



CURRICULUM VITAE

(included in the website of the Department of Automatic Control, Cracow University of Technology)

Piotr Kulczycki

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Professional interests:

Automatic control and computer science, in particular:

- systems analysis,
- control engineering,
- information technology,
- data analysis and mining,
- mathematical statistics applications,
- fuzzy logic.

Academic degrees:

Prof. Technical Sciences, Polish Academy of Sciences, Systems Research Institute, 2007.

D. Sc. (habilitation) Automatic Control, AGH University of Science and Technology, Faculty of Electrical Engineering, Automatic Control, Computer Science, and Electronics, 1999.

Ph. D. Automatic Control, AGH University of Science and Technology, Faculty of Electrical Engineering, Automatic Control and Electronics, 1991.

M. Sc. Applied Mathematics, Jagiellonian University, Faculty of Mathematics and Physics, 1987.

M. Sc. Automatic Control, AGH University of Science and Technology, Faculty of Electrical Engineering, Automatic Control and Electronics, 1983.

Professional career:

- 2000-pres. **Polish Academy of Sciences**, Systems Research Institute, from associate professor to professor, since 2009 – Head of Center for Statistical Data Analysis Methods.
- 1987-pres. **Cracow University of Technology**, Faculty of Electrical and Computer Engineering, from assistant to professor; 2000-03 – Head of Department of Control Engineering; since 2003 – Head of Department of Automatic Control.
- 1997-98 **AGH University of Science and Technology**, Faculty of Applied Mathematics, assistant professor.
- 1993 **Aalborg University** (Denmark), Department of Control Engineering, visiting professor.

Government scholarships:

- Danish Government Scholarship, Department of Control Engineering, Aalborg University, 1 November – 28 February 1993.
- Finnish Government Scholarship, Control Engineering Laboratory, Helsinki University of Technology, 25 November – 2 December 1996.
- Belgian Government Scholarship, Centre d'Ingénierie des Systèmes, d'Automatique et de Mécanique Appliquée, Université Catholique de Louvain, 1-28 February 1998.
- Finnish Government Scholarship, Department of Automation and Systems Technology, Helsinki University of Technology, 9-16 June 1999.
- Belgian Government Scholarship, Centre d'Ingénierie des Systèmes, d'Automatique et de Mécanique Appliquée, Université Catholique de Louvain, 1-29 February 2000.
- Hungarian Government Scholarship, Department of Telecommunication and Telematics, Budapest University of Technology and Economics, 27 December 2000 – 5 January 2001.
- Finnish Government Scholarship, Department of Automation and Systems Technology, Helsinki University of Technology, 26 April – 8 May 2001.
- Slovakian Government Scholarship, Slovak University of Technology, Department of Mathematics and Descriptive Geometry, 19-28 September 2001.
- Belgian Government Scholarship, Centre d'Ingénierie des Systèmes, d'Automatique et de Mécanique Appliquée, Université Catholique de Louvain, 27 April – 12 May 2002.
- Austrian Government Scholarship, Johannes Kepler University Linz, Fuzzy Logic Laboratory, 17 August – 1 September 2002.
- Hungarian Government Scholarship, Department of Telecommunication and Telematics, Budapest University of Technology and Economics, 27 December 2002 – 5 January 2003.
- Austrian Government Scholarship, Johannes Kepler University Linz, Fuzzy Logic Laboratory, 5-20 July 2003.
- Hungarian Government Scholarship, Department of Telecommunication and Media Informatics, Budapest University of Technology and Economics, 25 July – 4 August 2004.
- Danish Government Scholarship, Department of Control Engineering, Aalborg University, 24-30 July 2005.

Austrian Government Scholarship, Johannes Kepler University Linz, Fuzzy Logic Laboratory,
14-29 August 2005.

List of publications (selected items):

1. Books and edited volumes:

- 1.1. P. Kulczycki
“Czasowo optymalne sterowanie stochastyczne nieciągłym układem dynamicznym”
■ Wydawnictwa Politechniki Krakowskiej, Monograph 127, Cracow (Poland), 1992.
- 1.2. P. Kulczycki
“Wykrywanie uszkodzeń w systemach zautomatyzowanych metodami statystycznymi”
■ Alfa, Warsaw (Poland), 1998.
- 1.3. P. Kulczycki
“Estymatory jądrowe w analizie systemowej”
■ WNT, Warsaw (Poland), 2005.
- 1.4. P. Kulczycki, O. Hryniewicz, J. Kacprzyk (eds.)
“Techniki informacyjne w badaniach systemowych”
■ WNT, Warsaw (Poland), 2007.

