

Ankieta Oceny Osiągnięć Naukowych Osoby Ubiegającej się o Nadanie Tytułu Profesora

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A. Informacje o osiągnięciach i dorobku naukowym albo artystycznym

I. Informacja o osiągnięciach i dorobku naukowym

1. Wykaz autorskich publikacji naukowych w czasopismach krajowych i międzynarodowych:
 - 1) Ian Pratt-Hartmann: "The two-variable fragment with counting and equivalence", *Mathematical Logic Quarterly*, 61(6), 2015, pp. 474–515.
 - 2) Ian Pratt-Hartmann: "The Relational Syllogistic Revisited", *Linguistic Issues in Language Technology* 9:10, 2013, pp. 1–35.
 - 3) Ian Pratt-Hartmann "The Syllogistic with Unity", *Journal of Philosophical Logic*, 42(2), 2013, pp. 391–407.
 - 4) Ian Pratt-Hartmann: "The Hamiltonian Syllogistic", *Journal of Logic, Language and Information*, 20(4), 2011, pp. 445–474.
 - 5) Ian Pratt-Hartmann: "Data-Complexity of the Two-Variable Fragment with Counting Quantifiers", *Information and Computation*, 207 (8), 2009, pp. 867–888.
 - 6) Ian Pratt-Hartmann: "Conditionalization and the Logic of Total Knowledge", *Journal of Applied Non-Classical Logics*, 18 (2-3), 2008, pp. 247–266.
 - 7) Ian Pratt-Hartmann "On the Computational Complexity of the Numerically Definite Syllogistic and Related Logics", *Bulletin of Symbolic Logic*, 14(1), 2008, pp. 1–28.
 - 8) Ian Pratt-Hartmann: "Complexity of the guarded two-variable fragment with counting quantifiers", *Journal of Logic and Computation* 17(1), 2007, pp. 133-155.
 - 9) Ian Pratt-Hartmann: "Complexity of the two-variable fragment with counting quantifiers", *Journal of Logic, Language and Information*, 14(3), 2005, pp. 369–395.
 - 10) Ian Pratt-Hartmann: "Temporal prepositions and their logic", *Artificial Intelligence* 116(1–2), 2005, pp. 1–36.
 - 11) Ian Pratt-Hartmann: "Fragments of Language", *Journal of Logic, Language and Information*, 13(2), 2004, pp. 207–223.
 - 12) Ian Pratt-Hartmann: "A two-variable fragment of English", *Journal of Logic, Language and Information*, 12(1), 2003, pp. 13–45.
 - 13) Ian Pratt-Hartmann: "A Topological Constraint Language with Component Counting", *Journal of Applied Non-Classical Logics*, 12(3–4), 2002, pp. 441–467.
 - 14) Ian Pratt-Hartmann: "Empiricism and rationalism in region-based theories of space", *Fundamenta Informaticae*, 46, 2001, pp. 159–86.
 - 15) Ian Pratt: "First-Order Qualitative Spatial Representation Languages with Convexity", *Journal of Spatial Cognition and Computation* 1, 1999, pp. 181–204.
 - 16) Ian Pratt: "Shape Representation Using Fourier Coefficients of the Sinusoidal Transform", *Journal of Mathematical Imaging and Vision* 10, 1999, pp. 221–235.
 - 17) "An algorithm for planning 'sensible' routes", *Engineering Applications of Artificial Intelligence* 4(2), 1991, pp. 97–108.
 - 18) "Constraints, Meaning and Information" *Linguistics and Philosophy* 10, 1987, pp. 299–324.

2. Wykaz autorskich monografii:

- 1) Ian Pratt: *Artificial Intelligence*, London: Macmillan, 1994, 280 pp.
ISBN 978-1-4020-5586-7.

3. Wykaz współautorskich publikacji naukowych i udział w opracowaniach zbiorowych:

(a) Wykaz współautorskich publikacji naukowych w czasopismach:

- 1) Emanuel Kieroński, Ian Pratt-Hartmann and Lidia Tendera: "Equivalence Closure in the Two-variable Guarded Fragment", to appear in *Journal of Logic and Computation*
- 2) Roman Kontchakov, Ian Pratt-Hartmann, Michael Zakharyashev: "Spatial Reasoning with RCC8 and Connectedness Constraints in Euclidean Spaces", *Artificial Intelligence*, 217, 2014, pp. 43–75.
- 3) Emanuel Kieroński, Jakub Michaliszyn, Ian Pratt-Hartmann and Lidia Tendera: "Two-variable First-order Logic with Equivalence Closure", *SIAM Journal on Computing*, 43(3), 2014, pp. 1012–1063.
- 4) Roman Kontchakov, Yavor Nenov, Ian Pratt-Hartmann and Michael Zakharyashev: "Topological Logics with Connectedness over Euclidean Spaces", *ACM Transactions of Computational Logic*, 14(2:13), 2013, pp. 1–48.
- 5) Ian Pratt-Hartmann and Ivo Düntsch: "Functions definable by numerical set-expressions", *Journal of Logic and Computation*, 23 (4), 2013, pp. 873–895.
- 6) Roman Kontchakov, Ian Pratt-Hartmann, Frank Wolter and Michael Zakharyashev: "Spatial logics with connectedness predicates", *Logical Methods in Computer Science*, 6(3:7), 2010, pp. 1–43.
- 7) Ivo Düntsch and Ian Pratt-Hartmann: "Complex algebras of arithmetic", *Fundamenta Informaticae*, 97 (4), 2009, pp. 347–367.
- 8) Ian Pratt-Hartmann and Lawrence S. Moss: "Logics for the Relational Syllogistic", *Review of Symbolic Logic*, 2(4), 2009, pp. 647–683.
- 9) Ian Pratt-Hartmann and Allan Third: "More fragments of language: the case of ditransitive verbs", *Notre Dame Journal of Formal Logic*, 47(2), 2006, pp. 151–177.
- 10) Ian Pratt-Hartmann and Dominik Schoop: "Elementary Polyhedral Mereotopology", *Journal of Philosophical Logic*, 31(5), 2002, pp. 469–498.
- 11) Ian Pratt and Nissim Francez: "Temporal prepositions and temporal generalized quantifiers", *Linguistics and Philosophy*, 24(2), 2001, pp. 187–222.
- 12) Ian Pratt and Dominik Schoop: "Expressivity in polygonal, plane mereotopology", *Journal of Symbolic Logic*, 65(2), 2000, pp. 822–838.
- 13) Lemon, O. and Pratt, I. "Logics for geographic information", *Journal of Geographical Systems*, 1(1), 1999, pp. 75–90.
- 14) Oliver Lemon and Ian Pratt: "On the insufficiency of linear diagrams for syllogisms", *Notre Dame Journal of Formal Logic*, 39(4), 1998, pp. 573–580.
- 15) Ian Pratt and Dominik Schoop: "A complete axiom system for polygonal mereotopology of the real plane", *Journal of Philosophical Logic* 27, 1998, pp. 621–658.
- 16) Oliver Lemon and Ian Pratt. Complete Logics for QSR: a guide to plane mereotopology. *International Journal of Visual Languages and Computing* 9, 1998, pp. 5–21.
- 17) Ian Pratt and Oliver Lemon: "Ontologies for plane polygonal mereotopology", *Notre Dame Journal of Formal Logic*, 38(2), 1997, pp. 225–245.
- 18) Oliver Lemon and Ian Pratt: "Spatial Logic and the Complexity of Diagrammatic Reasoning." *Machine Graphics and Vision*, 6(1), 1997, pp 89–108.
- 19) David Brée, Allel Feddag and Ian Pratt: "Towards a formalisation of the semantics of some temporal prepositions", *Time and Society*, 2(2), 1993, pp. 219–240.

(b) Materiały pokonferencyjne

- 1) Ian Pratt-Hartmann: "Logics with counting and equivalence"(Extended Abstract), in *Proceedings of the Joint Meeting of the Twenty-Third EACSL Annual Conference on Computer Science Logic (CSL) and the Twenty-Ninth Annual ACM/IEEE Symposium on Logic in Computer Science (LICS)*, Art. 76, 2014.

