

# Daco Harkes

## Education

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- 2014 - now**      **Computer Science, PhD**      **Technical University, Delft**  
Field: **Domain Specific Languages / Incremental Computing**  
Subject: DSL for Incremental Computing in Information Systems
- My research project is creating a DSL for information systems: IceDust. In this language one can specify data models and computations over data. The language runtime reuses old computation results to efficiently compute new results: incremental computing.
- Project Repository: [github.com/MetaBorgCube/IceDust](https://github.com/MetaBorgCube/IceDust)
- 2012 - 2014**      **Computer Science, Master (Cum Laude)**      **Technical University, Delft**  
Specialization: Programming Languages  
Thesis: Relations in Role-based Data Modeling and Navigation
- Academic results: avg. 8.5 (A+)  
Master Thesis, Relational Programming: 9 (A+)  
First place Student Research Competition at Modularity 2014
- 2010 - 2012**      **Leadership Training School (Chacham-award)**      **Christformation, Rotterdam**  
During the first year we went on a trip to Mongolia, my world view significantly changed. During the second year a friend and I led a six person team on a two week trip to Asia. This was an intense experience where planning and people skills were put to the test.
- Academic results: avg. 8.7 (A+)  
Character development: B  
Leadership development: B
- 2007 - 2010**      **Computer Science, Bachelor (Cum Laude)**      **Technical University, Delft**  
Academic results: avg. 8.5 (A+)  
Final project, Pacman: 8.5 (A+)

## Publications

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- ECOOP 2017**      ***IceDust 2: Derived Bidirectional Relations and Calculation Strategy Composition***  
In this paper I extend the IceDust language incremental capabilities with more expressive power (derived relations) and more incremental computing possibilities (through composition of various calculation strategies).
- ECOOP 2016**      ***IceDust: Incremental and eventual computation of derived values in persistent object graphs***  
IceDust is my programming language for information systems. In IceDust models one can describe a data model and derived values of this data model. The IceDust compiler generates code for efficiently recomputing derived values on changes to the base data.
- SLE 2014**      ***Unifying and Generalizing Relations in Role-Based Data Modeling and Navigation***  
In this paper I explore different data modeling paradigms from object-oriented to relational databases. Based on this analysis I designed a data modeling language that combines the best of both paradigms.

## Employment History

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- 2008 – 2014**      **Web application developer**      **Heinosoft VOF, Delfgauw**  
Sector      Web development and promotion

	Activities	<ul style="list-style-type: none"> <li>– Building a Content Management System</li> <li>– Time management, work estimations, and quotes</li> <li>– Hiring, training and managing new developer</li> </ul>
	Fulltime/part-time	Part-time, variable 4 to 12 hours a week
<b>2007 - 2008</b>	<b>PHP programmer</b>	<b>Marsmedia BV, Den Haag</b>
	Sector	Web design
	Activities	Developing the backend of websites
	Fulltime/part-time	Project-based

## Extracurricular Activities

<b>2014-now</b>	<b>Science Conferences</b>	<b>SPLASH &amp; ECOOP</b>
2015-now	Leading Student Volunteers	– organizing, communication, planning, motivating
2014-now	Student Volunteer	– being representative, ad hoc problem solving
<b>2010-now</b>	<b>Christian Conferences</b>	<b>Opwekking, Biddinghuizen</b>
2012-now	Leader of ministry team	– communication, empowering team members
2010-now	Ministry team member	– encouraging, coaching
<b>2010-now</b>	<b>Church</b>	<b>Baptists, Waddinxveen</b>
2014-now	Leading band	– teamwork, organizing
2013-now	Preaching (250 pers.)	– public speaking, teaching, motivating
2012-2014	Treasurer of the youth group	– communicating financial status, spreadsheets
2011-2014	Teaching youth (40 pers.)	– teaching
2010	Leading a 20 person youth holyday	– crisis management
<b>2009-2014</b>	<b>Student Association</b>	<b>C.S.R., Delft</b>
2012-2014	Leading a workgroup (20 pers.)	– public speaking, personal coaching, time management
2012-2013	Leading a home group (7 pers.)	– group dynamics steering, studying, encouraging
2011-2012	Leading a “Verticale” (30 pers.)	– planning, motivation, communication

## Languages

Dutch	Native language
English	Good, oral and written
Software lang.	Java, MySQL, PHP, HTML, CSS, JS, Stratego (>1000h), Scala (>250h), and Coq (>100h)

## Personality

I am known as an optimist and am quite result-driven. I have an excellent technical understanding and I am able to comprehend and use complex and abstract concepts. Also I am verbally strong, I can express ideas easily. My opinion can also be very strong, but I am also aware of that and purposefully chose to give room to others and to learn from them.

Contact with people and helping them gives me energy. But also seeing results also gives me energy. When working with software I prefer having an overview of its concepts. Working without an overview drains my energy. Another thing that demotivates me is doing things of which I do not understand the added value. On the other hand, if the added value is clear to me I will be intrinsically motivated.

## Personal Interests

Tech stuff, snowboarding, playing piano and guitar, composing, hiking in the mountains and deep personal talks.

## Contact Details

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