2. Articles in scientific journals:

- 2.1. A.L. Dawidowicz, P. Kulczycki, D. Tumidajowicz
“A Stochastic Model of the Development of Alpine Rhododendron”
■ Universitatis Iagellonicae Acta Mathematica, Vol. XXXII, pp. 37-55, 1995.
- 2.2. P. Kulczycki
“Almost certain time-optimal positional control”
■ IMA Journal of Mathematical Control and Information, Vol. 13, No. 1, pp. 63-77, 1996.
- 2.3. P. Kulczycki
“Time-optimal stabilization of a discontinuous and non-autonomous dynamic object”
■ **Control and Cybernetics**, Vol. 25, No. 4, pp. 707-720, 1996.
- 2.4. P. Kulczycki
“Some Remarks on Solutions of Discontinuous Differential Equations Applied in Automatic Control”
■ Industrial Mathematics, Vol. 46, No. 2, pp. 119-128, 1996.
- 2.5. H. Schiøler, P. Kulczycki
“Neural Network for Estimating Conditional Distributions”
■ **IEEE Transactions on Neural Networks**, Vol. 8, No. 5, pp. 1015-1025, 1997.
- 2.6. P. Kulczycki, A.L. Dawidowicz
“Kernel estimator of quantile”
■ Universitatis Iagellonicae Acta Mathematica, Vol. XXXVII, pp. 325-336, 1999.

- 2.7. P. Kulczycki
“A Random Approach to Time-Optimal Control”
■ **Journal of Dynamic Systems, Measurement, and Control**, Vol. 121, No. 3, pp. 542-543, 1999.
- 2.8. P. Kulczycki
“Random time-optimal control for mechanical systems”
■ **European Journal of Automation**, Vol. 33, No. 1-2, pp. 115-140, 1999.
- 2.9. P. Kulczycki
“Fuzzy Controller for Mechanical Systems”
■ **IEEE Transactions on Fuzzy Systems**, Vol. 8, No. 5, pp. 645-652, 2000.
- 2.10. P. Kulczycki
“An Algorithm for Bayes Parameter Identification”
■ **Journal of Dynamic Systems, Measurement, and Control**, (Special Issue on the Identification of Mechanical Systems), Vol. 123, No. 4, pp. 611-614, 2001.
- 2.11. P. Kulczycki, R. Wisniewski
“Fuzzy controller for a system with uncertain load”
■ **Fuzzy Sets and Systems**, Vol. 131, No. 2, pp. 185-195, 2002.
- 2.12. P. Kulczycki
“Statistical Inference for Fault Detection: A Complete Algorithm Based on Kernel Estimators”
■ **Kybernetika**, Vol. 38, No. 2, pp. 141-168, 2002.
- 2.13. P. Kulczycki
“A Test for Comparing Distribution Functions with Pagesgly Unbalanced Samples”
■ **Statistica**, Vol. LXII, No. 1, pp. 39-49, 2002.
- 2.14. R. Wisniewski, P. Kulczycki
“Rotational Motion Control of a Spacecraft”
■ **IEEE Transactions on Automatic Control**, Vol. 48, No. 4, pp. 643-646, 2003.
- 2.15. R. Wisniewski, P. Kulczycki
“Euler-Poincaré reduction of externally forced rigid body motion”
■ **Control and Cybernetics**, Vol. 33, No. 2, pp. 297-310, 2004.
- 2.16. P. Kulczycki, R. Wisniewski, P.A. Kowalski, K. Krawiec
“Hard and soft sub-time-optimal controllers for a mechanical system with uncertain mass”
■ **Control and Cybernetics**, Vol. 33, No. 4, pp. 573-587, 2004.
- 2.17. R. Wisniewski, P. Kulczycki
“Slew maneuver control for spacecraft equipped with star camera and reaction wheels”
■ **Control Engineering Practice**, (Special Section on Aerospace Control), Vol. 13, No. 3, pp. 349-356, 2005.
- 2.18. P. Kulczycki, M. Charytanowicz
“Bayes sharpening of imprecise information”
■ **Applied Mathematics and Computer Science**, Vol. 15, No. 3, pp. 393-404, 2005.

