocation in survivable elastic optical network with unicast and anycast traffic, *Proceedings of the 8th International Workshop on Reliable Networks Design and Modeling RNDM* (Halmstad, Sweden September 13-15, 2016), pp. 175-182, 2016.
57. Furdek M., Wosinska L., Goścień R., Manousakis K., Aibin M., Walkowiak K. Ristov PP., Marzo J., An overview of security challenges in communication networks, *Proceedings of the 8th International Workshop on Reliable Networks Design and Modeling RNDM* (Halmstad, Sweden September 13-15, 2016), pp. 45-52, 2016.
58. Aibin M., Walkowiak K., Different strategies for Dynamic Multicast Traffic Protection in Elastic Optical Networks, *Proceedings of the 8th International Workshop on Reliable Networks Design and Modeling RNDM* (Halmstad, Sweden September 13-15, 2016), pp. 183-189, 2016.
59. Walkowiak K., Lechowicz P., Klinkowski M., Sen A., ILP Modeling of Flexgrid SDM Optical Networks, *Proceedings of the 17th International Telecommunications Network Strategy and Planning Symposium Networks*, (Montreal, Canada, September 26-28, 2016), 2016.
60. Klinkowski M., Walkowiak K., On the Impact of Modulation Format Transmission Reach on Spectrum Usage in Elastic Optical Networks, *Proceedings of the Asia Communications and Photonics Conference ACP*, (Wuhan, China, November 2-5, 2016), paper AS2D.6, 2016.
61. Walkowiak K., Goścień R., Tornatore M., Woźniak M., Impact of Fanout and Transmission Reach on Performance of Multicasting in Elastic Optical Networks, *Proceedings of the Optical Fiber Communication Conference and Exposition OFC*, (Los Angeles, US, March 22-26, 2015), 2015.
62. Walkowiak K., Goścień R., Klinkowski M., Evaluation of Impact of Traffic Asymmetry on Performance of Elastic Optical Networks, *Proceedings of the Optical Fiber Communication Conference and Exposition OFC*, (Los Angeles, US, March 22-26, 2015), 2015.
63. Goścień R., Walkowiak K., Klinkowski M., ILP modelling and joint optimization of anycast and unicast traffic in survivable elastic optical networks, *Proceedings of the International Network Optimization Conference INOC*, (Warsaw, Poland, May 18-20, 2015), 2015.
64. Aibin M., Walkowiak K., Adaptive Modulation and Regenerator-Aware Dynamic Routing Algorithm in Elastic Optical Networks, *Proceedings of the IEEE International Conference on Communications ICC*, (London, UK, June 8-12, 2015), 2015.
65. Walkowiak K., Goścień R., Woźniak M., Klinkowski M., Joint Optimization of Multicast and Unicast Flows in Elastic Optical Networks, *Proceedings of the IEEE International Conference on Communications ICC*, (London, UK, June 8-12, 2015), 2015.
66. Walkowiak K., Kasprzak A., Woźniak M., Algorithms for Calculation of Candidate Trees for Efficient Multicasting in Elastic Optical Networks, *Proceedings of the 17th International Conference on Transparent Optical Networks ICTON*, (Budapest, Hungary, July 5-9, 2015), 2015.
67. Bulira D., Walkowiak K., Performance of Dynamic Many-to-Many Routing in WDM and Elastic Optical Networks, *Proceedings of the 17th International Conference on Transparent Optical Networks ICTON*, (Budapest, Hungary, July 5-9, 2015), 2015.
68. Aibin M., Walkowiak K., Regenerator Placement Algorithms for Cloud-Ready Elastic Optical Networks, *Proceedings of the 17th International Conference on Transparent Optical Networks ICTON*, (Budapest, Hungary, July 5-9, 2015), 2015.
69. Klinkowski M., Pióro M., Żótkiewicz M., Walkowiak K., Ruiz M., Velasco L., Spectrum allocation problem in elastic optical networks - a branch-and-price approach, *Proceedings of the 17th*

- International Conference on Transparent Optical Networks ICTON*, (Budapest, Hungary, July 5-9, 2015), 2015.
70. Goścień R., Walkowiak K., Comparison of Different Data Center Location Policies in Survivable Elastic Optical Networks, *Proceedings of the 7th International Workshop on Reliable Networks Design and Modeling RNDM* (Munich, Germany, October, 5-7, 2015), 2015.
  71. Aibin M., Walkowiak K., Adaptive Survivability Algorithm for Path Protection with Various Traffic Classes in Elastic Optical Networks, *Proceedings of the 7th International Workshop on Reliable Networks Design and Modeling RNDM* (Munich, Germany, October, 5-7, 2015), 2015.
  72. Walkowiak K., Klinkowski M., On the Usage of Multiflow Transponders under Anycast and Unicast Traffic in Elastic Optical Networks, *Proceedings of the Optical Fiber Communication Conference and Exposition OFC*, (San Francisco, US, March 9-13, 2014), 2014.
  73. Walkowiak K., Kasprzak A., Klinkowski M., Dynamic Routing of Anycast and Unicast Traffic in Elastic Optical Networks, *Proceedings of the IEEE International Conference on Communications ICC*, (Sydney, Australia, June 10-14, 2014), 2014.
  74. Goścień R., Walkowiak K., Klinkowski M., Joint Anycast and Unicast Routing and Spectrum Allocation with Dedicated Path Protection in Elastic Optical Networks, *Proceedings of the 10th International Workshop on Design of Reliable Communication Networks DRCN*, (Ghent, Belgium, March 31-April 3, 2014), 2014.
  75. Kmiecik W., Walkowiak K., Survivable overlay multicasting in WDM optical networks with dual homing architecture, *Proceedings of the 8th International Conference on Optical Network Design and Modeling ONDM*, (Stockholm, Sweden in May 19-22, 2014).
  76. Aibin M., Walkowiak K., Dynamic Routing of Anycast and Unicast Traffic in Elastic Optical Networks with Various Modulation Formats - Trade-Off Between Blocking Probability and Network Cost, *Proceedings of the 15th International Conference on High Performance Switching and Routing HSPR*, (Vancouver, British Columbia, Canada, July 1 to July 4, 2014), 2014.
  77. Aibin M., Walkowiak K., Simulated Annealing Algorithm for Optimization of Elastic Optical Networks with Unicast and Anycast Traffic, *Proceedings of the 16th International Conference on Transparent Optical Networks ICTON*, (Graz, Austria, July 6-10, 2014), 2014.
  78. Bulira D., Walkowiak K., Dynamic Routing of Many-to-Many Traffic in WDM Networks, *Proceedings of the 16th International Conference on Transparent Optical Networks ICTON*, (Graz, Austria, July 6-10, 2014), 2014.
  79. Goścień R., Klinkowski M., Walkowiak K., A tabu search algorithm for routing and spectrum allocation in elastic optical networks, *Proceedings of the 16th International Conference on Transparent Optical Networks ICTON* (Graz, Austria, July 6-10, 2014), 2014.
  80. Walkowiak K., Klinkowski M., Goścień R., Multiflow Transponders for Provisioning of Asymmetric Traffic in Elastic Optical Networks with Dedicated Path Protection, *Proceedings of the European Conference on Optical Communications ECOC* (Cannes, France, September 21-15, 2014), 2014.
  81. Goścień R., Walkowiak K., Klinkowski M., On the Regenerators Usage in Cloud-Ready Elastic Optical Networks with Distance-Adaptive Modulation Formats, *Proceedings of the European Conference on Optical Communications ECOC* (Cannes, France, September 21-15, 2014), 2014.
  82. Walkowiak K., Kucharzak M., Kopec P., Kasprzak A., ILP Model and Algorithms for Restoration of Anycast Flows in Elastic Optical Networks, *Proceedings of the 6th International Workshop on Reliable Networks Design and Modeling RNDM* (Barcelona, Spain, November, 17-19, 2014), 2014.
  83. Goścień R., Walkowiak K., Klinkowski M., Gains of Anycast Demand Relocation in Survivable Elastic Optical Networks, *Proceedings of the 6th International Workshop on Reliable Networks Design and Modeling RNDM* (Barcelona, Spain, November, 17-19, 2014), 2014.
  84. Walkowiak K., Goścień R., Kmiecik W., Klinkowski M., Content Distribution in Elastic Optical Networks with Dedicated Path Protection, *Proceedings of the 6th International Workshop on Reliable Networks Design and Modeling RNDM* (Barcelona, Spain, November, 17-19, 2014), 2014.
  85. Walkowiak K., Goścień R., Kmiecik W., Klinkowski M., Elastic Optical Networks for Effective Content Distribution, *Proceedings of the Asia Communications and Photonics Conference ACP*, (Shanghai, China, November 11-14, 2014), 2014.
  86. Walkowiak K., Klinkowski M., Shared Backup Path Protection in Elastic Optical Networks: Modeling and Optimization, *Proceedings of the 9th International Workshop on Design of Reliable Communication Networks DRCN*, (Budapest, Hungary, March 4-7 2013), 2013.

