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## Short presentation

Thomas Hildebrandt is professor in software engineering and head of the research section for software, data, people & society. With a background in formal process models he has in more than 10 years been leading inter-disciplinary research and innovation projects with focus on methods and technologies for developing reliable and flexible software systems suited for the people who use them, including digitalisation of law, workflows and business processes information systems. His vision is to develop the foundation for reliable digital systems that can continuously be adapted to changing user needs and legislation, also after the systems have been taken into use. He is a member of several advisory boards and committees for digitalisation and artificial intelligence.

## Qualifications

Computer Science, PhD, Aarhus University  
Award Date: 23 Feb 2000

## Employment

### Professor

Software, Data, People & Society  
København N.  
28 Feb 2018 → nu

### Professor

Software, Data, People & Society  
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1 Mar 2018 → nu

## Research outputs (Not complete, autogenerated)

### The Right to Transparency in Public Governance: Freedom of Information and the Use of Artificial Intelligence by Public Agencies

Olsen, Henrik Palmer, Hildebrandt, Thomas Troels, Wiesener, Cornelius, Larsen, M. S. & Flügge, Asbjørn William Ammitzbøll, 12 Mar 2024, In: Digital Government: Research and Practice. 5, 1, 15 p., 8.

### Improving Simplicity by Discovering Nested Groups in Declarative Models

Cosma, Paul, Christfort, Axel Kjeld Fjelrad, Hildebrandt, Thomas Troels, Lu, X., Reijers, H. A. & Slaats, Tijs, 2024, *Advanced Information Systems Engineering - 36th International Conference, CAiSE 2024, Proceedings*. Guizzardi, G., Santoro, F., Mouratidis, H. & Soffer, P. (eds.). Springer, p. 440-455 (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 14663 LNCS).

### Proactive enforcement of provisions and obligations

Basin, D., Debois, S. & Hildebrandt, Thomas Troels, 2024, In: Journal of Computer Security. 32, 3, p. 247-289

**Adding Generic Role- and Process-based Behaviors to Smart Contracts using Dynamic Condition Response Graphs**  
xnq518, xnq518, Slaats, Tijs, Duedder, Boris & Hildebrandt, Thomas Troels, May 2023, *2023 IEEE/ACM International Conference on Software and System Processes (ICSSP)*. IEEE, p. 70-80

### **BERMUDA: Participatory Mapping of Domain Activities to Event Data via System Interfaces**

Cosma, Paul, Hildebrandt, Thomas Troels, Gyldenkærne, C. H. & Slaats, Tijs, 2023, *Process Mining Workshops - ICPM 2022 International Workshops, Revised Selected Papers*. Montali, M., Senderovich, A. & Weidlich, M. (eds.). Springer, p. 127-139 (Lecture Notes in Business Information Processing, Vol. 468 LNBIIP).

### **Data-Dependent Confidentiality in DCR Graphs**

Geraldo, E., Seco, J. C. & Hildebrandt, Thomas Troels, 2023, *Proceedings of the 25th International Symposium on Principles and Practice of Declarative Programming (PPDP 2023)*. Association for Computing Machinery, 13 p. 7

### **Declarative Choreographies with Time and Data**

Hildebrandt, Thomas Troels, López, H. A. & Slaats, Tijs, 2023, *Business Process Management Forum - BPM 2023 Forum, Proceedings*. Di Francescomarino, C., Burattin, A., Janiesch, C. & Sadiq, S. (eds.). Springer, p. 73-89 17 p. (Lecture Notes in Business Information Processing, Vol. 490 LNBIIP).

### **Transforming Dynamic Condition Response Graphs to Safe Petri Nets**

Cosma, Paul, Hildebrandt, Thomas Troels & Slaats, Tijs, 2023, *Application and Theory of Petri Nets and Concurrency - 44th International Conference, PETRI NETS 2023, Proceedings*. Gomes, L. & Lorenz, R. (eds.). Springer, p. 417-439 23 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 13929 LNCS).

### **Decision Modelling in Timed Dynamic Condition Response Graphs with Data**

Hildebrandt, Thomas Troels, Normann, H., Marquard, M., Debois, S. & Slaats, Tijs, 2022, *Business Process Management Workshops - BPM 2021 International Workshops, Revised Selected Papers: BPM 2021 International Workshops Rome, Italy, September 6–10, 2021 Revised Selected Papers*. Marrella, A. & Weber, B. (eds.). Springer, p. 362-374 13 p. (Lecture Notes in Business Information Processing, Vol. 436 LNBIIP).