- 2) Emanuel Kieroński, Jakub Michaliszyn, Ian Pratt-Hartmann and Lidia Tendera: “Two-Variable First-Order Logic with Equivalence Closure” (Extended Abstract), in *Proceedings, 27th Annual IEEE Symposium on Logic in Computer Science, (LICS 2012)*, IEEE Press, pp. 431–440, 2012.
- 3) Roman Kontchakov, Yavor Nenov, Ian Pratt-Hartmann and Michael Zakharyashev: “On the Decidability of Connectedness Constraints in 2D and 3D Euclidean Spaces”, in T. Walsh (ed.): *Proceedings of the Twenty-second International Joint Conference on Artificial Intelligence (IJCAI 2011)*, AAAI Press, 2011, pp. 957–962.
- 4) Angelo Montanari, Ian Pratt-Hartmann and Pietro Sala: “Decidability of the Logics of the Reflexive Sub-interval and Super-interval Relations over Finite Linear Orders”, in N. Markey and J. Wijsen (eds.): *Temporal Representation and Reasoning (TIME 2010)*, IEEE Press, 2010, pp. 27–34.
- 5) Yavor Nenov and Ian Pratt-Hartmann, “On the Computability of Region-Based Spatial Logics”, in A. Dawar and H. Veith (eds.), *Computer Science Logic (CSL 2010)*, Lecture Notes in Computer Science 6247, Berlin: Springer, pp. 439-453, 2010.
- 6) Ian Pratt-Hartmann: “The Two-Variable Fragment with Counting Revisited”, in A. Dawar and R. de Queiroz (Eds.): *Logic, Language, Information and Computation, WoLLIC 2010*, Lecture Notes in Artificial Intelligence, Berlin: Springer, 6188, pp. 42–54, 2010. (Invited talk: not refereed.)
- 7) Roman Kontchakov, Michael Zakharyashev and Ian Pratt-Hartmann: “Interpreting Topological Logics over Euclidean Spaces”, in *Proceedings, Knowledge Representation, (KR 2010)*, AAAI Press, pp. 534–544, 2010.
- 8) Yevgeny Kazakov and Ian Pratt-Hartmann: “A note on the complexity of graded modal logic”, in *Proceedings, 24th Annual IEEE Symposium on Logic in Computer Science, (LICS 2009)*, IEEE Press, pp. 407–416, 2009.
- 9) Ian Pratt-Hartmann and Ivo Düntsch: “Functions definable by arithmetic circuits”, in K. Ambos-Spies, B. Löwe and W. Merkle (eds.), *Mathematical Theory and Computational Practice: Proceedings, 5th Conference on Computability in Europe, CiE 2009*, Lecture Notes in Computer Science 5635, Berlin: Springer, pp. 409–418, 2009.
- 10) Roman Kontchakov, Ian Pratt-Hartmann, Frank Wolter and Michael Zakharyashev: “On the computational complexity of spatial logics with connectedness constraints”, in I. Cervesato, H. Veith and A. Voronkov (eds.), *Logic for Programming, Artificial Intelligence, and Reasoning (LPAR 2008)*, Lecture Notes in Computer Science 5330, Berlin: Springer, pp. 574-589, 2008.
- 11) Roman Kontchakov, Ian Pratt-Hartmann, Frank Wolter and Michael Zakharyashev: “Topology, connectedness and modal logic”, in C. Areces and R. Goldblatt (eds.) *Advances in Modal Logic*, 7, College Publications, London, 2008.
- 12) Ian Pratt-Hartmann: “From TimeML to Interval Temporal Logic”, in J. Geertzen, E. Thijsse, H. Bunt, A. Schiffrin (eds.) *Proceedings of the Seventh International Workshop on Computational Semantics*, Tilburg University, Department of Communication and Information Sciences, ISBN 90-74029-31-0, 2007, pp. 166-180.
- 13) Ian Pratt-Hartmann: “The Semantic Complexity of some Fragments of English”, in R.T. Ohrle and J. Rogers (eds.) *Proceedings of Mathematics of Language*, 8, 2003, pp. 129–140.
- 14) David Brée and Ian Pratt-Hartmann: “Temporal semantics of prepositions in context” in S. Feigenbaum and D. Kurzon (eds.) *Prepositions in their Syntactic, Semantic and Pragmatic Context*, Amsterdam: John Benjamins, 2002, pp. 75–113.
- 15) Ian Pratt-Hartmann and Nissim Francez: “Prepositions and context” in S. Feigenbaum and D. Kurzon (eds.) *Prepositions in their Syntactic, Semantic and Pragmatic Context*, Amsterdam: John Benjamins, 2002, pp. 115–126.
- 16) Hans de Nivelle and Ian Pratt-Hartmann: “A resolution-based decision procedure for the two-variable fragment with equality”, in R. Goré, A. Leitsch and T. Nipkow (eds.) *Automated Reasoning: Proceedings of the First International Joint Conference, (IJCAR 2001)*, Berlin: Springer, 2001, pp. 211–225.
- 17) Ian Pratt and Nissim Francez: “A decidable logic for temporal prepositions” in H. Barringier *et al.* (eds.) *Advances in Temporal Logic*, Dordrecht: Kluwer, 2000. pp. 255–278.