87. Walkowiak K., Klinkowski M., Joint Anycast and Unicast Routing for Elastic Optical Networks: Modeling and Optimization, *Proceedings of the IEEE International Conference on Communications ICC*, (Budapest, Hungary, June 9-13, 2013), 2013.
88. Klinkowski M., Walkowiak K., Goścień R., Optimization Algorithms for Data Center Location Problem in Elastic Optical Networks, *Proceedings of the 15th International Conference on Transparent Optical Networks ICTON*, (Cartagena, Spain, June 23-27, 2013), 2013.
89. Kucharzak M., Walkowiak K., Klinkowski M., On Modeling of Minimum Cost Multicast Topology with Multiple Static Streams in Overlay Communication Networks, *Proceedings of the 15th International Conference on Transparent Optical Networks*, (Cartagena, Spain, June 23-27, 2013), 2013.
90. Smutnicki A., Walkowiak K., A New Approach to Optimization of p-Cycle Protected Multicast Optical Networks, *Proceedings of the 5th International Workshop on Reliable Networks Design and Modeling, RNDM*, (Almaty, Kazakhstan, September 10-12, 2013), pp. 41-48, 2013.
91. Kmiecik W., Walkowiak K., Capacity and Flow Assignment in Survivable Overlay Networks with Dual Homing Architecture, *Proceedings of the 5th International Workshop on Reliable Networks Design and Modeling RNDM*, (Almaty, Kazakhstan, September 10-12, 2013), pp. 66-72, 2013.
92. Walkowiak K., Goścień R., Klinkowski M., On Minimization of the Spectrum Usage in Elastic Optical Networks with Joint Unicast and Anycast Traffic, *Proceedings of the Asia Communications and Photonics Conference ACP*, (Beijing, China, November 12-15, 2013), 2013.
93. Walkowiak K., Kasprzak A., Kosowski M., Miziołek M., Scheduling and Capacity Design in Overlay Computing Systems, *Proceedings of the 12th International Conference Computational Science and its Applications ICCSA, Lecture Notes in Computer Science*, Springer Verlag, Vol. 7336, 2012, pp. 514-529 (Salvador de Bahia, Brazil, June 18-21, 2012), 2012.
94. Walkowiak K., Rak J., 1+1 Protection of Overlay Distributed Computing Systems: Modeling and Optimization, *Proceedings of the 12th International Conference Computational Science and its Applications ICCSA Lecture Notes in Computer Science*, Springer Verlag, Vol. 7336, 2012, pp. 498-513, (Salvador de Bahia, Brazil, June 18-21, 2012), 2012.
95. Bulira D., Walkowiak K., Voice and video streaming in wireless computer networks – evaluation of network delays, *Proceedings of the 2nd Baltic Congress on Future Internet Communications BCFIC*, (Vilnius, Lithuania, 25-27 April 2012), pp. 156-161, 2012.
96. Kucharzak M., Walkowiak K., Maximum flow trees in overlay multicast: modeling and optimization, *Proceedings of the 2nd Baltic Congress on Future Internet Communications BCFIC*, (Vilnius, Lithuania, 25-27 April 2012), pp. 260-267, 2012.
97. Smutnicki A., Walkowiak K., p-Cycle based multicast protection – a new ILP formulation, *Proceedings of the 2nd Baltic Congress on Future Internet Communications BCFIC*, (Vilnius, Lithuania, 25-27 April 2012), pp. 268-274, 2012.
98. Kmiecik W., K. Walkowiak, Metaheuristic approach for survivable P2P multicasting flow assignment in dual homing networks, *Proceedings of the 5th International Conference on Computational Intelligence in Security for Information Systems CISIS*, (Ostrava, Czech Republic, 5th-7th September, 2012), pp. 215-224, 2012.
99. Walkowiak K., Charewicz W., Donajski M., Rak J., A tabu search algorithm for optimization of survivable overlay computing systems, *Proceedings of the 5th International Conference on Computational Intelligence in Security for Information Systems CISIS*, (Ostrava, Czech Republic, 5th-7th September, 2012), pp. 225-234, 2012.
100. Klinkowski M., Walkowiak K., Offline RSA Algorithms for Elastic Optical Networks with Dedicated Path Protection Consideration, *Proceedings of the 4th International Workshop on Reliable Networks Design and Modeling RNDM*, (St Petersburg, Russia, October 3-5, 2012), pp. 25-31, 2012.
101. Kmiecik W., K. Walkowiak, Survivability aspects of overlay multicasting in dual homing networks, *Proceedings of the 4th International Workshop on Reliable Networks Design and Modeling RNDM*, (St Petersburg, Russia, October 3-5, 2012), pp. 176-182, 2012.
102. Szostak M., Walkowiak K., Heuristic Algorithm for Maximizing Streaming Rate in Overlay Multicast with Budget Constraint, *Proceedings of the 15th International Telecommunications Network Strategy and Planning Symposium Networks*, (Rome, Italy, October, 15-18, 2012), 2012.
103. Walkowiak K., Rak J., Shared Backup Path Protection for Anycast and Unicast Flows Using the Node-Link Notation, *Proceedings of the IEEE International Conference on Communications ICC*, (Kyoto, Japan, June 5-9, 2011), 2011.
104. Wiśniewski M., Walkowiak K., Evolutionary Algorithm for P2P Multicasting Network Design Problem, *Proceedings of the 6th International Conference on Hybrid Artificial Intelligent Systems HAIS 2011*,