### **DisCover: accurate and efficient discovery of declarative process models**

Back, C. O., Slaats, Tijs, Hildebrandt, Thomas Troels & Marquard, M., 2022, In: *International Journal on Software Tools for Technology Transfer*. 24, 4, p. 563–587

### **Event-based data-centric semantics for consistent data management in microservices**

Zuckmantel, Tilman, Duedder, Boris, Zhou, Yongluan & Hildebrandt, Thomas Troels, 2022, *DEBS '22: Proceedings of the 16th ACM International Conference on Distributed and Event-Based Systems*. Association for Computing Machinery, p. 97-102

### **Selected Papers of BPM 2019 - Editorial to the Special Issue**

Hildebrandt, Thomas Troels, Dongen, B. F. V., Röglinger, M. & Mendling, J., 2022, In: *Information Systems*. 104, 2 p., 101902.

### **'Thinking problematically' as a resource for AI design in politicised contexts**

Petersen, A. C. M., Cohn, M. L., Hildebrandt, Thomas Troels & Møller, Naja Holten, 2021, *CHIItaly 2021 - Frontiers of HCI: Proceedings of the 14th Biannual Conference of the Italian SIGCHI Chapter*. Association for Computing Machinery, p. 1-8 13 p. (ACM International Conference Proceeding Series).

### **Confronting Asylum Decision-making through Prototyping Sensemaking of Data and Participation**

Nielsen, Trine Rask, Katsikouli, Panagiota, Høgenhaug, Anna Murphy, Byrne, William Hamilton, Gammeltoft-Hansen, Thomas, Slaats, Tijs, Olsen, Henrik Palmer, Hildebrandt, Thomas Troels & Møller, Naja Holten, 2021, *Proceedings of the 19th European Conference on Computer-Supported Cooperative Work, ECSCW 2021k: The International Venue on Practice-centred Computing on the Design of Cooperation Technologies*, . European Society for Socially Embedded Technologies, 10 p. (Reports of the European Society for Socially Embedded Technologies; No. ECSCW, Vol. 2021).

### **Exploring how users engage with hybrid process artifacts based on declarative process models: a behavioral analysis based on eye-tracking and think-aloud**

Abbad Andaloussi, A., Zerbato, F., Burattin, A., Slaats, Tijs, Hildebrandt, Thomas Troels & Weber, B., 2021, In: *Software and Systems Modeling*. 20, p. 1437–1464

### **ReGraDa: Reactive Graph Data**

Galrinho, L., Seco, J. C., Debois, S., Hildebrandt, Thomas Troels, Norman, H. & Slaats, Tijs, 2021, *Coordination Models and Languages - 23rd IFIP WG 6.1 International Conference, COORDINATION 2021, Held as Part of the 16th International Federated Conference on Distributed Computing Techniques, DisCoTec 2021, Proceedings*. Damiani, F. & Dardha, O. (eds.). Springer, p. 188-205 (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12717 LNCS).

### **What's in the Box? The Legal Requirement to Explain Computationally Aided Decision-Making in Public Administration**

Olsen, Henrik Palmer, Slosser, Jacob Livingston & Hildebrandt, Thomas Troels, 2021, *Constitutional Challenges in the Algorithmic Society*. Cambridge University Press, p. 219-235

### **Zoom and Enhance: Action Refinement via Subprocesses in Timed Declarative Processes**

Normann, H., Debois, S., Slaats, Tijs & Hildebrandt, Thomas Troels, 2021, *Business Process Management - 19th International Conference, BPM 2021, Proceedings*. Polyvyanyy, A., Wynn, M. T., Van Looy, A. & Reichert, M. (eds.). Springer, p. 161-178 (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12875 LNCS).

### **Algorithmic decision making in public services: A CSCW-perspective**

Flügge, Asbjørn William Ammitzbøll, Hildebrandt, Thomas Troels & Møller, Naja Holten, 2020, *GROUP 2020 - Companion of the 2020 ACM International Conference on Supporting Group Work*. Association for Computing Machinery, p. 111-114 4 p.

### **Business process compliance using reference models of law**

López, H. A., Debois, S., Slaats, Tijs & Hildebrandt, Thomas Troels, 2020, *Fundamental Approaches to Software Engineering: 23rd International Conference, FASE 2020, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2020, Dublin, Ireland, April 25–30, 2020, Proceedings*. Wehrheim, H. & Cabot, J. (eds.). Springer, p. 378-399 (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12076).

