

Tom Van Cutsem

Curriculum Vitae

Personal

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Languages: Dutch (Mother Tongue), English (Fluent, CEFR level C1), French (Elementary)

Expertise in a nutshell

Research on programming languages, language design & implementation, distributed systems, concurrent and parallel programming, mobile computing, Javascript.

Education

Oct. 2004 - May 2008: Doctor of Philosophy (PhD) in Sciences (Computer Science), Vrije Universiteit Brussel (Brussels, Belgium), Greatest Distinction.



- Doctoral dissertation: “Ambient references: object designation in mobile ad hoc networks”. Promoters: Prof. Dr. Wolfgang De Meuter, Prof. Dr. Theo D’Hondt.
- My PhD contribution is a **scripting language for mobile phones** named **AmbientTalk**. The language runtime is written in Java and runs on Android, J2SE and J2ME devices. AmbientTalk is a full-fledged concurrent and distributed language, based on actors (message-passing concurrency), with support for reflection and thread-safe interoperability with the JVM. The interpreter is open sourced on Google Code (ambienttalk.googlecode.com). AmbientTalk was featured at **droidcon.be** 2011 in Brussels and covered in **Datanews** (<http://goo.gl/B35V4x>).
- In July 2010 I gave an Invited Talk on AmbientTalk at the First Emerging Languages Camp, co-located with the O’Reilly Open Source Conference (OSCON) in Portland, Oregon. My talk was subsequently featured in an article in **MIT Technology Review** (<http://goo.gl/n0TGA>), and I got interviewed by **Microsoft Channel 9** (<http://goo.gl/4Uk8rB>, 40.000+ views).

Oct. 2000 - June 2004: Master of Science (MSc) in Computer Science, Vrije Universiteit Brussel, Greatest Distinction (GPA 18.76 / 20 or 93.8%).



- Upon graduating, I received the “**Science Award**” which is awarded yearly by the university’s Faculty of Sciences to the graduated student with the overall best grades seen over his/her entire course of study.

2008: completed evening course on Entrepreneurship (“starter seminars”), organized by the Technology Transfer Interface of the Vrije Universiteit Brussel.

Work Experience

Feb. 2014 - present: Senior Researcher at **Alcatel-Lucent Bell Labs**, Antwerp, Belgium 

- Distributed systems & cloud computing research, with a focus on programmability.



Oct. 2012 - present: Professor of computer science (Docent) at Vrije Universiteit Brussel, Belgium

Jan. 2010 - Sept. 2012: 10% professor (ZAP-BOF) at Vrije Universiteit Brussel, Belgium

- My research group is part of the [Software Languages Lab](#) (SOFT). I am scientific promotor of 4 PhD students and co-promotor of another 2 PhD students.
- I independently developed an advanced Master-level course on **Multicore Programming** and an introductory Bachelor-level course on **Distributed Systems** (both 30 hours of lectures).
- I remain personally involved in technical work (cf. my GitHub page <http://goo.gl/AScbSb>).
- I built up an extensive network with researchers from universities worldwide and from industry, including Google Research, HP Labs, Mozilla Research, IBM Research, Intel Labs, MSR.

Nov. 2009 - April 2010: Visiting Faculty at **Google**, Mountain View, CA, USA



- As part of my Post-doctoral research, I spent 6 months at the Google HQ in the US as a Visiting Faculty to collaborate with Dr. Mark S. Miller on new language features for **JavaScript** (es-lab.googlecode.com). My research activities are summarized in a Tech Talk, available on YouTube (<http://goo.gl/cUhpo>, 7000+ views).
- Sat on the ECMA technical committee that standardizes the JavaScript language, as a Google representative. Contributed to the [ECMA-262](#) 6th Edition ECMAScript standard.
- Developed a meta-programming API for Javascript (<http://goo.gl/S4l7D>) that was accepted for inclusion in the **ECMAScript 6 standard** (<http://goo.gl/j25yf>), with prototype implementations now shipping in the Chrome and Firefox browsers. I continue to give technical feedback to engineers at Google and Mozilla working on implementing this API.
- Wrote a minimal and portable **Javascript library** for **Trait composition** (<http://traitsjs.org>), also featured on popular web developer website Ajaxian.com (April 13th, 2010).
- Wrote a declarative, spec-compliant ECMAScript 5 parser in Javascript (<http://goo.gl/R2824>).

