

Personal Data

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| Name: | Walied Othman | Date of birth: | 1979 |
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| Email: | walied.othman@gmail.com | Driver license: | A, B |
| Mobile: | +32 485 83 09 59 | Languages: | Dutch, English, French |

Training

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| 2005 - 2009 | Hasselt University PhD in Theoretical Computer Science Thesis: "Uncertainty Management in Spatio-temporal Databases" (May 19th, 2009) |
| 1997 - 2001 | K.U.Leuven (University) Licentiaat Wiskunde (MSc Mathematics) Thesis: "The Discrete Log Problem in GF(p)" |
| 1993 - 1997 | Sint-Gertrudisinstituut Landen (High school) Mathematics-Sciences |

Programming

- Objective-C, Swift (Pente Live on the iOS Appstore: <https://itunes.apple.com/us/app/pente-live/id595426592?ls=1&mt=8>, iOS Client to exchange Pond messages on GitHub)
- iOS runtime modification: WeatherLock (shows animated weather and weather information on the lock screen and home screen), MoonPhase (shows the current phase of the moon in the status bar beside the clock and on the lock screen) (iOS9+10 versions are available on Cydia, iOS11 versions are available on <http://submanifold.be/cydia>)
- Java (Pente.org backend since 2013 and Pente Live on Google Play: <https://play.google.com/store/apps/details?id=be.submanifold.pentelive&hl=en>)
- React, Ruby, Rails, Node
- Keen on functional programming (Haskell, no professional experience) Currently working though the slides of the Haskell ITMO course, fairly familiar with the first 9 lectures (up to monad transformers), now exploring the rest.
- Some SQL, Tomcat on Debian (See Pente.org)
- Some Python, Pascal

Mathematics

- keen on general problem solving
- special interest in discrete mathematics, number theory, and geometry
- special interest in cryptography which resulted in toy bignum implementations in Pascal and Objective-C for cryptographic public key implementations (FGInt)
- recent interest in functional programming
- budding interest in financial mathematics, machine learning

Languages

Fluent in Dutch and English, intermediate French

Experience

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| 01/05/2012 – 31/07/2014 | University of Zürich – Research and scientific coordinator COST Action IC0903 MOVE GIS, Database theory PostDoc |
| 13/06/2011 – 17/05/2012 | Nanyang Technological University – Research Database theory PostDoctoral Fellow |
| 07/11/2010 – 06/05/2011 | University of Münster - IFGI – Research Research on spatio-temporal modeling and various GIS topics PostDoctoral Fellow |
| 11/01/2010 – 10/07/2010 | University of California - Santa Cruz – Research Research on Data Inter-operability via Schema Mappings PostDoc |
| 01/10/2005 – 30/09/2009 | Hasselt University – Research/Education Research in Theoretical Computer Science in the Databases and Theoretical Computer Science group Assistant – Researcher |
| 14/02/2005 – 30/06/2005 | Hogeschool West-Vlaanderen – Lector Multimedia and Communication Technology |
| 01/03/2004 – 14/02/2005 | Department of education – Education Teacher |
| 01/10/2001 – 30/09/2003 | K.U.Leuven - Research/Education Research in Pure and Applied Differential Geometry at the department of mathematics of the KUL Assistant – Researcher |
| 1999 – present | Triade Systems – Development Development of and maintaining the FGInt and related libraries http://www.submanifold.be/ |

Publications

Accepted for publication: (*Author's names are alphabetical, primary author in bold*)