### **Chain of Events: Modular Process Models for the Law**

Debois, S., López, H. A., Slaats, Tijs, Andaloussi, A. A. & Hildebrandt, Thomas Troels, 2020, *Integrated Formal Methods: 16th International Conference, IFM 2020, Lugano, Switzerland, November 16–20, 2020, Proceedings*. Springer, Vol. 12546. p. 368-386 (Lecture Notes in Computer Science, Vol. 12546).

### **EcoKnow: Engineering Effective, Co-created and Compliant Adaptive Case Management Systems for Knowledge Workers**

Hildebrandt, Thomas Troels, Andaloussi, A. A., Christensen, L. R., Debois, S., Healy, N. P., López, H. A., Marquard, M., Møller, Naja Holten, Petersen, A. C. M., Slaats, Tijs & Weber, B., 2020, *ICSSP '20: Proceedings of the International Conference on Software and System Processes*. Association for Computing Machinery, p. 155--164

### **Shifting Concepts of Value: Designing Algorithmic Decision-Support Systems for Public Services**

Møller, Naja Holten, Shklovski, Irina & Hildebrandt, Thomas Troels, 2020, *NordiCHI '20: Proceedings of the 11th Nordic Conference on Human-Computer Interaction: Shaping Experiences, Shaping Society*. Association for Computing Machinery, p. 1-12 70

### **The Role of Discretion in the Age of Automation**

Petersen, A. C. M., Christensen, L. R. & Hildebrandt, Thomas Troels, 2020, In: *Computer Supported Cooperative Work: CSCW: An International Journal*. 29, 3, p. 303-333 31 p.

### **A stable non-interleaving early operational semantics for the pi-calculus**

Hildebrandt, Thomas Troels, Johansen, C. & Normann, H., 2019, In: *Journal of Logical and Algebraic Methods in Programming*. 104, p. 227-253 27 p.

### **DCR-KiPN a hybrid modeling approach for knowledge-intensive processes**

Santoro, F., Slaats, Tijs, Hildebrandt, Thomas Troels & Baiao, F., 2019, *Conceptual Modeling - 38th International Conference, ER 2019, Proceedings*. Laender, A. H. F., Pernici, B., Lim, E-P. & de Oliveira, J. P. M. (eds.). Springer VS, p. 153-161 9 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 11788 LNCS).

### **Declarative Choreographies and Liveness**

Hildebrandt, Thomas Troels, Slaats, Tijs, López, H. A., Debois, S. & Carbone, M., 2019, *Formal Techniques for Distributed Objects, Components, and Systems - 39th IFIP WG 6.1 International Conference, FORTE 2019, held as part of the 14th International Federated Conference on Distributed Computing Techniques, DisCoTec 2019, Proceedings*. Pérez, J. A. & Yoshida, N. (eds.). Springer, p. 129-147 19 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 11535 LNCS).

### **Evaluating the Understandability of Hybrid Process Model Representations Using Eye Tracking: First Insights**

Abbad Andaloussi, A., Slaats, Tijs, Burattin, A., Hildebrandt, Thomas Troels & Weber, B., 2019, *Business Process Management Workshops - BPM 2018 International Workshops, Revised Papers*. Daniel, F., Sheng, Q. Z. & Motahari, H. (eds.). Springer, p. 475-481 7 p. (Lecture Notes in Business Information Processing, Vol. 342).

### **Exploring the Understandability of a Hybrid Process Design Artifact Based on DCR Graphs**

Abbad Andaloussi, A., Burattin, A., Slaats, Tijs, Petersen, A. C. M., Hildebrandt, Thomas Troels & Weber, B., 2019, *Enterprise, Business-Process and Information Systems Modeling - 20th International Conference, BPMDS 2019, 24th International Conference, EMMSAD 2019, Held at CAiSE 2019, Proceedings*. Gulden, J., Reinhartz-Berger, I., Zdravkovic, J. & Schmidt, R. (eds.). Springer, p. 69-84 (Lecture Notes in Business Information Processing, Vol. 352).

### **What's in the Box? The Legal Requirement of Explainability in Computationally Aided Decision-Making in Public Administration**

Olsen, Henrik Palmer, Slosser, Jacob Livingston, Hildebrandt, Thomas Troels & Wiesener, Cornelius, 2019, SSRN: Social Science Research Network, 28 p. (iCourts Working Paper Series; No. 162 ).