- 2.19. P. Kulczycki, J. Wąglowski
“On the application of statistical kernel estimators for the demand-based design of a wireless data transmission system”
■ **Control and Cybernetics**, Vol. 34, No. 4, pp. 1149-1167, 2005.
- 2.20. P. Kulczycki, A. Mazgaj
“An algorithm for Bayes parameter identification with quadratic asymmetrical loss function”
■ **Control and Cybernetics**, Vol. 34, No. 4, pp. 1127-1148, 2005.
- 2.18. P. Kulczycki, M. Charytanowicz
“Asymmetrical Conditional Bayes Parameter Identification for Control Engineering”
■ **Cybernetics and Systems**, Vol. 39, No. 3, pp. 229-243, 2008.
- 2.19. P. Kulczycki
“Statistical Kernel Estimators for Design of a Fault Detection, Diagnosis and Prognosis System”
■ **The Open Cybernetics and Systemics Journal**, Vol. 2, pp. 180-184; open access: <http://www.bentham.org/open/tocsj/openaccess2.htm>, 2008.
- 2.20. P. Kulczycki
“Applicational Possibilities of Nonparametric Estimation of Distribution Density for Control Engineering”
■ **Bulletin of the Polish Academy of Sciences; Technical Sciences**, Vol. 56, No. 4, pp. 347-359, 2008.
- 2.21. P.A. Kowalski, S. Łukasik, M. Charytanowicz, P. Kulczycki
“Data-Driven Fuzzy Modeling and Control with Kernel Density Based Clustering Technique”
■ **Polish Journal of Environmental Studies**, Vol. 17, No. 4C, pp. 83-87, 2008.
- 2.22. P. Kulczycki, A. Mazgaj
“Parameter Identification for Asymmetrical Polynomial Loss Function”
■ **Information Technology and Control**, Vol. 38, No. 1, pp. 51-60, 2009; Errata: Vol. 38, No. 2, pp. 167-168, 2009.
- 2.23. P. Kulczycki, K. Daniel
“Metoda wspomagania strategii marketingowej operatora telefonii komórkowej”
■ **Przegląd Statystyczny**, Vol. 56, No. 2, 2009, in press.
- 2.24. P. Kulczycki, M. Charytanowicz
“A Complete Gradient Clustering Algorithm Formed with Kernel Estimators”
■ **Applied Mathematics and Computer Science**, Vol. 20, No. 1, 2010, in press.

3. Chapters in edited volumes:

- 3.1 P. Kulczycki
“Robust time-optimal positional stabilization containing a speed limitation task”
■ “System Structure and Control 1995”, M. Guglielmi (ed.), **Elsevier/Pergamon**, Oxford (Great Britain), 1996, pp. 349-354.
- 3.2. P. Kulczycki
“Estymatory jądrowe w zagadnieniach badan systemowych”
■ “Techniki informacyjne w badaniach systemowych”, P. Kulczycki, O. Hryniewicz, J. Kacprzyk (eds.), **WNT**, Warsaw (Poland), 2007, pp. 79-105.

3.3. P. Kulczycki

“Kernel Estimators in Industrial Applications”

■ “Soft Computing Applications in Industry”, B. Prasad (ed.), **Springer-Verlag**, Berlin (Germany), 2008, pp. 69-91.

4. Contributions to proceedings at scientific conferences:

4.1. P. Kulczycki

“Time-Optimal Stochastic Positional Control”

■ **12th World Congress IFAC**, Sydney (Australia), 18-23 July 1993, Vol. 7, pp. 443-448.

4.2. P. Kulczycki, H. Schiøler

“Parameter Identification by Bayes Decision and Neural Networks”

■ 10th IFAC Symposium on System Identification, Copenhagen (Denmark), 4-6 July 1994, Vol. 3, pp. 477-482.

4.3. P. Kulczycki

“Robust Time-Optimal Positional Stabilization Containing a Speed Limitation Task”

■ IFAC Conference on System Structure and Control, Nantes (France), 5-7 July 1995, pp. 382-387.

