

Thomas Troels Hildebrandt  
Professor  
Software, Data, People & Society  
Postal address:  
Universitetsparken 5, 2100 København Ø  
Email: hilde@di.ku.dk  
Mobile: +45 31 42 52 79  
Phone: +45 35 33 51 16  
Web: <http://diku.dk/>



## 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  
København N.  
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**

Xu, Yibin, 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**

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### **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**

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

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### **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**

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### **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**

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

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

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

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### **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**

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

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

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

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### **Expert System**

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### **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**

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

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

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

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

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

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

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

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

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

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

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### **Type Systems for Bigraphs**

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