### **EcoKnow: Effective, Co-Created & Compliant Adaptive Case Management for Knowledge Workers**

Hildebrandt, Thomas Troels, 14 Nov 2018, *Proceedings - 2018 IEEE 22nd International Enterprise Distributed Object Computing Conference Workshops, EDOCW 2018*. IEEE, p. 9-11 3 p. 8536098

### **RESEDA: Declaring live event-driven computations as reactive semi-structured data**

Costa Seco, J., Debois, S., Hildebrandt, Thomas Troels & Slaats, Tijs, 14 Nov 2018, *Proceedings - 2018 IEEE 22nd International Enterprise Distributed Object Computing Conference, EDOC 2018*. IEEE, p. 75-84 10 p. 8536151

### **Open to change: A theory for iterative test-driven modelling**

Slaats, Tijs, Debois, S. & Hildebrandt, Thomas Troels, 2018, *Business Process Management - 16th International Conference, BPM 2018, Proceedings*. Montali, M., Weber, I., Weske, M. & vom Brocke, J. (eds.). Springer, p. 31-47 17 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 11080 LNCS).

### **Replication, refinement & reachability: complexity in dynamic condition-response graphs**

Debois, S., Hildebrandt, Thomas Troels & Slaats, Tijs, 2018, In: *Acta Informatica*. 55, p. 489-520

### **The Process Highlighter: From Texts to Declarative Processes and Back**

López-Acosta, H., Hildebrandt, Thomas Troels, Debois, S. & Marquard, M., 2018, In: *CEUR Workshop Proceedings*. p. 66-70 5 p.

### **The DCR Workbench: Declarative Choreographies for Collaborative Processes**

Debois, S. & Hildebrandt, Thomas Troels, 1 Jun 2017, *Behavioural Types: from Theory to Tools*. Gay, S. & Ravara, A. (eds.). River Publishers, p. 99-124 26 p. (Communications of the A C M).

### **Declarative Process Mining for DCR Graphs**

Debois, S., Hildebrandt, Thomas Troels, Laursen, P. H. & Ulrik, K. R., 2017, *Proceedings of the Symposium on Applied Computing: SAC '17*. New York, NY, USA: Association for Computing Machinery, p. 759-764 6 p.

### **Hybrid Process Technologies in the Financial Sector: The Case of BRFKredit**

Debois, S., Hildebrandt, Thomas Troels, Marquard, M. & Slaats, Tijs, 2017, *Business Process Management Cases: Digital Innovation and Business Transformation in Practice*. Springer, p. 397-412 16 p. (Management for Professionals).

### **Modelling Cooperative Work at a Medical Department**

Christensen, L. R. & Hildebrandt, Thomas Troels, 2017, *C&T '17 Proceedings of the 8th International Conference on Communities and Technologies*. Association for Computing Machinery, p. 46-55 10 p.

### **Expert System**

Hildebrandt, Thomas Troels & Cattani, G. L., 23 Oct 2016, *The International Encyclopedia of Communication Theory and Philosophy*. Jensen, K. B., Craig, R. T., Pooley, J. D. & Rothenbuhler, E. W. (eds.). Wiley, Vol. 1-4. (The Wiley Blackwell-ICA International Encyclopedias of Communication).

### **Experience Report: Constraint-Based Modelling and Simulation of Railway Emergency Response Plans**

Debois, S., Hildebrandt, Thomas Troels & Sandberg, L., 2016, In: *Procedia Computer Science*. 83, p. 1295–1300

### **Bridging the valley of death: a success story on Danish funding schemes paving a path from technology readiness Level 1 to 9**

Debois, S., Hildebrandt, Thomas Troels, Slaats, Tijs & Marquard, M., 2015, *Proceedings of the Second International Workshop on Software Engineering Research and Industrial Practice*. IEEE, p. 54-57 4 p.

### **Declarative event based models of concurrency and refinement in psi-calculi**

Normann, H., Johansen, C. & Hildebrandt, Thomas Troels, 2015, In: *Journal of Logic and Algebraic Programming*. 85, 3, p. 368-398 30 p.

### **A case for declarative process modelling: agile development of a grant application system.**

Debois, S., Hildebrandt, Thomas Troels, Slaats, Tijs & Marquard, M., 2014, *2014 IEEE 18th International Enterprise Distributed Object Computing Conference Workshops and Demonstrations (EDOCW)*. IEEE, p. 126-133 8 p.

### **Concurrency Models with Causality and Events as Psi-calculi**

Hildebrandt, Thomas Troels, Prisacariu, C. & Norman, H., 2014, *Proceedings 7th Interaction and Concurrency Experience*. Lanese, I., Lluch-Lafuente, A., Sokolova, A. & Vieira, H. T. (eds.). Vol. 166. p. 4-20 17 p. (Electronic Proceedings in Theoretical Computer Science, Vol. 166).