4.4. P. Kulczycki

“Bayes Estimation Using Kernel Estimators”

■ **15th IMACS World Congress on Scientific Computation, Modelling and Applied Mathematics**, Berlin (Germany), 24-29 August 1997, Vol. “Abstracts” p. 118, Vol. 1 (Computational Mathematics), pp. 627-632, CD: Vol_I/P_627 (6 pages).

4.5. P. Kulczycki, L.T. Kóczy

“A Fuzzy Approach to Time-Optimal Control”

■ **IEEE World Congress on Computational Intelligence**, IEEE International Conference on Fuzzy Systems, Anchorage (USA), 4-9 May 1998, Vol. 1, pp. 410-415, CD: F073 (6 pages).

4.6. P. Kulczycki, H. Schiøler

“Estimating Conditional Distributions by Neural Networks”

■ **IEEE World Congress on Computational Intelligence**, IEEE International Joint Conference on Neural Networks, Anchorage (USA), 4-9 May 1998, Vol. 2, pp. 1344-1349, CD: J0246J (6 pages).

4.7. P. Kulczycki

“Robust Controller for Fuzzy Mechanical Systems”

■ **14th World Congress IFAC**, Beijing (China), 5-9 July 1999, Vol. K, pp. 195-200, CD: K-3e-09-4 (6 pages).

4.8. P. Kulczycki

“A Statistical Fault Detection System”

■ **16th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation**, Lausanne (Switzerland), 21-25 August 2000, Vol. “Abstracts” p. 317, CD: 216-4 (6 pages).

- 4.9. P. Kulczycki
“Time-Optimal Control via Random Differential Inclusions”
■ 6th IFAC Symposium on Dynamics and Control of Process Systems, Jeju Island (Korea), 4-6 June 2001, pp. 708-713.
- 4.10. P. Kulczycki
“A Statistical Inference System for Fault Detection”
■ 4th IFAC Workshop on On-line Fault Detection and Supervision in the Chemical Process Industries, Jeju Island (Korea), 7-8 June 2001, pp. 245-250.
- 4.11. P. Kulczycki
“A Fuzzy Approach for Mechanical System with Uncertain Load”
■ **European Control Conference**, Porto (Portugal), 4-7 September 2001, pp. 2658-2663, Vol. “Abstracts” p. 118, CD: ecc4561 (6 pages).
- 4.12. R. Wisniewski, P. Kulczycki
“General Attitude Control Algorithm for Spacecraft Equipped with Star Camera and Reaction Wheels”
■ **15th World Congress IFAC**, Barcelona (Spain), 21-26 July 2002, Vol. “Book of Abstracts” p. 151, CD: 1786 (6 pages).
- 4.13. P. Kulczycki
“Bayes Parameter Identification with Reference to Nonlinear Optimal Control”
■ **15th World Congress IFAC**, Barcelona (Spain), 21-26 July 2002, Vol. “Book of Abstracts” p. 244, CD: 1329 (6 pages).
- 4.14. P. Kulczycki, R. Wisniewski
“Fuzzy Controller for an Uncertain Dynamical System”
■ 8th IEEE International Conference on Methods and Models in Automation and Robotics, Szczecin (Poland), 2-5 September 2002, Vol. 1, pp. 683-688, CD: N2-5 (6 pages).
- 4.15. M. Charytanowicz, P. Kulczycki
“Algorytm bayesowskiej defuzyfikacji ciągłej warunkowej liczby rozmytej”
■ **Badania Operacyjne i Systemowe 2002**, Warsaw (Poland), 26-28 September 2002.
Proceedings: “Metody i techniki analizy informacji i wspomaganie decyzji”, Z. Bubnicki, O. Hryniewicz, R. Kulikowski (eds.), pp. V.49-56, EXIT, Warsaw (Poland), 2002.
- 4.16. P. Kulczycki, C. Prochot
“Identyfikacja stanów nietypowych za pomocą estymatorów jądrowych”
■ **Badania Operacyjne i Systemowe 2002**, Warszawa, 26-28 September 2002.
Proceedings: “Metody i techniki analizy informacji i wspomaganie decyzji”, Z. Bubnicki, O. Hryniewicz, R. Kulikowski (eds.), pp. V.57-62, EXIT, Warsaw (Poland), 2002.
- 4.17. P. Kulczycki, M. Charytanowicz
“Zastosowanie bayesowskiej defuzyfikacji w zagadnieniach współczesnej medycyny”
■ **V Krajowa Konferencja Naukowa – Inżynieria Wiedzy i Systemy Ekspertowe**, Wrocław (Poland), 11-13 June 2003.
Proceedings: “Inżynieria Wiedzy i Systemy Ekspertowe”, Z. Bubnicki, A. Grzech (eds.), Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław (Poland), 2003, Vol. 1, pp. 91-98.