- 18) Ian Pratt-Hartmann: "Total Knowledge", *Proceedings of the Seventeenth National Conference on Artificial Intelligence (AAAI 2000)*, Menlo Park, CA: AAAI Press/MIT Press, 2000, pp. 423–428.
- 19) Oliver Lemon and Ian Pratt: "Putting Channels on the Map: verisimilitude and spatial constraints in a semantics of Geographical Information Systems" in Lawrence Moss, Jonathan Ginzburg and Maarten de Rijke (editors), *Logic, Language, and Computation, Volume 2*. CSLI Publications, Stanford, CA, 1999. pp. 143–164.
- 20) Oliver Lemon and Ian Pratt: "On the incompleteness of modal logics of space: advancing complete modal logics of place" in M. Kracht, M. de Rijke, H. Wansing, and M. Zakharyashev, editors, *Advances in Modal Logic*. Lecture note # 87, CSLI Publications, Stanford, 1998. pp. 115–132.
- 21) Oliver Lemon and Ian Pratt: "Logical and Diagrammatic Reasoning: the complexity of conceptual space". In *19th Conference of the Cognitive Science Society*, 1997, pp. 430–435.
- 22) Nissim Francez and Ian Pratt: "Linear logic derivations of temporal preposition phrase meanings in LFG" in M. Butt and T. Holloway King (eds.) *Proceedings, Lexical Functional Grammar'97*, CSLI Publications, 1997.
- 23) Oliver Lemon and Ian Pratt: "Incomplete Spatial Logics: on the foundations of computational geography." In *1st International Conference on GeoComputation '96: Proceedings volume II*, School of Geography, Leeds, 1996, pp. 504–516.
- 24) Oliver Lemon and Ian Pratt: "Putting Channels on the Map: imperfect information flow in a formal semantics of (geo)graphical information systems". In *Information Theoretic Approaches to Logic, Language, and Computation*, Proceedings of the 2nd conference on Information Theoretic Approaches to Logic, Language, and Computation (ITALLC), London Guildhall University, Department of Psychology, 1996, pp. 117–128.
- 25) Ian Pratt and David Brée: "How to translate some English temporal constructions into temporal logic" in Amsili, P., M. Borillo and Laure Vieu (eds.): *Workshop Notes: 5th International Workshop on Time, Space and Motion*, Groupe LRC, University of Toulouse 1995, pp. D28–D38.
- 26) "An approach to the semantics of some English Temporal Constructions", *Proceedings of the Seventeenth Annual Conference of the Cognitive Science Society*, Lawrence Erlbaum Associates, 1995, pp. 118–123.
- 27) Ian Pratt and David Brée: "The Expressive Power of the English Temporal Preposition System", *Proceedings, Time-94*, Pensacola: Florida, 1994, pp. 153–160.
- 28) "Map Semantics" in Frank, Andrew U. and Irene Campari (eds.) *Spatial Information Theory: a theoretical basis for GIS*, Lecture Notes in Computer Science 716, Berlin: Springer Verlag, 1993. pp. 77–91.
- 29) Ian Pratt and Luoping Xu: "Understanding Detective Stories", *Proceedings of the Fourteenth Annual Conference of the Cognitive Science Society*, Lawrence Erlbaum Associates, 1992, pp. 1046–51
- 30) "Psychological Simulation and Beyond", *Proceedings of the Twelfth Annual Conference of the Cognitive Science Society*, Lawrence Erlbaum Associates, 1990, pp. 654–661.
- 31) "Path Finding in Free Space using Sinusoidal Transforms: III" in Mark, D. and Frank, A. (eds.) *Cognitive and Linguistic Aspects of Geographic Space*, Kluwer, 1991, pp. 219–233.
- 32) "Path Finding in Free Space using Sinusoidal Transforms", in A.G. Cohn (ed.) *Proceedings of the seventh AISB Conference*, London: Pitman, 1989, pp. 127–136.
- 33) "Spatial Reasoning using Sinusoidal Oscillations", *Proceedings of the Tenth Annual Conference of the Cognitive Science Society*, Lawrence Erlbaum Associates, 1988, pp. 216–222.
- 34) Gilbert Harman, Marie Bienkowski, Ken Salem and Ian Pratt: "Measuring Change and Coherence in Evaluating Potential Change in View", *Proceedings of the Ninth Annual Conference of the Cognitive Science Society*, Lawrence Erlbaum Associates, 1987

- 35) Gilbert Harman, Richard Cullingford, Marie Bienkowski, Ken Salem and Ian Pratt: "Default Defeaters in Explanation-based Reasoning", *Proceedings of the Eighth Annual Conference of the Cognitive Science Society*, Lawrence Earlbaum Associates, 1986, pp. 283–292.

(c) Opracowania zbiorowe

- 1) Ian Pratt-Hartmann: "Semantic complexity in Natural Language", in S. Lappin and C. Fox (eds.) *The Handbook of Contemporary Semantic Theory*, 2nd edition, Wiley Blackwell, 2015, pp. 429–454.
- 2) Ian Pratt-Hartmann: "Twenty Years of Topological Logic", in M. Raubal, D.M. Mark, A.U. Frank (eds.), *Cognitive and Linguistic Aspects of Geographic Space: New Perspectives on Geographic Information Research*, Berlin: Springer, 2012, pp. 217–235.
- 3) Ian Pratt-Hartmann: "Computational Complexity in Natural Language", in A. Clark, C. Fox and S. Lappin (eds.), *Handbook of Computational Linguistics and Natural Language Processing*, Oxford: Wiley-Blackwell, 2010, pp. 43–73.
- 4) Marco Aiello, Ian Pratt-Hartmann and Johan van Benthem: "What is Spatial Logic?" in Marco Aiello, Ian Pratt-Hartmann and Johan van Benthem (eds.): *Handbook of Spatial Logics*, Berlin: Springer, 2007, pp. 1–12.
- 5) Ian Pratt-Hartmann: "First-order mereotopology" in Marco Aiello, Ian Pratt-Hartmann and Johan van Benthem (eds.): *Handbook of Spatial Logics*, Berlin: Springer, 2007, pp. 13–98.
- 6) Ian Pratt-Hartmann: "Language: mathematical complexity" in Keith Brown (editor-in-chief) *Encyclopedia of Language & Linguistics*, Second Edition, volume 6, Oxford: Elsevier, 2006, pp. 657-664
- 7) "Encoding Psychological Knowledge" in Clark, A. and Millican, P. (eds.) *Connectionism, Concepts and Folk Psychology: The legacy of Alan Turing*, Oxford: Clarendon Press, 1996. pp. 249–264.
- 8) "Analysis and the Attitudes" in Wagner, S. and Warner, S. (eds.): *Naturalism: a critical appraisal*, Notre Dame, IN: University of Notre Dame Press, 1993. pp. 273–294.
- 9) "Psychological Inference, Constitutive Rationality and Logical Closure" in Hanson, P. (ed.): *Vancouver Studies in Cognitive Science, vol.1*, University of British Columbia Press, 1989, pp. 366–389.

4. Członkostwo w redakcjach naukowych

- 1) Marco Aiello, Ian Pratt-Hartmann and Johan van Benthem (eds.): *Handbook of Spatial Logics*, Berlin: Springer, 2007, 1080 pp. ISBN 0333 597599.