- (Wrocław, Poland, May 23-25, 2011), *Lecture Notes in Computer Science*, Vol. 6678, 2011, Springer Verlag, pp. 182–189, 2011.
105. Kucharzak M., Walkowiak K., An Improved Annealing Algorithm for Throughput Maximization in Static Overlay-Based Multicast Systems, *Proceedings of the 6th International Conference on Hybrid Artificial Intelligence Systems HAIS, Lecture Notes in Computer Science*, LNCS 6678, Springer Verlag, (Wrocław, Poland, May 23-25), pp. 364–371, 2011.
  106. Klinkowski Mirosław, Walkowiak K., Jaworski M., Off-line algorithms for routing, modulation level, and spectrum assignment in elastic optical networks, *Proceedings of the 13th International Conference on Transparent Optical Networks ICTON*, (Stockholm, Sweden, 26-30 June, 2011), 2011.
  107. Kucharzak M., Walkowiak K., Fractional Spanning Tree Packing Problem with Survivability Constraints for Throughput Maximization in Overlay Multicast Networks, *Proceedings of the 3rd International Workshop on Reliable Networks Design and Modeling RNDM*, (Budapest, Hungary, October 5-7, 2011), pp. 40-46, 2011.
  108. Kmiecik W., Walkowiak K., Survivable P2P Multicasting Flow Assignment in Dual Homing Networks, *3rd Proceedings of the International Workshop on Reliable Networks Design and Modeling RNDM*, (Budapest, Hungary, October 5-7, 2011), pp. 157-163, 2011.
  109. Smutnicki A., Walkowiak K., Joint Working and Spare Capacity Assignment for Anycast Streaming in Survivable Networks Protected by p-Cycles, *Proceedings of the 3rd International Workshop on Reliable Networks Design and Modeling RNDM*, (Budapest, Hungary, October 5-7, 2011), pp. 164-169, 2011.
  110. Walkowiak K., Dimensioning of Overlay Networks for P2P Multicasting, *Proceedings of the 12th IEEE/IFIP Network Operations and Management Symposium NOMS*, (Osaka, Japan, April 19-23, 2010), pp. 805-809, 2010.
  111. Walkowiak K., Rak J., Joint Optimization of Anycast and Unicast Flows in Survivable Optical Networks, *Proceedings of the 14th International Telecommunications Network Strategy and Planning Symposium Networks*, (Warsaw, Poland, September, 27-30, 2010), 2010.
  112. Smutnicki A., Walkowiak K., Optimal Results for Anycast-Protecting p-Cycles Problem, *Proceedings of the 2nd International Workshop on Reliable Networks Design and Modeling RNDM*, (Moscow, Russia, October 18-20, 2010), pp. 48-54, 2010.
  113. Rak J., Walkowiak K., Survivability of Anycast and Unicast Flows under Attacks on Networks, *Proceedings of the 2nd International Workshop on Reliable Networks Design and Modeling RNDM*, (Moscow, Russia, October 18-20, 2010), pp. 34-40, 2010.
  114. Walkowiak K., P2P Multicasting Network Design Problem – Heuristic Approach, *Proceedings of the 1st IEEE Workshop on Pervasive Group Communication IEEE PerGroup in conjunction with IEEE GLOBECOM 2010*, (Miami, USA, December 6, 2010), 2010.
  115. Walkowiak K., Survivability of P2P Multicasting, *Proceedings of the 7th International Workshop on the Design of Reliable Communication Networks DRCN*, (Washington, USA, October 25-28, 2009), pp. 92-99, 2009.
  116. Smutnicki A., Walkowiak K., Optimization of p-Cycles for Survivable Anycasting Streaming, *Proceedings of the 7th International Workshop on the Design of Reliable Communication Networks DRCN*, (Washington, USA, October 25-28, 2009), pp. 227-234, 2009.
  117. Gładysz J., Walkowiak K., Optimization of Survivable Networks with Simultaneous Unicast and Anycast Flows, *Proceedings of the The International Workshop on Reliable Networks Design and Modeling RNDM*, (St. Petersburg, Russia, October 12-14, 2009), 2009.
  118. Walkowiak K., Network Design Problem for P2P Multicasting, *Proceedings of the International Network Optimization Conference INOC*, (Pisa, Italy, April 26-29, 2009), 2009.
  119. Chmaj G., Walkowiak K., Heuristic Algorithm for Optimization of P2P-based Public-Resource Computing Systems, *Proceedings of the 5th International Conference on Distributed Computing and Internet Technologies ICDCIT, Lecture Notes in Computer Science*, Vol. 5375, Springer Verlag, 2008, pp. 180-187. (New Delhi, India, December 10-12, 2008), 2008..
  120. Walkowiak K., A Flow Deviation Algorithm for Joint Optimization of Unicast and Anycast Flows in Connection-Oriented Networks, *Proceedings of the International Conference on Computational Science and its Applications – ICCSA, Lecture Notes in Computer Science*, LNCS 5073, Springer Verlag, 2008, pp. 797-807, (Perugia, June 30-July 3, 2008) , 2008.
  121. Walkowiak K., Anycast Communication – A New Approach to Survivability of Connection-Oriented Networks, *Proceedings of the International Conference on Computational Science and its Applications ICCSA Fourth International Conference on Mathematical Methods, Models and Architectures for*