Oct. 2008 - Jan. 2014: Postdoctoral Fellow of the Research Foundation - Flanders (FWO) 

- The FWO is Belgium's "National Science Foundation". It is the most prestigious research funding organisation of the country (acceptance rate for Postdoctoral Fellow grants is < 30%).
- I was awarded a three-year personal fellowship to fund my research on distributed programming languages at the Vrije Universiteit Brussel. In October 2011, my fellowship was renewed for another three-year period.



Oct. 2004-Sept. 2008: PhD student with a fellowship of the Research Foundation -Flanders (FWO)

- Finished my PhD in 3.5 years at the Programming Technology Lab of the Vrije Universiteit Brussel, funded by the most prestigious research grant available to Belgian PhD students.

Organizations

- Member of the **ECMA TC39** standardization committee for ECMAScript (since July 2010).
- Founding member of the **IFIP Working Group 2.16 on Programming Language Design**.
- Member of the scientific steering committee of the **ExaScience** Lab. This interdisciplinary lab housed at IMEC in Leuven performs research on next-generation high-performance computing, in close cooperation with industry partners such as **Intel** and **J&J** (exascience.com).
- Co-organizer and member of the Jury of regional and national **programming contests** for kids in high-school and students at university, including the [Belgian Olympiad in Informatics](#) and the [Flemish Programming Contest](#) (I was the main organizer of the 5th edition in 2013, hosted at the VUB, attracting 500 contestants.)

Research activities (summary)

- Author of 57 peer-reviewed **publications** (since 2005). For a full list of my academic publications, citations and rankings, please see my profile on Google Scholar: <http://goo.gl/DsUJv>
Top publications in ECOOP, ESOP, DLS, ACM Computing Surveys, Softw. Pract. & Exper.
- Presented numerous papers, **invited talks**, tutorials and posters at various international conferences. A full list of my talks is available online: <http://goo.gl/YN2We9>
- Acquired research **project funding**: FWO (2x personal grant + 1x research project, budget EUR 250K) and IWT (2x PhD student grants + 2x R&D projects, budget EUR 600+K).
- Organised international scientific events: [SCRIPT](#), [Erlang Factory Lite Brussels](#), [DCDP](#), [DO21](#).
- **Program Committee member** of computer science conferences, including ACM SIGPLAN conferences Onward! (2014, 2012, 2011) and the Dynamic Languages Symposium (2012).
- Peer reviewer for articles submitted to various conferences and Journals including IEEE Software, Science of Computer Programming and IEEE Transactions on Software Engineering.
- Various short (1 - 2 weeks) research stays abroad to **collaborate with international peers**, including stays at the University of Tokyo (Japan), INRIA Lille (France), the University of Chile (Santiago, Chile) and the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland.

Software engineering skills

- I'm a **programming languages enthusiast** with a keen interest in their history and design. I consider myself an expert in Java and JavaScript and fluent in C/C++, Erlang, Clojure, Ruby, Scheme and Prolog. I have experience with programming in Python, Scala, Smalltalk, Visual Basic and Matlab. I am comfortable with learning new languages quickly.
- Comfortable working with a variety of programming paradigms: functional, object-oriented, declarative, event-driven, data-driven, stream-oriented, ...
- I value unit testing, extensive source code documentation, clean and modular code.
- Writing academic papers has honed my technical writing and presentation skills.
- Comfortable working in (and guiding) a team, respecting deadlines, being punctual.
- Trained in object-oriented analysis and design, design patterns.
- Working knowledge of common web technologies and protocols (HTML, XML, JSON, HTTP, ...)
- Experience with web development frameworks (Ruby on Rails) and CMS (Drupal)
- Experience with various version control systems (Git, SVN, Mercurial, CVS).
- Experience in working under Linux, Mac and Windows.

References to colleagues and collaborators that can endorse my work are available on request.