5. Dane bibliometryczne

(a) Google Scholar Citations

(<https://scholar.google.co.uk/citations?user=MlxicaEAAAJ&hl=en>)

Citation indices	All	Since 2011
Citations	833	476
h-index	15	12
i10-index	25	14

(b) Web of Science Web of Science h-index: 10

Tytuł	Numer w wykazie publikacji	Rok	Liczba cytowań
<i>Handbook of Spatial Logics</i>	A.I.4.1	2007	52
<i>Complexity of the two-variable fragment with counting quantifiers</i>	A.I.1.9	2005	40
<i>A complete axiom system for polygonal mereotopology</i>	A.I.3.a.15	1998	22
<i>Ontologies for plane polygonal mereotopology</i>	A.I.3.a.17	1997	22
<i>Spatial logic and the complexity of diagrammatic reasoning</i>	A.I.3.a.18	1997	16
<i>Temporal prepositions and temporal generalized quantifiers</i>	A.I.3.a.11	2001	15
<i>Expressivity in polygonal plane mereotopology</i>	A.I.3.a.12	2000	15
<i>Logics for the relational syllogistic</i>	A.I.3.a.8	2009	12
<i>Temporal prepositions and their logic</i>	A.I.1.10	2005	11
<i>Fragments of Language</i>	A.I.1.11	2004	11

II. Informacja o aktywności naukowej lub artystycznej

1. Aktywność naukowa

1) wystąpienia na międzynarodowych konferencjach naukowych:

- a) Ian Pratt-Hartmann: “Beyond the Syllogism” *British Logic Colloquium*, Cambridge, 2015 (Invited speaker).
- b) Ian Pratt-Hartmann: “Logics with counting and equivalence”, *Twenty-Ninth Annual ACM/IEEE Symposium on Logic in Computer Science (LICS)*, Vienna, 2014.
- c) Ian Pratt-Hartmann: “The Two-Variable Fragment with Counting Revisited”, *Logic, Language, Information and Computation (WoLLIC)*, Brasilia, 2010 (Invited Speaker).
- d) Roman Kontchakov, Michael Zakharyashev and Ian Pratt-Hartmann: “Interpreting Topological Logics over Euclidean Spaces”, *Knowledge Representation (KR)*, Toronto, 2010.
- e) Yevgeny Kazakov and Ian Pratt-Hartmann: “A note on the complexity of graded modal logic”, *24th Annual IEEE Symposium on Logic in Computer Science (LICS)*, Los Angeles, 2009.
- f) Ian Pratt-Hartmann and Ivo Düntsch: “Functions definable by arithmetic circuits”, *Computability in Europe (CiE)*, Heidelberg, 2009.
- g) Ian Pratt-Hartmann: “From TimeML to Interval Temporal Logic”, *Seventh International Workshop on Computational Semantics (IWcCS)*, Tilburg University, 2007.
- h) Ian Pratt-Hartmann: “The Semantic Complexity of some Fragments of English”, *Mathematics of Language* Bloomington, IN, 2003
- i) Hans de Nivelle and Ian Pratt-Hartmann: “A resolution-based decision procedure for the two-variable fragment with equality”, *First International Joint Conference on Automated Reasoning (IJCAR)*, Sienna, 2001.
- j) Ian Pratt-Hartmann: “Total Knowledge”, *Seventeenth National Conference on Artificial Intelligence (AAAI)*, Austin, TX, 2000.
- k) Ian Pratt and David Brée: “How to translate some English temporal constructions into temporal logic”: *Fifth International Workshop on Time, Space and Motion*, Toulouse 1995.
- l) “An approach to the semantics of some English Temporal Constructions”, *Seventeenth Annual Conference of the Cognitive Science Society*, 1995.
- m) “Map Semantics” *Conference on Spatial Information Theory (COSIT)*, 1993.