- Computer Network Security, MMM-ACNS, Communications in Computer and Information Science*, Vol. 1, Springer Verlag, (St. Petersburg, Russia, September 13-15, 2007), pp. 378-389, 2007.
122. Walkowiak K., Branch-and-bound Algorithm for Anycast Flow Assignment in Connection-Oriented Networks, *Proceedings of the International Conference on Computational Science and its Applications ICCSA, Lecture Notes in Computer Science*, LNCS 4707, Springer Verlag, (Kuala Lumpur, Malaysia, August 26-29, 2007), pp. 319-329, 2007.
  123. Przewoźniczek M., Walkowiak K., Quasi-hierarchical Evolutionary Algorithm for Flow Optimization Survivable MPLS Networks, *Proceedings of the International Conference on Computational Science and its Applications ICCSA, Lecture Notes in Computer Science*, LNCS 4707, Springer Verlag, (Kuala Lumpur, Malaysia, August 26-29, 2007), pp. 330-342, 2007.
  124. Walkowiak K., Survivable Routing of Unicast and Anycast Flows in MPLS Networks, *Proceedings of the 3rd EURO-NGI Conference on Next Generation Internet Networks*, (Trondheim, Norway, May 21-23, 2007), pp. 72-79, 2007.
  125. Walkowiak K., A New Function for Optimization of Working Paths in Survivable MPLS Networks, *Proceedings of the 21th International Symposium on Computer and Information Sciences ISCIS, Lecture Notes in Computer Science*, LNCS 4263, Springer Verlag, (Istanbul, Turkey, November 1-3, 2006), pp. 424-433, 2006.
  126. Walkowiak K., Analysis of cut inequalities for optimization of non-bifurcated multicommodity flows in survivable networks, *Proceedings of the 4th Polish-German Teletraffic Symposium PGTS*, Proceedings, (Wrocław, Poland, September 21-22, 2006), pp. 31-40, 2006.
  127. Walkowiak K., Adjacent 2-Route Flow Approach for Restorable Dynamic Routing in MPLS Networks, *Proceedings of the 11th IEEE Symposium on Computers and Communications ISCC*, (Pula, Cagliari, Italy, 26-29 July, 2006), pp. 878-883, 2006.
  128. Walkowiak K., Dynamic Routing and Traffic Engineering in Survivable MPLS Networks, *Proceedings of the IEEE Workshop on High Performance Switching and Routing HPSR*, (Poznań, Poland, 7-9 June 2006), pp. 323-328, 2006.
  129. Walkowiak K., Lagrangean Heuristic for Anycast Flow Assignment in Connection-Oriented Networks, *Proceedings of the International Conference on Computational Science ICCS, Lecture Notes in Computer Science*, LNCS 3991, Springer Verlag, (Reading UK, May 28-31, 2006), pp. 618-625, 2006.
  130. Walkowiak K., Unsplittable Anycast Flow Problem Formulation and Algorithms, *Proceedings of the International Conference on Computational Science ICCS, Lecture Notes in Computer Science*, LNCS 3991, Springer Verlag, (Reading UK, May 28-31, 2006), pp. 626-633, 2006.
  131. Walkowiak K., New Algorithms for the Unsplittable Flow Problem, *Proceedings of the International Conference on Computational Science and its Applications ICCSA, Lecture Notes in Computer Science*, LNCS 3981, Springer Verlag, (Glasgow, UK, May 8-11, 2006), pp. 1101-1110, 2006.
  132. Walkowiak K., A Unified Approach to Survivability of Connection-Oriented Networks, *Proceedings of the 20th International Symposium on Computer and Information Sciences ISCIS, Lecture Notes in Computer Science*, LNCS 3733, Springer Verlag, (Istanbul, Turkey, October 26-28, 2005), pp. 3-12, 2005.
  133. Walkowiak K., Heuristic Algorithm for Anycast Flow Assignment in Connection-Oriented Networks, *Proceedings of the International Conference on Computational Science ICCS, Lecture Notes in Computer Science*, LNCS 3516, Springer Verlag, (Atlanta, USA, May 22-25, 2005), pp. 1092-1095, 2005.
  134. Przewoźniczek M., Walkowiak K., Evolutionary Algorithm for Congestion Problem in Connection-Oriented Networks, *Proceedings of the International Conference on Computational Science and its Applications ICCSA, Lecture Notes in Computer Science*, LNCS 3483, Springer Verlag, 2005, (Singapore, May 9-12, 2005), pp. 802-811, 2005.
  135. Walkowiak K., QoS Dynamic Routing in Content Delivery Network, *Proceedings of the International IFIP-TC6 Networking Conference, Lecture Notes in Computer Science*, LNCS 3462, Springer Verlag, (Waterloo Ontario Canada, May 2-6, 2005), pp. 1120-1132, 2005.
  136. Walkowiak K., An Heuristic Algorithm for Non-bifurcated Congestion Problem, *Proceedings of the 17th IMACS World Congress*, (Paris, France, July 11-15, 2005), 2005.
  137. Walkowiak K., Survivable Online Routing for MPLS Traffic Engineering, *Proceedings of the First Workshop on Quality of Service Routing WQoS, Lecture Notes in Computer Science*, LNCS 3266, Springer Verlag, (Barcelona, September 29 - October 1, 2004), pp. 288-297, 2004.
  138. Walkowiak K., On Application of Ant Algorithms to Non-Bifurcated Multicommodity Flow Problem, *Proceedings of the International Conference on Artificial Intelligence and Soft Computing ICAISC, Lecture Notes in Artificial Intelligence*, LNAI 3070, Springer Verlag, (Zakopane, Poland, June 7-11, 2004), pp. 922-927, 2004.

139. Walkowiak K., A New Method of Primary Routes Selection for Local Restoration, *Proceedings of the Third International IFIP-TC6 Networking Conference, Lecture Notes in Computer Science, LNCS 3042*, Springer Verlag, (Athens, May 9-14, 2004), pp. 1024-1035, 2004.



## C. Invited talks

- ✓ **Invited talk** at Post-OFC Workshop, **UC Davis, CA, USA**, on the topic of "Optimization of Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration", 2019.
- ✓ **Tutorial** on the topic of "Spectrally-spatially flexible optical networks: technology and optimization", 9th International Conference on Networks of the Future **NoF 2018** in Poznan, Poland, 2018.
- ✓ **Invited lecture** in **Soochow University, Suzhou, China**, "How to solve the Internet capacity crunch – new challenges in optical networks", 2016.
- ✓ **Invited lecture** in School of Engineering Science at **Simon Fraser University (SFU), Vancouver, British Columbia, Canada**, „How to cope with the capacity crunch – new challenges in optical networks", 2016.
- ✓ **Invited lecture** in School of Computing, Informatics and Decision Systems Engineering, **Arizona State University (ASU), Tempe, Arizona, USA** „Various Approaches for Optimization of Elastic Optical Networks", 2016.
- ✓ **Tutorial** on the topic of "Optimization Strategies and Modelling of Networks" at the Summer School for Master and PhD Students on NFV meets Big Data, April 8th - April 15th 2015 in **University of Wuerzburg, Germany**.
- ✓ **Panel discussion** "SDN – Revolution or Evolution in Network Reliability?", 6th International Workshop on Reliable Networks Design and Modeling **RNDM 2014, Barcelona, Spain**, 2014.
- ✓ **Invited talk** at Chair of Communication Networks, Institute of Computer Science, **University of Wuerzburg, Germany**, on the topic of "Design and Evaluation of Elastic Optical Networks for Inter-Data Center Traffic", 2014.
- ✓ **Invited talk** at Post-OFC Workshop, **UC Davis, CA, USA**, on the topic of "Metaheuristic Algorithms for Optimization of Elastic Optical Networks", 2014.
- ✓ **Visiting professor and invited talk** at Department of Electronics and Information, **Politecnico di Milano, Milan, Italy**, on the topic of "Optimization of Cloud-Ready and Content-Oriented Elastic Optical Networks", 2014.
- ✓ **Panel discussion** "How practical are recent network reliability concepts?", 5th International Workshop on Reliable Networks Design and Modeling, **RNDM 2013, Almaty, Kazakhstan**, 2013.
- ✓ **Keynote lecture** at **IBICA 2013** – The 4th International Conference on Innovations in Bio-Inspired Computing and Applications, Ostrava, Czech Republic, „ Recent Trends in Communication Networks", 2013.
- ✓ **Invited talk** at Department of Computer Architecture, **Universitat Politècnica de Catalunya (UPC), Barcelona, Spain**, on the topic of "Optimization of Elastic Optical Networks for Content-Oriented Networks and Cloud Computing", 2013.
- ✓ **Tutorial** on the topic of "Metaheuristic Algorithms for Optimization of Content-Oriented and Cloud Computing Networks" at the Second International Cybernetics Summer School (CSS 2013), **Technical University of Ostrava, Ostrava, Czech Republic**, 2013.
- ✓ **Tutorial** „Flow and Capacity Design in Content-Oriented Networks" at conference **Networks 2012, Rome, Italy** 2012.
- ✓ **Keynote lecture** "Survivable Content-Oriented Networks – Modeling and Optimization" at conference 4th International Workshop on Reliable Networks Design and Modeling **RNDM 2012, St Petersburg, Russia**, 2012.
- ✓ **Keynote lecture** "Modeling of Content-Oriented Networks" at conference 17th Polish Teletraffic Symposium **PTS 2012, Zakopane, Poland**, 2012.
- ✓ **Panel discussion** "Future Research in Reliable Networks", 4th International Workshop on Reliable Networks Design and Modeling, **RNDM 2012, Petersburg, Russia**, 2012.
- ✓ **Keynote lecture** "Content Delivery Networking: Modeling, Optimization and Survivability" at conference **ICUMT 2011, Budapest, Hungary**, 2011.