- 4.18. P. Kulczycki, A. Mazgaj
“Parameter Identification with Nonsymmetrical Quadratic Loss Function for Optimal Control”
■ 9th IEEE International Conference on Methods and Models in Automation and Robotics, Miedzyzdroje (Poland), 25-28 August 2003, Vol. 1, pp. 689-694, CD: I1-5 (6 pages).
- 4.19. P. Kulczycki, J. Wąglowski
“Optimal Base-Stations Locations in the LMDS Wireless Data Transmission System”
■ First African Control Conference, Cape Town (South Africa), 3-5 December 2003, pp. 375-380, CD: 108 (6 pages).
- 4.20. P. Kulczycki
“Kernel Estimators for Analysis of Systems with Fuzzy Uncertainty”
■ IEEE International Conference on Fuzzy Systems, Budapest (Hungary), 25-29 July 2004, Vol. “Program” p. 175, CD: 0207-1354 (6 pages).
- 4.21. R. Wisniewski, P. Kulczycki
“Euler-Poincaré Reduction of a Rigid Body Motion”
■ 10th IEEE International Conference on Methods and Models in Automation and Robotics, Miedzyzdroje (Poland), 30 August – 2 September 2004, Vol. 2, pp. 813-818, CD: 0057 (6 pages).
- 4.22. P. Kulczycki
“Kernel Estimators for Systems Research”
■ 3rd International Conference on Disordered Systems, Goa (India), 24-26 September 2004, Vol. “Abstract Book”, p. 42.
- 4.23. P. Kulczycki, C. Prochot
“Wykrywanie elementów odosobnionych za pomocą metod estymacji nieparametrycznej”
■ Badania operacyjne i systemowe 2004, Warsaw (Poland), 23-25 September 2004.
Proceedings: “Badania operacyjne i systemowe: podejmowanie decyzji – podstawy teoretyczne i zastosowania”, R. Kulikowski, J. Kacprzyk, R. Słowiński (eds.), pp. 313-328, EXIT, Warsaw (Poland), 2004.
- 4.24. P. Kulczycki, J. Wąglowski
“Optymalny układ stacji bazowych bezprzewodowego systemu transmisji danych LMDS”
■ XV Krajowa Konferencja Automatyki, Warsaw (Poland), 27-30 June 2005, Vol. 2, pp. 351-356, CD: tom II, rozdział XIII/6 (6 pages).
- 4.25. P. Kulczycki, A. Mazgaj
“A Parameter Identification Algorithm with Asymmetrical Quadratic Losses of Estimation Errors”
■ **6th Asian Control Conference**, Bali (Indonesia), 18-21 July 2006, Vol. “Abstracts” p. 99, CD: ASCC2006420023 (6 pages).
- 4.26. P. Kulczycki, K. Daniel
“Algorytm wspomaganie strategii marketingowej operatora telefonii komórkowej”
■ Badania operacyjne i systemowe 2006, Szczecin (Poland), 28-30 September 2006.
Proceedings: “Badania operacyjne i systemowe 2006: metody i techniki”, J. Kacprzyk, R. Budziński (eds.), pp. 245-256, EXIT, Warsaw (Poland), 2006.