- n) "Psychological Simulation and Beyond", *Twelfth Annual Conference of the Cognitive Science Society*, Pittsburg, 1990.
 - o) "Path Finding in Free Space using Sinusoidal Transforms", *Seventh Conference of the Society for Artificial Intelligence and the Simulation of Behaviour (AISB)*, Brighton, 1989 (Awarded best paper prize.)
 - p) "Spatial Reasoning using Sinusoidal Oscillations", *Proceedings of the Tenth Annual Conference of the Cognitive Science Society*, Montreal, 1988.
 - q) Gilbert Harman, Marie Bienkowski, Ken Salem and Ian Pratt: "Measuring Change and Coherence in Evaluating Potential Change in View", *Ninth Annual Conference of the Cognitive Science Society*, 1987.
- 2) Członkostwo w komitetach redakcyjnych czasopism i w komitetach programowych międzynarodowych konferencji:
- a) *International Workshop on Logic and Computational Complexity*: Prezes komitetu programowego, 2016.
 - b) *Journal of Logic Language and Information*: Członek komitetu redakcyjnego 2006–2014.
 - c) *International Joint Conference on Artificial Intelligence (IJCAI)*: Członek komitetu programowego, 2014.
 - d) *Knowledge Representation (KR)*: Członek komitetu programowego, 2014.
 - e) *Logic in computer Science (LICS)*: Członek komitetu programowego, 2014.
- 3) Wykaz zrealizowanych projektów badawczych krajowych, europejskich i innych międzynarodowych
- a) EPSRC Grant EP/K017438/1: "Limits of Decidability" (Principal Investigator); £89,044 March 15th, 2013–September 14th, 2015 (30 months).
 - b) EPSRC Grant EP/F069154/1: "Arithmetic Circuits in Mathematical Logic"; (Principal Investigator) £49,518 July 1st, 2008–August 31st, 2009 (14 months).
 - c) EPSRC Grants EP/E034942/1 and EP/E035248/1: "Computational Logic of Euclidean Spaces" (Principal Investigator, with Michael Zakharyashev, Birkbeck College, London); £376,905; September 1st, 2007–August 31st, 2010 (36 months).
 - d) EPSRC Visiting Fellowship Grant GR/S22509 "Computational Semantics" (Visiting Fellow) £38,604, February 1st, 2003–August 1st, 2003 (6 months).
 - e) European Commission TMR Fellowship ERBFMBICT972035: "Computational mereotology: a logical approach" (Principal Investigator); ECU 53,424, June 1st, 1997–May 31st, 1999 (2 years).
 - f) EPSRC Visiting Fellowship Grant GR/L/07529: "Process Specification using Natural Language" (Principal Investigator, with David Brée and Howard Barringer); £38,604 July 5th, 1996–March 4th, 1997 (9 months).
 - g) DAAD/British Council Anglo-German Advanced Research Collaboration Programme grant 720: "Vague Spatial Descriptions" (Principal Investigator); £4,800, July 1st, 1995–March 31st, 1998 (33 months).
 - h) Leverhulme Trust GrantF/120/AQ: "Formal Semantics for Cartographic Representation" (Principal Investigator); £64,504; October 1st, 1995–September 30th, 1998 (3 years).
 - i) Joint Councils Research Initiative in Cognitive Science grant number: SPG9820254: "Psychological inference by psychological simulation" (co-Principal Investigator, with Dr. Ivan Leudar); £66,000, August 1990–July, 1993 (3 years).
- 4) Informacje o kierowaniu (w roli *Principal Investigator*) zespołami badawczymi realizującymi projekty finansowane w drodze konkursów krajowych i zagranicznych.
- a) EPSRC Grants EP/E034942/1 and EP/E035248/1: "Computational Logic of Euclidean Spaces"; 1 Research Associate (Dr. Roman Kontchakov), 1 PhD. Student (Dr. Yavor Nenov); September 1st, 2007–August 31st, 2010.
 - b) European Commission TMR Fellowship ERBFMBICT972035: "Computational mereotology: a logical approach; 1 Ph.D. student (Dr. Dominik Schoop); June 1st, 1997–May 31st, 1999.

- c) Leverhulme Trust GrantF/120/AQ: “Formal Semantics for Cartographic Representation” 1 Research Associate (Dr. Oliver Lemon); October 1st, 1995–September 30th, 1998.
- d) Joint Councils Research Initiative in Cognitive Science grant number: SPG9820254: “Psychological inference by psychological simulation”; 1 Research Associate (Dr. Luoping Xu), August 1990–July, 1993 (3 years).

IV. Informacja o współpracy międzynarodowej

a) staże zagraniczne

- 1) Urlop naukowy: *Universität Bremen*, marzec–czerwiec 2011.
- 2) Urlop naukowy: *Uniwersytet Wrocławski*, październik 2010–luty 2011.
- 3) Urlop naukowy: *Free University of Bozen-Bolzano*, czerwiec–lipiec 2008.
- 4) Urlop naukowy: *University of Edinburgh*, luty–sierpień 2004.
- 5) Urlop naukowy: *Universität Zürich*, marzec–sierpień 1998.
- 6) Urlop naukowy: *Max Planck Institut, Saarbrücken*, październik–grudzień, 1992.
- 7) Urlop bezpłatny: *Universität Hildesheim*, kwiecień–październik 1991.

b) Udział w ocenie projektów międzynarodowych

- 1) Netherlands Organization for Scientific Research (NWO): Recenzent 2005, 2015.
- 2) South Africa/Spain Research Partnership Programme: Recenzent 2008.
- 3) EUROCORES programme LogICCC: Recenzent, 2007.
- 4) European Science Foundation: Recenzent, 2004.
- 5) The Israel Science Foundation: Recenzent, 2002.

c) recenzowanie prac publikowanych w czasopismach międzynarodowych (*impact factor* na rok 2014)

- 1) *Logical Methods in Computer Science* (0.443)
- 2) *Journal of Applied Logic* (0.395)
- 3) *Journal of the ACM* (2.939)
- 4) *Journal of Logic and Computation* (0.504)
- 5) *Journal of Logic, Language and Information* (1.922)
- 6) *Theoretical Computer Science* (0.516)
- 7) *ACM Transactions on Computational Logic* (0.636)
- 8) *Annals of Mathematics and Artificial Intelligence* (0.488)
- 9) *Fundamenta Informaticae* (0.479)
- 10) *Language Resources and Evaluation* (0.518)
- 11) *Notre Dame Journal of Formal Logic* (0.333)
- 12) *Journal of Automated Reasoning* (0.468)
- 13) *Journal of Computer and System Sciences* (1.091)
- 14) *Research on Language and Computation* (0.00)
- 15) *Acta Hungarica Mathematica* (0.429)
- 16) *Artificial Intelligence* (2.709)
- 17) *Journal of Visual Languages and Computing* (0.66)
- 18) *Logic Journal of the IGPL* (0.461)
- 19) *Image and vision computing* (1.581)
- 20) *Linguistics and Philosophy* (0.733)

