Daco Harkes

Education

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

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

WPDAI 2018	***PixieDust: Declarative Incremental Interface Rendering through Static Dependency Tracking***

PixieDust is a language for building efficient user interfaces in the browser. It uses the same techniques as IceDust does on webservers for incremental calculation but applies them in a JavaScript environment and interacts closely with the browser's rendering engine.

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.

Professional Activities

SLE 2018	Program Committee	
SPLASH 2018	Artifact Evaluation Committee	
SPLASH 2017	Organizing Committee	as Student Volunteer Co-Chair
SPLASH 2016	Organizing Committee	as Student Volunteer Co-Chair
ECOOP 2016	Student Volunteer	
SPLASH 2015	Organizing Committee	as Student Volunteer Co-Chair
ECOOP 2015	Student Volunteer	
Dagstuhl 15062	Report Editor	as Report Collector
SPLASH 2014	Student Volunteer	

Awards

2015	Best Student Presentation	**GTTSE Summer School**
2014	First prize ACM Student Research Competition	**MODULARITY**
2012	Chacham award	**Christformation**

Employment History

2008 – 2014	**Web application developer**	**Heinosoft VOF, Delfgauw**
	Sector	Web development and promotion
	Activities	– Building a Content Management System
		– Time management, work estimations, and quotes
		– Hiring, training and managing new developer
	Fulltime/part-time	Part-time, variable 4 to 12 hours a week
2007 - 2008	**PHP programmer**	**Marsmedia BV, Den Haag**
	Sector	Web design
	Activities	Developing the backend of websites
	Fulltime/part-time	Project-based

Extracurricular Activities

2010-now	**Christian Conferences**	**Opwekking, Biddinghuizen**
2012-now	Leader of ministry team	– communication, empowering team members
2010-now	Ministry team member	– encouraging, coaching
2010-now	**Church**	**Baptists, Waddinxveen**
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
2009-2014	**Student Association**	**C.S.R., Delft**
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	Highly proficient in both spoken and written English
German	Basic communication skills
Software lang.	Java, MySQL, PHP, HTML, CSS, JavaScript, Stratego (>1000h), Scala (>250h), and Coq (>100h)

Personality

I am known as an optimist and am quite result-driven. When I believe in some goal, I have a strong inner motivation and am very disciplined to get practical results. I have an excellent technical understanding and I am able to comprehend, use, and explain complex and abstract concepts. I am verbally strong and can express ideas easily. In leadership I am an enthusiastic and assertive leader that makes things happen. I get my energy from meeting people, helping others, and seeing results.

Personal Interests

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

Contact Details

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