- ✓ **Invited talk** at the **RWTH Aachen University, Germany** on the topic of “Modeling and optimization of survivable P2P multicasting”, 2010.
- ✓ **Panel discussion** “Future Research in Reliable Networks”, 2nd International Workshop on Reliable Networks Design and Modeling, **RNDM 2010, Moscow, Russia**, 2010.
- ✓ **Panel discussion** „Internet of Tomorrow: Is It For Everybody!?”, The Second International Conference on Evolving Internet, **INTERNET 2010, Valencia, Spain**, 2010.
- ✓ **Invited talk** at The **Vienna University of Technology (TU Vienna), Austria** in FTW Telekom Forum series, “Modeling and Optimization of Network Flows in P2P-based Systems”, 2009.
- ✓ **Invited talk** at School of Computing Science, **University of Newcastle upon Tyne, UK** in colloquia series on the topic of "New Challenges in Network Optimization - P2P-based Systems", 2009.

## **D. Participation in Funded Grants**

- ✓ 2022-2026: “Unite! (University Network for Innovation, Technology and Engineering)”, Call: ERASMUS-EDU-2022-EUR-UNIV (EUROPEAN UNIVERSITIES), **leader of Work Task 7.4**.
- ✓ 2020-2024: “Advanced methods for optimization of multilayer application-aware networks”, financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2021-2023: “Internationalisation of Wrocław University of Science and Technology Doctoral School”, NAWA STER – Internationalisation of doctoral schools, **manager**.
- ✓ 2018-2021: “Optimization of cognitive optical networks”, financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2016-2019: “Advanced methods for optimization of optical networks with spatial flexibility” financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2016-2020: COST Action CA15127 “RECODIS - Resilient communication services protecting end-user applications from disaster-based failures”, financed by European Union under Horizon 2020, **Short Term Scientific Mission (STSM) Manager and Management Committee Member**.
- ✓ 2014-2017: “Compound data stream classification methods based on unsupervised and active learning,” financed by National Science Centre Poland, OPUS grant, **member of project team**.
- ✓ 2013-2016: “Algorithms for optimization of routing and spectrum allocation in content oriented elastic optical networks”, financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2013-2016: “ENGINE – European research centre of Network intelligence for INnovation Enhancement”, funded by the European Commission under the 7th Framework Programme, Coordination and Support Action, **leader of Work Package 3**.
- ✓ 2008-2011: “Algorithms for Optimization of Flows and Channel Capacity in Network Distributed Systems”, financed by Polish Ministry of Science and Higher Education, **leader and principal investigator**.
- ✓ 2010-2013: “Computer pattern recognition and data mining methods for distributed computing systems”, financed by Polish Ministry of Science and Higher Education, **member of project team**.
- ✓ 2011-2014: “Methods for design of complex computer structures for decision making systems”, financed by Polish Ministry of Science and Higher Education, **member of project team**.
- ✓ 2007-2013: “WROVASC – Integrated Center of Cardiovascular Medicine”, financed by European Regional Development Fund and the Polish Government, Operational Programme - Innovative Economy, **member of project team**.
- ✓ 2006-2009: “Computer methods of information fusion for pattern recognition and data mining tasks”, financed by Polish Ministry of Science and Higher Education, **member of project team**.
- ✓ 2005-2008: “Algorithms for Optimization of Flows, Topology and Resource Allocation in Wide Area Networks”, financed by Polish State Committee for Scientific Research and Development grant, **member of project team**.

## **E. Professional and Scientific Service**

### **i. Memberships**

- ✓ IEEE Communication Society – ComSoc, (since 2008 r.), Senior Member (since 2015)
- ✓ Machine Intelligence Research Labs (since 2009)

### **ii. Conference Chairing**

- ✓ Track Chair of the Third European Network Intelligence Conference ENIC, Track on Intelligent Methods for Optimization of Communication Networks, 2016.
- ✓ Chair of the Second Workshop on Survivable Content-Oriented and Cloud-Ready Networking S2CN, 2015.
- ✓ Program Co-chair of the 16th International Conference on Intelligent Data Engineering and Automated Learning IDEAL, 2015.
- ✓ Track Chair of the Second European Network Intelligence Conference ENIC, Track on Intelligent Methods for Optimization of Communication Networks, 2015.
- ✓ Chair of special session Computational Intelligence for Optimization of Communication Networks of conference 16th International Conference on Intelligent Data Engineering and Automated Learning IDEAL, 2015.
- ✓ Chair of the First Workshop on Survivable Content-Oriented and Cloud-Ready Networking S2CN, 2014.
- ✓ Chair of the special session Intelligent Network Security and Survivability, conference 5th International Conference on Computational Intelligence in Security for Information Systems CISIS 2012.
- ✓ TPC Co-chair of the 2nd International Workshop on Reliable Networks Design and Modeling RNDM 2010.
- ✓ TPC Co-chair of the First International Workshop on Grid Computing GridCom, 2009.

### **iii. Program Committee Member (*selected*)**

- ✓ IEEE International Conference on Communications (ICC): 2011, 2013-2024.
- ✓ IEEE Globecom 2017-2023.
- ✓ International Telecommunications Network Strategy and Planning Symposium (Networks): 2010-2018.
- ✓ International Conference on Design of Reliable Communication Networks (DRCN): 2009, 2011, 2013-2024.
- ✓ International Workshop on Reliable Networks Design and Modeling (RNDM): 2009-2023.
- ✓ International Conference on High-Performance Switching and Routing (HPSR): 2019-2024.
- ✓ International Conference on Optical Network Design and Modelling (ONDM): 2022-2024.
- ✓ International Conference on Computational Science (ICCS): 2010-2016.
- ✓ International Conference on Computational Science and Its Applications (ICCSA): 2009-2019.