- d) członkostwo w międzynarodowych organizacjach i stowarzyszeniach naukowych
 - a) *Association of Symbolic Logic* (ordinary member).
 - b) *E.W. Beth Doctoral Thesis Prize Committee*: Członek komitetu 2009–2013, Prezes komitetu 2014–.
- e) udział w międzynarodowych zespołach eksperckich
- f) uczestnictwo w programach europejskich i innych międzynarodowych
 - 1) EPSRC Grant EP/K017438/1: “Limits of Decidability” (Principal Investigator); March 15th, 2013–September 14th. Collaborating institutions: *Uniwersytet Opolski, Uniwersytet Wrocławski*.
 - 2) European Commission TMR Fellowship ERBFMBICT972035: “Computational mereotopology: a logical approach” (Principal Investigator); June 1st, 1997–May 31st, 1999.
 - 3) DAAD/British Council Anglo-German Advanced Research Collaboration Programme grant 720: “Vague Spatial Descriptions” (Principal Investigator); July 1st, 1995–March 31st, 1998. Collaborating institutions: University of Leeds, *Universität Hamburg*.
- g) udział w międzynarodowych zespołach badawczych
 - 1) EPSRC Visiting Fellowship Grant EP/F069154/1: “Arithmetic Circuits in Mathematical Logic” (Principal Investigator: Ian Pratt-Hartmann; Visiting fellow: Prof. Ivo Düntsch, Brock University, Ontario); July 1st, 2008–August 31st, 2009,
 - 2) EPSRC Visiting Fellowship Grant GR/S22509 “Computational Semantics” (Visiting fellow: Ian Pratt-Hartmann; Principal Investigator: Prof. Mark Steedman, University of Edinburgh); February 1st, 2003–August 1st, 2003.
 - 3) EPSRC Visiting Fellowship Grant GR/L/07529: “Process Specification using Natural Language” (Co-Principal Investigator: Ian Pratt-Hartmann; Visiting fellow: Prof. Nissim Francez, Technion, Haifa); July 5th, 1996–March 4th, 1997.

V. Informacje o osiągnięciach i dorobku dydaktycznym i popularyzatorskim

1. Przeprowadzone lub prowadzone wykłady i seminaria naukowe
 - (a) Seminaria naukowe
 - 1) Artificial Intelligence: first-, second- and third-year Bachelor’s; taught Master’s, Manchester Univesrity.
 - 2) Theoretical Foundations of Artificial Intelligence: third-year Bachelor’s; taught Master’s, Manchester Univesrity.
 - 3) Philosophy of AI: taught Master’s, Manchester Univesrity.
 - 4) AI programming (LISP and Prolog): second-year Bachelor’s; third-year Bachelor’s; taught Master’s, Manchester Univesrity.
 - 5) Logic and natural language processing: second-year Bachelor’s, Manchester Univesrity.
 - 6) Algorithms and Complexity: third-year Bachelor’s, Manchester Univesrity.
 - 7) Machine Learning: taught Master’s, Manchester Univesrity.
 - 8) Thesis writing: taught Master’s, PhD, Manchester Univesrity.
 - 9) *Künstliche Intelligenz* (in German) *Vordiplom*, Universität Hildesheim.
 - 10) Proseminarium (Presentation skills) (in English/Polish), Uniwersytet Opolski.
 - 11) Prolog programming (in English), Uniwersytet Opolski.
 - 12) *Terminologia obcojęzyczna* (in Polish), Uniwersytet Opolski.
 - (b) Przeprowadzone kursy na szkołach letnich