- 4.27. P. Kulczycki, A. Mazgaj
“Bayes Identification of Parameters’ Vector with Quadratic Asymmetrical Loss Function”
■ 19th International Conference on Production Research, Valparaiso (Chile), 29 July – 2 August 2007, CD: 250 (6 pages).
- 4.28. P. Kulczycki, M. Charytanowicz
“Automatic Control Tasks Featuring Asymmetrical Conditional Identification of Parameters”
■ 13th IEEE/IFAC International Conference on Methods and Models in Automation and Robotics, Szczecin (Poland), 27-30 August 2007, Vol. “Abstracts” pp. 66-67, CD: 0236 (7 pages).
- 4.29. P. Kulczycki
“Analiza danych z użyciem estymatorów jądrowych w zastosowaniu do diagnostyki systemów”
■ VIII Krajowa Konferencja – Diagnostyka Procesów i Systemów, Ślubice (Poland), 10-12 September 2007.
Proceedings: “Diagnostyka procesów i systemów”, J. Korbicz, K. Patan, M. Kowal (eds.), pp. 231-238, EXIT, Warsaw (Poland), 2007.
- 4.30. P. Kulczycki, M. Charytanowicz
“Kompletny algorytm gradientowej klasteryzacji”
■ XVI Krajowa Konferencja Automatyki, Szczyrk (Poland), 11-15 May 2008.
Proceedings: “Sterowanie i automatyzacja: aktualne problemy i ich rozwiązania”, K. Malinowski, L. Rutkowski (eds.), pp. 312-321, EXIT, Warsaw (Poland), 2008, CD: pol_06_rozdział4, pp. 40-49.
- 4.31. M. Charytanowicz, P. Kulczycki
“Nonparametric Regression for Analyzing Correlation between Medical Parameters”
■ I International Conference on Information Technologies in Biomedicine, Kamień Śląski (Poland), 16-18 June 2008.
Proceedings: “Information Technologies in Biomedicine”, E. Pietka, J. Kawa (eds.), pp. 437-444, **Springer-Verlag**, Berlin (Germany), 2008.
- 4.32. P. Kulczycki, A. Mazgaj
“Bayes Parameter Identification with Polynomial Asymmetrical Loss Function”
■ **17th World Congress IFAC**, Seoul (Korea), 6-11 July 2008, pp. 12395-12400, vol. “Final Program & Book of Abstracts” Thursday p. 211, CD: 12395 (6 pages).
- 4.33. P. Kulczycki, P.A. Kowalski
“Klasyfikacja informacji niedokładnej typu przedziałowego ze zredukowanymi próbami wzorcowymi”
■ Badania Operacyjne i Systemowe 2008, Warsaw (Poland), 18-20 September 2008.
Proceedings: “Badania operacyjne i systemowe: środowisko naturalne, przestrzen, optymalizacja”, O. Hryniewicz, A. Straszak, J. Studzinski (eds.), pp. 305-314, IBS PAN (ser. Badania Systemowe, vol. 63), Warsaw (Poland), 2008.
- 4.34. P.A. Kowalski S. Lukaszik, M. Charytanowicz, P. Kulczycki
“Data-Driven Fuzzy Modeling and Control with Kernel Density Based Clustering Technique”
■ 15th International Multi-Conference on Advanced Computer Systems, Miedzyzdroje (Poland), 15-17 October 2008, CD (9 pages).
Post-proceedings: “Polish Journal of Environmental Studies” (point 2.21 stated above).

- 3.35. S. Lukasik, P.A. Kowalski, M. Charytanowicz, P. Kulczycki
“Fuzzy Models Synthesis with Kernel-Density Based Clustering Algorithm”
■ Fifth International Conference on Fuzzy Systems and Knowledge Discovery, Jinan (China), 18-20 October 2008.
Proceedings: “Fifth International Conference on Fuzzy Systems and Knowledge Discovery”, J. Ma, Y. Yin, J. Yu, S. Zhou (eds.), vol. 3, pp. 449-453, **IEEE Computer Society**, Los Alamitos (USA), 2008, CD: 3305c449 (5 pages).
- 4.36. P. Kulczycki
“Nonparametric Estimation for Control Engineering”
■ 4th WSEAS/IASME International Conference on Dynamical Systems and Control, Corfu (Greece), 26-28 October 2008, pp. 115-121.
- 4.37. P. Kulczycki, S. Lukasik
„Redukcja wymiaru i liczności próby dla potrzeb syntezy statystycznego układu wykrywania uszkodzeń”
■ IX Międzynarodowa Konferencja – Diagnostyka Procesów i Systemów, Gdansk (Poland), 7-9 September 2009.
- 4.38. P. Kulczycki, R. Wisniewski, P.A. Kowalski, K. Krawiec
„Hard and Soft Sub-Time-Optimal Robust Controllers”
■ 9th IFAC Symposium on Robot Control, Gifu (Japan), 9-12 September 2009, pp. 689-694, CD: S1A1 (6 pages).