### **iv. Session Chairing**

- ✓ KRIT 2023, Radiocommunication and Teleinformatics Conference (Konferencja Radiokomunikacji i Teleinformatyki), Cracow, Poland 2023.
- ✓ ICCCN 2021, International Conference on Computer Communications and Networks, Athens, Greece, 2021.

- ✓ Globecom 2018, IEEE Global Communications Conference, Abu Dhabi, UAE, 2018.
- ✓ RNDM 2018, 10th International Workshop on Reliable Networks Design and Modeling, Longyearbyen, Svalbard, Norway, 2018.
- ✓ ICTON 2018, 20th International Conference on Transparent Optical Networks, Bucharest, Romania, 2018.
- ✓ ENIC 2016, The Third European Network Intelligence Conference, Wroclaw, Poland, 2016.
- ✓ RNDM 2016, 8th International Workshop on Reliable Networks Design and Modeling, Halmstad, Sweden, 2016.
- ✓ IDEAL 2015, The 16th International Conference on Intelligent Data Engineering and Automated Learning Wroclaw, Poland, 2015.
- ✓ ENIC 2015, The Second European Network Intelligence Conference, Karlskrona, Sweden, 2015.
- ✓ RNDM 2015, 7th International Workshop on Reliable Networks Design and Modeling, Munich, Germany, 2015.
- ✓ ICC 2015, Next-Generation Networking Symposium, London, UK, 2015.
- ✓ ICC 2014, Next-Generation Networking Symposium, Sydney, Australia, 2014.
- ✓ RNDM 2014, 6th International Workshop on Reliable Networks Design and Modeling, Barcelona, Spain, 2014.
- ✓ DRCN 2014, The 7th International Workshop on the Design of Reliable Communication Networks, Ghent, Belgium.
- ✓ ICC 2013, Next-Generation Networking Symposium, Budapest, Hungary, 2013.
- ✓ RNDM 2013, 5th International Workshop on Reliable Networks Design and Modeling, Almaty, Kazakhstan, 2013.
- ✓ CISIS 2012, 5th International Conference on Computational Intelligence in Security for Information Systems, Ostrava, Czech Republic, 2012.
- ✓ RNDM 2011, 3rd International Workshop on Reliable Networks Design and Modeling, Budapest, Hungary, 2011.
- ✓ ICC 2011, 2011 IEEE International Conference on Communications, Communications QoS, Reliability and Modeling Symposium CQRM, Kyoto, Japan, 2011.
- ✓ INTERNET 2010, The Second International Conference on Evolving Internet, Valencia, Spain, 2010.
- ✓ RNDM 2010, 2nd International Workshop on Reliable Networks Design and Modeling, Moscow, Russia, 2010.
- ✓ ICDCIT 2008, 5th International Conference on Distributed Computing and Internet Technologies, New Delhi, India, 2008.
- ✓ NTMS 2008, 2nd International Conference on New Technologies, Mobility and Security, Tangier, Morocco, 2008.
- ✓ ISCIS 2006, 21st International Symposium on Computer and Information Sciences, Istanbul, Turkey, 2006.
- ✓ ICCS 2005, International Conference on Computational Science, Atlanta, USA, 2005.
- ✓ IMACS 2005, 17th IMACS World Congress, Paris, France, 2005.
- ✓ ISCIS 2005, 20th International Symposium on Computer and Information Sciences, Istanbul, Turkey, 2005.

## v. Editorships

- ✓ **Associate Editor.** Journal of Network and Systems Management, Springer (2015-present).
- ✓ **Editorial board.** International Journal On Advances in Internet Technology (2014-present).
- ✓ **Editorial board.** International Journal On Advances in Telecommunications (2014-present).
- ✓ **Co-Editor** of Proceedings of the 7th International Conference Intelligent Data Engineering and Automated Learning (IDEAL 2015). Wroclaw, October 14–16, 2015. Lecture Notes in Computer Science vol. 9375, 2015.

- ✓ **Co-Editor** of Proceedings of the 7th International Workshop on Reliable Networks Design and Modeling (RNDM 2015), Munich, Germany. 2015.
- ✓ **Co-Editor** of Proceedings of the 6th International Workshop on Reliable Networks Design and Modeling (RNDM 2014), Barcelona, Spain, 2014.
- ✓ **Guest Editor** of the special issues “Reliable networks design and modeling” in Telecommunication Systems, Vol. 52, 2013.
- ✓ **Guest Editor** of the special issues “INTELLIGENT NETWORK SECURITY AND SURVIVABILITY” in Cybernetics and Systems, Vol. 44, No. 6-7, 2013.
- ✓ **Guest Editor** of the special issues in GRID COMPUTING in International Journal on Communication Networks and Distributed Systems, Vol. 5, No. 3, 2010.
- ✓ **Co-Editor** of Proceedings of the 2nd International Workshop on Reliable Networks Design and Modeling (RNDM 2010), Moscow, Russia. 2010.

## vi. Journal Reviews

- ✓ IEEE Communications Magazine
- ✓ IEEE/ACM Transactions on Networking
- ✓ IEEE Transactions on Communications
- ✓ IEEE Transactions on Network and Service Management
- ✓ IEEE/OSA Journal of Lightwave Technology
- ✓ IEEE Communications Letters
- ✓ IEEE/OSA Journal of Optical Communications and Networking
- ✓ IEEE Journal on Selected Areas in Communications
- ✓ Telecommunication Systems
- ✓ Photonic Network Communications
- ✓ Computer Communications
- ✓ Optical Switching and Networking
- ✓ Future Generation Computer Systems
- ✓ Information Sciences
- ✓ Annals of telecommunications - annales des telecommunications
- ✓ Optimization Letters
- ✓ IEEE Access
- ✓ IEEE Transactions on Industrial Informatics
- ✓ Journal of Network and Systems Management
- ✓ Journal of High Speed Networks
- ✓ International Journal of Applied Mathematics and Computer Science
- ✓ European Journal of Operational Research
- ✓ Journal of Circuits, Systems and Computers
- ✓ Computational Optimization and Applications
- ✓ Pattern Analysis and Applications Journal
- ✓ International Journal of Computer Mathematics
- ✓ Expert Systems
- ✓ Expert Systems With Applications
- ✓ Journal On Advances in Systems and Measurements
- ✓ International Journal of Communication Networks and Distributed Systems
- ✓ Journal of Network Protocols and Algorithms
- ✓ Applied Sciences

## vii. Grant Reviews

- ✓ Wallenberg Academy Fellows Programs, Chalmers University, Sweden.