- 1) Spatial Logic: European Summer School on Logic, Language and Information, Tübingen, 2014 (razem z Michaelem Zakharyashevem).
 - 2) Logics with counting: European Summer School on Logic, Language and Information, Bordeaux, 2009.
 - 3) Logics with counting: European Summer School on Logic, Language and Information, Dublin, 2007.
 - 4) Logic and Natural Language: Pan-Hellenic Logic Conference, Athens, 2005.
 - 5) Logic and natural language: European Summer School on Logic, Language and Information, Nancy, 2004.
 - 6) Spatial logic: European Summer School on Logic, Language and Information, Birmingham, 2000 (razem z Brandonem Bennettem).
2. Opieka nad doktorantami i osobami ubiegającymi się o nadanie stopnia doktora (w charakterze promotora)
- 1) Ayoade Adeniyi: Time in controlled natural languages. Due to submit: January, 2017.
 - 2) Yegor Guskov: Trees in two-variable logic with counting. Due to submit: September, 2016.
 - 3) Georgios Kourtis: Key constraints in Open-World Databases. Due to submit: September, 2016.
 - 4) Reyadh Allhuaibi: Controlled natural languages for process specification. Due to submit: September, 2016.
 - 5) Yavor Nenov: Computational Analysis of Spatial Logic. PhD. awarded September, 2011. External examiner: Prof. Frank Wolter (University of Liverpool). Internal examiner: Prof. Ulrike Sattler.
 - 6) Adam Trybus: Computational Logic of Euclidean Spaces. PhD. awarded December, 2011. External examiner: Dr. Antony Galton (University of Exeter). Internal examiner: Dr. Renate Schmidt.
 - 7) Aled Griffiths: Computational Properties of Spatial Logics in the Real Plane. PhD. awarded November, 2008. External examiner: Dr. Brandon Bennett (Leeds University). Internal examiner: Dr. David Lester.
 - 8) Savas Konur: An Interval Temporal Logic for Real-Time System Specification. PhD. awarded, August, 2008. External examiner: Dr. Clair Dixon (Liverpool University). Internal examiner: Prof. David Brée.
 - 9) Allan Third: Logical Analysis of Fragments of Natural Language. PhD. awarded 2006. External examiner: Prof. Dov Gabbay (King's College, London). Internal examiner: Prof. Ulrike Sattler.
 - 10) Nick Player: Logics of Ambiguity. PhD. awarded 1999. External examiner: Prof. Patrick Blackburn (LORIA, Nancy). Internal examiner: Dr. D. Rydeheard.
 - 11) Dominik Schoop: Computational Mereotopology: a Logical Approach. PhD. awarded 1999. External examiner: Prof. A. Cohn (Leeds University). Internal examiner: Dr. D. Rydeheard.
3. Aktywny udział w imprezach popularyzujących naukę
- 1) Spot popularyzujący informatykę (<https://www.youtube.com/watch?v=LfmyEW0YpOw>).

VI. Informacje o otrzymanych nagrodach

- 1) Seventh conference of the *Association for Artificial Intelligence and Simulation of Behaviour* (AISB 1989) Best Paper award. Ian Pratt: "Path Finding in Free Space using Sinusoidal Transforms".
- 2) Twenty-Second *International Joint Conference on Artificial Intelligence* (IJCAI-11) Distinguished Paper award. Roman Kontchakov, Yavor Nenov, Ian Pratt-Hartmann, Michael Zakharyashev: "On the Decidability of Connectedness Constraints in 2D and 3D Euclidean Spaces" (<http://ijcai.org/papers11/Papers/IJCAI11-006.pdf>).

B. Informacja o najważniejszym osiągnięciu naukowym

Moje badania naukowe skupiały się na trzech różnych, choć powiązanych ze sobą obszarach leżących na styku logiki komputerowej, języka naturalnego i sztucznej inteligencji, a mianowicie (i) rozstrzygalnych fragmentach logiki pierwszego rzędu; (ii) logikach dla języka naturalnego; oraz (iii) logice przestrzennej.

1. W obszarze logiki komputerowej zainicjowałem wykorzystanie technik algebry liniowej dla zrozumienia złożoności problemów obliczeniowych dotyczących fragmentów logiki pierwszego rzędu. Począwszy od szeroko cytowanego artykułu z 2004 roku, dotyczącego złożoności logiki z dwiema zmiennymi i zliczaniem (zob. A.I.1.9), wykorzystywałem tę metodę dla wielu otwartych problemów z tego obszaru. Najsilniejszym wynikiem jest praca opublikowana w *Mathematical Logic Quarterly* w 2015 roku (zob. A.I.1.1), w której badany jest fragment logiki pierwszego rzędu z dwiema zmiennymi ze zliczaniem i relacjami równoważności.
2. Jednym z moich stałych obszarów zainteresowań jest związek logiki matematycznej z językami naturalnymi. W szeregu prac rozwijałem pojęcie *złożoności semantycznej* fragmentów języka naturalnego, jako narzędzia do badania siły wyrażania struktur gramatycznych używanych przez osobę mówiącą, stosując te pojęcia do wielu podstawowych konstrukcji gramatycznych języka angielskiego (zob. A.I.1.10–12, A.I.3.a.9). Jednym z rezultatów tych badań jest, uzyskana wspólnie z prof. Lawrence S. Mossem, pierwsza ścisła matematycznie analiza różnych rozszerzeń sylogistyki Arystotelesa, ukazująca wcześniej nieoczekiwany teorio-złożonościowy i teorio-dowodowy krajobraz (zob. A.I.3.a.8). Te prace spajają wyniki badań z okresu ponad dwóch tysiącleci, od antycznej logiki klasycznej, do zawartych na stronach czasopisma *Artificial Intelligence*.
3. Wniosłem istotny wkład techniczny w dziedzinę *logik przestrzennych (spatial logic)* dostarczając ścisłe teorio-modelowe, a wspólnie z prof. Michaeliem Zakharyashevem i dr. Romanem Kontchakovem również teorio-obliczeniowe analizy szeregu języków reprezentacji przestrzennej w Sztucznej Inteligencji. Współpracowałam z prof. Marco Aiello i prof. Johanem van Benthemem przy redakcji *Handbook of Spatial Logic* (zob. A.I.4.1), monografii, którą można nazwać biblią tej dziedziny i która tym samym ma znaczący wpływ na jej obecny i przyszły rozwój.