

# Reinout Roels

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## ABOUT ME

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Computers and programming have always been my passion. Ever since I was 14 I have invested heavily in the related knowledge and skills and therefore I have a strong technical background. During my PhD a lot of time was spent on teaching, researching and contributing to state of the art technologies. On top of that, freelance work and hobby projects have kept me up to date with the most recent developments.

Note that this document focusses on my academic career. A technical CV with software engineering skills and projects can be found at <http://reinout.roels.me>.

## WORK EXPERIENCE

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- 2012 - 2018 PhD Candidate  
*Vrije Universiteit Brussel, member of the Web and Information Systems (WISE) research lab.*
- 2012 - 2018 Teaching Assistant  
*Vrije Universiteit Brussel, teaching topics such as Programming, Databases, Web Technologies, Lambda Calculus, Propositional Calculus, Predicate Calculus and Information Systems.*
- 2004 - 2018 Freelance Software Development  
*Desktop, web and mobile applications.*

## EDUCATION

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- Dec. 2018 PhD in Computer Science, **Vrije Universiteit Brussel**, Brussels
- Sept. 2012 Master in Applied Computer Science, **Vrije Universiteit Brussel**, Brussels (*summa cum laude*)
- Sept. 2011 Bachelor in Computer Science, **Vrije Universiteit Brussel**, Brussels
- June. 2005 ASO, Latin, Economics, Maths **Sint-Lutgardisinstituut**, Oostende
- June. 2005 Certificate Business Management, **Sint-Lutgardisinstituut**, Oostende
- June. 2005 Elementary Music Theory, **Conservatorium**, Oostende

## AWARDS, GRANTS AND HONORS

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- 2015 **Best Student Paper Award**: For the paper "Towards Enhanced Presentation-based Teaching of Programming: An Interactive Source Code Visualisation Approach", at CSEDU 2015.
- 2014 **Best Paper Award**: For the paper "A Unified Communication Platform for Enriching and Enhancing Presentations with Active Learning Components", at ICALT 2014.
- 2012 I was awarded a 6-year **PhD grant** by the Vrije Universiteit Brussel.
- 2012 I graduated my Master's degree in Applied Computer Science with greatest distinction, qualifying to graduate with "Summa Cum Laude" honors.

## LANGUAGES

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- Dutch Native language
- English Full professional proficiency
- French Limited working proficiency
- German Elementary proficiency

## TEACHING

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- 2012 - 2018 **Databases** *Entity-Relationship Modelling, Relational Algebra, SQL, DBMS Architectures, Transaction Management, Indexing, RAID, Query Processing and Optimisation, NoSQL*
- 2012 - 2018 **Web Technologies / Web Information Systems** *HTML5, JavaScript, CSS, jQuery, RESTful APIs, JSON, Server-side Frameworks, XML, XSLT, XLink, XPointer, DTD, XML Schema, Web Architectures, Web 2.0, Responsive Design, Semantic Web, RDF, OWL, SPARQL, SEO, Security, Privacy, Trust*
- 2012 - 2018 **Logic and Formal Methods / Foundations of Computer Science** *Lambda Calculus, Propositional Calculus, Predicate Calculus, Boolean Logic, Formal Deduction, Proofs*
- 2012 - 2018 **Advanced Topics in Information Systems** *In this seminar course students present and discuss the state of the art academic papers related to information systems and human-computer interaction from top conferences such as CHI.*

## RESEARCH PROJECTS

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**MindXpres:** Presentation tools such as PowerPoint originated as simulators for physical photographic slides, but they also inherited all limitations. For instance, content is still relatively static, spatially bounded and presented in linear sequences, even though computers are capable of so much more. We investigated and addressed issues related to dynamic content, interactivity, portability, presentation hardware, content reuse and content sharing. This has resulted in a new presentation [platform called MindXpres. Please refer to <http://mindxpres.com> for more information.

**INFEX:** Our lives are filled with smart devices such as digital cameras, smartwatches, fitness trackers and tablets, but when we want to move for instance a picture from a camera to a smartwatch we have to deal with incompatibilities, vendor-specific software and a tedious lengthy process of interactions. INFEX is a generic extensible framework that performs automatic protocol mediation and translation. This allows devices with different software and hardware specifications to exchange data, even if this was previously impossible. INFEX allows users to bypass proprietary software and abstracts technical difficulties away from end users. Please refer to the main INFEX paper for more information.