5. Supervised doctoral theses:

- 5.1. J. Wąglowski, “Metoda planowania optymalnego układu stacji bazowych bezprzewodowego systemu transmisji danych LMDS”, supervisor P. Kulczycki.
■ Polish Academy of Sciences, Systems Research Institute, research field: automatic control, commencement of procedure 12 April 2002, conferred of degree 26 January 2005, **with honors**.
- 5.2. C. Prochot, “Identyfikacja stanów nietypowych w oparciu o metody estymatorów jądrowych”, supervisor P. Kulczycki.
■ Polish Academy of Sciences, Systems Research Institute, research field: automatic control, commencement of procedure 28 November 2002.
- 5.3. A. Mazgaj, “Modelowanie niepewności parametrów obiektu dla potrzeb sterowania optymalnego”, supervisor P. Kulczycki.
■ AGH University of Science and Technology, Faculty of Electrical Engineering, Automatic Control, Computer Science, and Electronics, research field: automatic control, commencement of procedure 30 January 2003, conferred of degree 28 April 2005, **with honors**.
- 5.4. M. Charytanowicz, “Bayesowska determinizacja informacji nieprecyzyjnej w zagadnieniach medycznych”, supervisor P. Kulczycki.
■ Polish Academy of Sciences, Systems Research Institute, research field: computer science, commencement of procedure 25 September 2002, conferred of degree 10 June 2005, **with honors**.

- 5.5. K. Daniel, “Metoda wspomagania strategii marketingowej operatora telefonii komarkowej”, supervisor P. Kulczycki.
■ Polish Academy of Sciences, Systems Research Institute, research field: computer science, commencement of procedure 23 June 2006, conferred of degree 20 March 2009.
- 5.6. P.A. Kowalski, “Klasyfikacja bayesowska informacji niedokładnej typu przedziałowego”, supervisor P. Kulczycki.
■ Polish Academy of Sciences, Systems Research Institute, research field: computer science, commencement of procedure 27 March 2007.
- 5.7. S. Lukasik, “Algorytm wymiaru i licznosci proby dla celow procedur eksploracyjnej analizy danych”, supervisor P. Kulczycki.
■ Polish Academy of Sciences, Systems Research Institute, research field: computer science, commencement of procedure 20 June 2008.

6. Participation in scientific research projects:

- 6.1. “Zalozenie i koncepcja nowego systemu sterownikowego”
■ Projekt Centralnego Programu Badan Rozwojowych (Poland), CPBR poz. 7.2.
- 6.2. “Mikrokomputerowo regulowane elektrohydrauliczne układy synchronicznego pozycjonowania zespolow maszyn i robotow”
■ Projekt Komitetu Badań Naukowch (Poland), PB 439/T07/95/09.
- 6.3. “Fuzzy and stochastic models and algorithms and their applications in vehicle engineering and telecommunications”
■ Projekt Hungarian Ministry of Education, MKM-FKFP 21295/1997.
- 6.4. “Attitude Control System for the Champ Satellite”
■ Projekt GeoForschungsZentrum, Potsdam (Germany).
- 6.5. “Fuzzy rule base and stochastic control approaches applied in modelling and control vehicle dynamic systems”
■ Projekt Hungarian Scientific Research Fund, OTKA 019671.
- 6.6. “Life Cycle Assessment of Mining Projects for Waste Minimisation and Long Term Control of Rehabilitated Sites (LICYMIN)”
□ **Member of “Mining life cycle modelling” Technical Committee**
■ **5th European Union Framework Program.**
- 6.7. “Fuzzy control (SK-42)”
□ **Project Coordinator on behalf of the Cracow University of Technology**
■ **CEEPUS.**

Avocational interests:

- ancient and Napoleonic history,
- classical music,
- modelling,
- gardening,

- international tourism.