- ✓ Research Foundation - Flanders FWO, Belgium.
- ✓ Latvian Science Council, Latvia.
- ✓ Swiss National Science Foundation (SNSF), Switzerland.
- ✓ National Fund for Scientific and Technological Development, FONDECYT, Chile.
- ✓ Quantum Science and Technology (Q@TN), Trento, Italy.
- ✓ National Science Centre (NCN), Poland.
- ✓ Polish National Centre for Research and Development (NCBiR), Poland.
- ✓ Polish Innovative Economy National Cohesion Strategy funded by EC, Poland.
- ✓ Polish Ministry of Science and Higher Education, Poland.

## viii. Dissertation Supervision

- ✓ I supervised **10 finished PhD**:
  - Machine learning for traffic prediction in optical networks (D. Szostak, 2023).
  - Algorithms for Flow Assignment and Resource Allocation in Spectrally-Spatially Flexible Optical Networks (P. Lechowicz, 2019).
  - Dynamic algorithms for optimization of elastic optical networks (M. Aibin, 2017).
  - Optimization algorithms for survivable elastic optical networks (R. Goścień, 2016).
  - Modeling and optimization of flows in P2P systems (M. Kucharzak, 2016).
  - Joint optimization of flow and capacity in survivable multicast systems (W. Kmiecik, 2015).
  - Joint optimization of flow and capacity in overlay multicast systems (M. Szostak, 2014).
  - Scheduling problems with the aging effect and maintenance cost – algorithms and complexity (A. Rudek, 2014).
  - Optimization of survivable networks based on p-Cycles (A. Smutnicki, 2012).
  - Modeling and optimization of P2P computing systems (G. Chmaj, 2010).
- ✓ Currently, I am a supervisor of **5 PhD thesis in progress**:
  - Optimization of optical networks with time varying traffic (A. Włodarczyk).
  - Advanced methods for optimization of multilayer application-aware networks (O. Knapieńska).
  - Optimization of 5G converged transport networks with packet switching and delay sensitive traffic flows (D. Mroziński).
  - AI assisted dimensioning methods for Network Slicing in Next Generation Mobile Networks (D. Dulas).
  - Algorithms for optimizing power consumption in TinyML systems using machine learning methods (Tobiasz Puślecki)

## ix. Reviews of PhD Thesis, Habilitations, and Professors Applications

- ✓ Review of professor application: Szymon Szott, University of Mining and Metallurgy in Krakow, Poland, 2024.
- ✓ Review of Ph.D. thesis: Michał Rzepka, University of Mining and Metallurgy in Krakow, Poland, 2023.
- ✓ Review of professor application: Krzysztof Szczypiorski, Warsaw University of Technology, Poland, 2024.
- ✓ Review of Ph.D. thesis and Ph.D. Dissertation Committee member: Bruno Correia, Politecnico di Torino, Italy, 2023.
- ✓ Review of habilitation: Tomas Cejka, Czech Technical University in Prague, Czech Republic, 2023.
- ✓ Review of Ph.D. thesis: Jędrzej Bieniasz, Warsaw University of Technology, Poland, 2023.

- ✓ Review of professor application: Katarzyna Kosek-Szott, University of Mining and Metallurgy in Krakow, Poland, 2023.
- ✓ Review of Ph.D. thesis: Artur Popławski, University of Mining and Metallurgy in Krakow, Poland, 2023.
- ✓ Review of Ph.D. thesis: Marcin Gregorczyk, Warsaw University of Technology, Poland, 2022.
- ✓ Review of Ph.D. thesis: Kanstantsin Myslitski, Gdansk University of Technology, Poland, 2022.
- ✓ Review of Ph.D. thesis: Ilya Kalesnikau, Warsaw University of Technology, Poland, 2022.
- ✓ Review of professor application: Michał Choraś, Bydgoszcz University of Science and Technology, Poland, 2021.
- ✓ Review of Ph.D. thesis: Damian Kmiecik, Poznań University of Technology, Poland, 2021.
- ✓ Review of Ph.D. thesis: Devlina Adhikari, Indian Institute of Technology Kharagpur, India, 2021.
- ✓ Review of Ph.D. thesis: Cezary Żukowski, Trinity College Dublin, Ireland, 2021.
- ✓ Review of Ph.D. thesis: Edyta Biernacka, University of Mining and Metallurgy in Krakow, Poland, 2021.
- ✓ Review of Ph.D. thesis: Atyaf Al-Tameemi, Poznań University of Technology, Poland, 2020.
- ✓ Review of Ph.D. thesis: Sebastian Łaskawiec, UTP University of Science and Technology in Bydgoszcz, Poland, 2020.
- ✓ Review of habilitation and member of Habilitation Committee: Michał Karpowicz, Warsaw University of Technology, Poland, 2020.
- ✓ Review of habilitation and member of Habilitation Committee: Robert Wójcik, University of Mining and Metallurgy in Krakow, Poland, 2019.
- ✓ Review of habilitation and member of Habilitation Committee: Piotr Pacyna, University of Mining and Metallurgy in Krakow, Poland, 2019.
- ✓ Review of professor application: Jozef Pieprzyk, Institute of Computer Science, Polish Academy of Sciences, Poland, 2019.
- ✓ Review of Ph.D. thesis: Mustafa Abdulsahib, Poznań University of Technology, Poland, 2019.
- ✓ Review of habilitation and member of Habilitation Committee: Mariusz Żal, Poznań University of Technology, Poland, 2019.
- ✓ Review of habilitation and member of Habilitation Committee: Rafał Kozik, West Pomeranian University of Technology, Szczecin, Poland, 2019.
- ✓ Review of professor application: Mariusz Głąbowski, Poznań University of Technology, Poland, 2019.
- ✓ Review of Ph.D. thesis: Federico Pederzoli, University of Trento, Italy, 2018.
- ✓ Review of Ph.D. thesis: Krzysztof Stachowiak, Poznań University of Technology, Poland, 2018.
- ✓ Member of Ph.D. Dissertation Committee: Chenyang Zhou, Arizona State University (ASU), Tempe, Arizona, USA, 2018.
- ✓ Review of Ph.D. thesis: Tomasz Bartczak, Poznań University of Technology, Poland, 2017.
- ✓ Review of habilitation and member of Habilitation Committee: Jordi Mongay Batalla, Warsaw University of Technology, Poland, 2017.
- ✓ Review of habilitation and member of Habilitation Committee: Artur Janicki, Warsaw University of Technology, Poland, 2017.
- ✓ Review of Ph.D. thesis: Pedro López García, University of Deusto, Donostia / San Sebastián, Spain, 2016.
- ✓ Review of habilitation and member of Habilitation Committee: Andrzej Bęben, Warsaw University of Technology, Poland, 2016.
- ✓ Review of Ph.D. thesis: Michał Stasiak, Poznań University of Technology, Poland, 2016.
- ✓ Review of Ph.D. thesis: Piotr Boryło, University of Mining and Metallurgy in Krakow, Poland, 2016.
- ✓ Review of Ph.D. thesis and Ph.D. Dissertation Committee member: Anna Buttaboni, Politecnico di Milano, Italy, 2015.
- ✓ Review of habilitation and member of Habilitation Committee: Piotra Chołda, University of Mining and Metallurgy in Krakow, Poland, 2015.