## PUBLICATIONS

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- 2018 **INFEX: A Unifying Framework for Cross-Device Information Exploration and Exchange**  
Roels, R., De Witte, A. and Signer, B.: "INFEX: A Unifying Framework for Cross-Device Information Exploration and Exchange", Proceedings of the ACM on Human-Computer Interaction (PACMHCI), 2 (EICS, Article 2), June 2018
- 2017 **Interactive and Narrative Data Visualisation for Presentation-based Knowledge Transfer**  
Roels, R., Baeten, Y. and Signer, B.: "Interactive and Narrative Data Visualisation for Presentation-based Knowledge Transfer", Communications in Computer and Information Science (CCIS), 739, 2017
- 2016 **An Interactive Data Visualisation Approach for Next Generation Presentation Tools: Towards Rich Presentation-based Data Exploration and Storytelling**  
Roels, R., Baeten, Y. and Signer, B.: "An Interactive Data Visualisation Approach for Next Generation Presentation Tools: Towards Rich Presentation-based Data Exploration and Storytelling", Proceedings of CSEDU 2016, 8th International Conference on Computer Supported Education, Rome, Italy, May, 2016
- 2016 **An Interactive Source Code Visualisation Plug-in for the MindXpres Presentation Platform**  
Roels, R., Mestereaga, P. and Signer, B.: "An Interactive Source Code Visualisation Plug-in for the MindXpres Presentation Platform" (extended version of CSEDU 2015 paper), Communications in Computer and Information Science (CCIS), 583, 2016
- 2015 **Towards Enhanced Presentation-based Teaching of Programming: An Interactive Source Code Visualisation Approach [Student Best Paper Award]**  
Roels, R., Mestereaga, P. and Signer, B.: "Towards Enhanced Presentation-based Teaching of Programming: An Interactive Source Code Visualisation Approach", Proceedings of CSEDU 2015, 7th International Conference on Computer Supported Education, Lisbon, Portugal, May, 2015
- 2014 **A Unified Communication Platform for Enriching and Enhancing Presentations with Active Learning Components [Best Paper Award]**  
Roels, R., Vermeylen, C. and Signer, B.: "A Unified Communication Platform for Enriching and Enhancing Presentations with Active Learning Components", Proceedings of ICALT 2014, 14th IEEE International Conference on Advanced Learning Technologies, Athens, Greece, July 2014
- 2014 **MindXpres: An Extensible Content-driven Cross-Media Presentation Platform**  
Roels, R. and Signer, B.: "MindXpres: An Extensible Content-driven Cross-Media Presentation Platform", Proceedings of WISE 2014, 15th International Conference on Web Information System Engineering, Thessaloniki, Greece, October, 2014
- 2013 **An Extensible Presentation Tool for Flexible Human-Information Interaction**  
Roels, R. and Signer, B.: "An Extensible Presentation Tool for Flexible Human-Information Interaction", Demo Proceedings of the 27th BCS Conference on Human Computer Interaction (HCI 2013), London, United Kingdom, September 2013

## THESIS SUPERVISION

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|------|----|----------------|---|
| 2017 | MA | Kwinten Pardon | An Extensible Presentation Framework for Real-time Data Acquisition, Interaction and Augmented Reality Visualisations |
| 2016 | MA | Arno De Witte  | A User-friendly and Device-independent Interface for Cross-Device Information Exchange                                |
| 2016 | MA | Kushal Soni    | An Extensible Virtual Assistant for the PowerPoint Presentation Tool  |
| 2016 | BA | Linda de Corte | Context-aware Media Adaptation for Information Display  |
| 2015 | MA | Chunxian Yan   | Pen, Paper and Presentations  |
| 2015 | MA | Jeroen Nyckees | Distributed Multi-touch User Interfaces for Modular Musical Expression  |
| 2015 | MA | Jonas Vereyken | Investigating Graph-based Storage Backends for Link Services  |
| 2015 | MA | Marius Hirjanu | Ambient Information Processing and Visualisation  |

2015	MA	Mohamed Zahir	An Extensible Platform for Real-Time Feedback in Presentation Training
2014	MA	Yves Baeten	Intuitive Information Visualisation for the MindXpres Presentation Tool
2014	MA	Tim Vereecken	ADFIS - An Application Development Framework for Interactive Surfaces
2014	MA	Joris Vandermeersch	Content Migration and Layout for the MindXpres Presentation Tool
2014	MA	David Bos	Multimodal Interaction for the MindXpres Presentation Tool
2013	MA	Jasper Debie	Automatic Data Visualisation for the MindXpres Presentation Tool
2013	MA	Paul Mestereaga	Intelligent Source Code Visualisation for the MindXpres Presentation Tool
2012	MA	Christophe Vermeylen	Audience-driven Presentations based on the MindXpres Presentation Tool
2012	MA	Jeroen Heymans	A WYSIWYG Template Authoring Solution for the MindXpres Presentation Tool
2012	BA	Kevin van Gyseghem	Dynamic Graph Visualisation for the MindXpres Presentation Tool