### **Type checking liveness for collaborative processes with bounded and unbounded recursion**

Debois, S., Hildebrandt, Thomas Troels, Slaats, Tijs & Yoshida, N., 2014, *Formal Techniques for Distributed Objects, Components, and Systems: 34th IFIP WG 6.1 International Conference, FORTE 2014, Held as Part of the 9th International Federated Conference on Distributed Computing Techniques, DisCoTec 2014, Berlin, Germany, June 3-5, 2014. Proceedings*. Ábrahám, E. & Palamidessi, C. (eds.). Springer, p. 1-16 16 p. (Lecture notes in computer science, Vol. 8461).

### **A verification environment for bigraphs**

Perrone, G. D., Debois, S. & Hildebrandt, Thomas Troels, 2013, In: *Innovations in Systems and Software Engineering*. 9, 2, p. 95-104

### **Contracts for cross-organizational workflows as timed dynamic condition response graphs**

Hildebrandt, Thomas Troels, Mukkamala, R. R., Slaats, Tijs & Zanitti, F., 2013, In: *Journal of Logical and Algebraic Methods in Programming*. 82, 5-7, p. 164-185 22 p.

### **A process-oriented event-based programming language**

Hildebrandt, Thomas Troels & Zanitti, F., 2012, *Proceedings of the 6th ACM International Conference on Distributed Event-Based Systems*. New York, NY, USA: Association for Computing Machinery, p. 377-378 2 p.

### **Refinement for Transition Systems with Responses**

Carbone, M., Hildebrandt, Thomas Troels, Perrone, G. D. & Wasowski, A., 2012, *Proceedings Fourth Workshop on Foundations of Interface Technologies: Electronic Proceedings in Theoretical Computer Science. EPTCS.* Vol. 87.

### **A Logic for Choreographies**

Carbone, M., Grohmann, D., Hildebrandt, Thomas Troels & López, H. A., 1 Oct 2011, In: Electronic Proceedings in Theoretical Computer Science.

### **Declarative Event-Based Workflow as Distributed Dynamic Condition Response Graphs**

Hildebrandt, Thomas Troels & Mukkamala, R. R., 2010, *Declarative Event-Based Workflow as Distributed Dynamic Condition Response Graphs*. p. 59-73 (Electronic Proceedings in Theoretical Computer Science).

### **From Dynamic Condition Response Structures to Büchi Automata**

Mukkamala, R. R. & Hildebrandt, Thomas Troels, 2010, *From Dynamic Condition Response Structures to Büchi Automata*. IEEE Computer Society Press, Vol. 0. p. 187-190 4 p.

### **Types for secure pattern matching with local knowledge in universal concurrent constraint programming**

Hildebrandt, Thomas Troels & López, H. A., 14 Sep 2009, *Logic Programming - 25th International Conference, ICLP 2009, Proceedings*. p. 417-431 15 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 5649 LNCS).

### **Higher-Order Contexts via Games and the Int-Construction**

Birkedal, L., Bundgaard, M., Debois, S., Hildebrandt, Thomas Troels & Grohmann, D., 2009, IT-Universitetet i København . (I T University. Technical Report Series).

### **Formalizing WS-BPEL and Higher Order Mobile Embedded Business Processes in the Bigraphical Programming Languages (BPL) Tool**

Bundgaard, M., Glenstrup, A. J., Hildebrandt, Thomas Troels, Højsgaard, E. & Niss, H., 2008, Copenhagen: IT-Universitetet i København. 45 p. (I T University. Technical Report Series; No. TR-2008-103).

### **On Encoding the Pi-calculus in Higher-Order Calculi**

Bundgaard, M., Hildebrandt, Thomas Troels & Godskesen, J. C., 2008, IT University of Copenhagen: IT-Universitetet i København. 24 p. (I T University. Technical Report Series).

### **Preliminary Proceedings 15th International Workshop on Expressiveness in Concurrency: EXPRESS'08 Toronto, Canada 23 August 2008**

Gorla, D. (ed.) & Hildebrandt, Thomas Troels (ed.), 2008, Copenhagen: IT-Universitetet i København. 127 p. (I T University. Technical Report Series; No. TR-2008-108).

### **Type Systems for Bigraphs**

Elsborg, E., Hildebrandt, Thomas Troels & Sangiorgi, D., 2008, Copenhagen: IT-Universitetet i København. 39 p. (I T University. Technical Report Series; No. TR-2008-110).