- ✓ Member of Ph.D. Dissertation Committee: Mohammed Alenazi, The University of Kansas, USA, 2015.
- ✓ Member of Habilitation Committee: Piotr Zwierzykowski, Poznań University of Technology, Poland, 2015.
- ✓ Member of Ph.D. Dissertation Committee: Marco Brunero, Politecnico di Milano, Italy, 2015.
- ✓ Reviewer of habilitation: Artur Tomaszewski, Warsaw University of Technology, Poland, 2014.
- ✓ Review of Ph.D. thesis: Błażej Adamczyk, The Silesian Technical University, Poland, 2013.
- ✓ Member of Habilitation Committee: Igor Podolak, Wrocław University of Science and Technology, Poland, 2013.
- ✓ Review of Ph.D. thesis: Tomasz Gierszewski, Gdansk University of Technology, Poland, 2011.
- ✓ Review of Ph.D. thesis: Grzegorz Debita, Wrocław University of Science and Technology, Poland, 2010.
- ✓ Review of Ph.D. thesis: Álvaro Herrero, University of Málaga Campus Teatinos, Spain, 2009.
- ✓ Review of Ph.D. thesis: Jacek Rak, Gdansk University of Technology, Poland, 2009.
- ✓ Review of Ph.D. thesis: Bruno Baruque Zanó, University of Málaga Campus Teatinos, Spain, 2009.
- ✓ Review of Ph.D. thesis: Konrad Jackowski, Wrocław University of Science and Technology, Poland, 2008.

## **F. University Service**

- ✓ Dean of Doctoral School of Wrocław University of Science and Technology (2020-present).
- ✓ Member of Wrocław University of Science and Technology Senate (2020-present).
- ✓ Vice-dean of Doctoral School of Wrocław University of Science and Technology (2019-2020).
- ✓ Director of Ph.D. Studies, Faculty of Electronics, Wrocław University of Science and Technology (2013-present).
- ✓ Member of Council of Faculty of Electronics, Wrocław University of Science and Technology (2013-2019).
- ✓ Member of Faculty Board, Faculty of Electronics, Wrocław University of Science and Technology (2008-2019).
- ✓ Member and secretary of Faculty Evaluation Committee, Faculty of Electronics, Wrocław University of Science and Technology (2012-2016).
- ✓ Member of Faculty Committee for Evaluation and Quality Assurance, Faculty of Electronics, Wrocław University of Science and Technology (2013-present).
- ✓ Member of Initiative Committee for a New Field of Studies Electronic and Computer Engineering, Faculty of Electronics, Wrocław University of Science and Technology (2015).
- ✓ Member of Faculty Committee for Ph.D. in Computer Science, Faculty of Electronics, Wrocław University of Science and Technology (2008-2012).
- ✓ Chairman of Ph.D. Committee for Przemysław Błażkiewicz, Faculty of Electronics, Wrocław University of Science and Technology (2014).
- ✓ Chairman of Ph.D. Committee for Bartosz Krawczyk, Faculty of Electronics, Wrocław University of Science and Technology (2015).
- ✓ Chairman of Diploma Exam Committee, specialization Design of Teleinformatic Networks, field of study Teleinformatics, Faculty of Electronics, Wrocław University of Science and Technology (2008-present).
- ✓ Chairman of Program Committee for specialization Design of Teleinformatic Networks, field of study Teleinformatics, Faculty of Electronics, Wrocław University of Science and Technology (2014-present).
- ✓ Member of Diploma Exam Committee, specialization Computer Systems and Networks, field of study Computer Science, Faculty of Electronics, Wrocław University of Science and Technology (1999-2008).
- ✓ Member of Program Committee for specialization Computer Systems and Networks, field of study Computer Science, Faculty of Electronics, Wrocław University of Science and Technology (1999-present).
- ✓ Member of Program Committee for specialization Design of Teleinformatic Networks, field of study Teleinformatics, Faculty of Electronics, Wrocław University of Science and Technology (2007-present).
- ✓ Faculty coordinator for cooperation with Nokia (2005-present).
- ✓ Faculty coordinator for cooperation with Volvo IT (2009-present).
- ✓ Chairman of statutory fund project S30011/K0402, Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2013-2014).
- ✓ Chairman of statutory fund project S40029/K0402 Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2014-2015).
- ✓ Chairman of statutory fund project S50020 W4/K2 Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2015-2016).
- ✓ Chairman of statutory fund project 0401/0159/16 Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2016-2017).

## **G. Awards**

- ✓ Docendo Discimus Award by Rector of Wrocław University of Science and Technology (2020).
- ✓ Wrocław University of Science and Technology scholarship for best researchers (2017).
- ✓ Best Paper Award of RNDM 2015, 7th International Workshop on Reliable Networks Design and Modeling, (Munich, Germany, October, 5-7, 2015) for paper: "Comparison of Different Data Center Location Policies in Survivable Elastic Optical Networks" (2015).
- ✓ Fabio Neri Best Paper Award 2014 in Elsevier Journal of Optical Switching and Networking for paper "Routing and Spectrum Allocation Algorithms for Elastic Optical Networks with Dedicated Path Protection" (2014).
- ✓ Award in 2011 Smarter Planet Innovation Award - Smarter Communication. Sponsored by the IBM Academic Initiative (2011).
- ✓ National Education Committee Medal (2011).
- ✓ Best Paper Award of AP2PS 2010, The Second International Conference on Advances in P2P Systems, (Florence, Italy, October 25-30, 2010), for paper: "Optimization of Flows in Level-Constrained Multiple Trees for P2P Multicast System" (2010).
- ✓ Medal of the 100th Anniversary of Technical Schools in Wrocław (2010).
- ✓ Bronze Cross of Merit (2009).
- ✓ Best Paper Award of DRCN 2009, The 7th International Workshop on the Design of Reliable Communication Networks, (Washington, USA, October 25-28, 2009) for paper: "Survivability of P2P Multicasting" (2009).
- ✓ Wrocław University of Science and Technology – multiple Rector's Awards for Scientific Activities or Organizational Activities.
- ✓ Wrocław University of Technology – Rector's Distinction for Participation in Research Group Cooperating with Cisco (2004).
- ✓ Wrocław University of Science and Technology – Rector's Award for the Best Graduate (1997).
- ✓ European Community – Scholarship in Tempus Program (1996).

## **H. Teaching**

### **i. Courses taught**

- ✓ Research Skills for PhD Students
- ✓ Computer Networks
- ✓ Networking Technologies
- ✓ Local Area Networks
- ✓ Wide Area Networks
- ✓ Advanced Methods for Design of Computer Networks
- ✓ Selected Aspects of Computer Networks
- ✓ Data Transmission
- ✓ Security of Computer Networks
- ✓ Programming in Cs

### **ii. Thesis Supervision**

- ✓ Over 100 M.Sc. thesis
- ✓ Over 100 Eng. thesis