- Bart Kuijpers and **Walied Othman**, "Trajectory databases: data models, uncertainty and complete query languages" in Proceedings of 11th International Conference on Database Theory (ICDT'07), Lecture Notes in Computer Science, Vol. 4353, 224--238, Springer-Verlag, 2007.
- Jose Macedo, Christelle Vangenot, Walied Othman, Nikos Pelekis, Elias Frentzos, Bart Kuijpers, Irene Ntoutsis, Stefano Spaccapietra, Yannis Theodoridis, "Trajectory data models", Chapter 5 in Mobility, Data Mining and Privacy -- Geographic Knowledge Discovery, eds. Fosca Giannotti and Dino Pedreschi, 125--149, Springer-Verlag, 2007.
- Bart Kuijpers and **Walied Othman**, "An analytic solution to the alibi query in the bead model for moving object data", in the Proceedings of the Dagstuhl seminar 07212 "Constraint Databases, Geometric Elimination and Geographic Information Systems", 2007.
- Bart Kuijpers, Harvey J. Miller, Tijs Neutens and **Walied Othman**, "Anchor uncertainty and space-time prisms on road networks", in the Proceedings of the Dagstuhl seminar 08471 "Geographic Privacy-Aware Knowledge Discovery and Delivery", 2008.
- Bart Kuijpers, Rafael Grimson and **Walied Othman**, "An analytic solution to the alibi query in the space-time prisms model for moving object data", published in International Journal of Geographical Information Science, Vol. 25, Issue 2, pp 293--322, 2011. (*SCI-impactfactor: 1.822*)
- Bart Kuijpers and **Walied Othman**, "Modeling uncertainty of moving objects on road networks via space-time prisms", published in International Journal of Geographical Information Science, Vol. 23, Issue 9, pp 1095--1117, 2009. (*SCI-impactfactor: 1.822*)
- Bart Kuijpers and **Walied Othman**, "Trajectory databases: data models, uncertainty and complete query languages" published in Journal of Computer and System Sciences, Vol. 76, Issue 7, pp 538--560, 2010. (*SCI-impactfactor: 1.185*)
- Bart Kuijpers, Bart Moelans, **Walied Othman** and Alejandro Vaisman, "Analyzing Trajectories using Uncertainty and Background Information", in Proceedings of 11th International Symposium on Advances in Spatial and Temporal Databases (SSTD'09), Lecture Notes in Computer Science, Vol. 5644, 135--152, Springer-Verlag, 2009.
- Kristof Ghys, Bart Kuijpers, Bart Moelans, Walied Othman, Dries van Goidsenhoven and Alejandro Vaisman, "Map Matching and Uncertainty: an Algorithm and Real-World Experiments", in 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL GIS 2009) ACM, 2009
- Bart Kuijpers, Harvey J. Miller, Tijs Neutens and **Walied Othman**, "Anchor uncertainty and space-time prisms on road networks", published in International Journal of Geographical Information Science, Vol. 24, Issue 8, pp 1223--1248, 2010. (*SCI-impactfactor: 1.822*)
- Tetsuo Kobayashi, Harvey J. Miller, **Walied Othman**, "Analytical methods for error propagation in planar space-time prisms", published in Journal of Geographical Systems, Vol. 13:4, pp 327--354, 2011. (*SCI-impactfactor: 1.25*)

- Miller, H.J., Kobayashi, T. and **Othman, W.** (2010) “Error propagation in space-time prisms,” in N. J. Tate and P. F. Fisher (eds.) Accuracy 2010: Proceedings of the Ninth International Symposium on Spatial Accuracy Assessment in the Natural Resources and Environmental Sciences, International Spatial Accuracy Research Association, pp. 37--40.
- Bart Kuijpers, Harvey J. Miller, **Walied Othman**, "Kinetic space-time prisms", in 19th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL GIS 2011) ACM, 2011.
- **Rafael Grimson**, Bart Kuijpers and Walied Othman, “Quantifier elimination for elementary geometry and elementary affine geometry”, published in Mathematical Logic Quarterly, Vol. 58:6, pp 399—416, 2012. (*SCI-impactfactor: 0.496*)
- Phokion Kolaitis, Walied Othman, Balder Ten Cate, “Data Exchange with Arithmetic Operations”, Proceedings of the 16th International Conference on Extending Database Technology, pp 537—548, 2013.
- Georgios Technitis, Walied Othman, Kamran Safi, Robert Weibel, “From A to B, randomly: An origin-to-destination random trajectory generator for animal movement”, published in International Journal of Geographical Information Science, , , , , 2015
- Bart Kuijpers, Walied Othman, “The geometry of space-time prisms with uncertain anchors”, in International Journal of Geographical Information Science, , , , , 2017
- Bart Kuijpers, Harvey J. Miller, Walied Othman, “Kinetic prisms: incorporating acceleration limits into space–time prisms”, in International Journal of Geographical Information Science, , , , , 2017

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In preparation:

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Submitted for publication:

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Research visits

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| 04/2008 – 09/2008 | University of Utah – United States Department of Geography - Prof. dr. Harvey J. Miller |
| 01/2010 – 07/2010 | University of California - Santa Cruz – United States Department of Computer Science Prof. dr. Phokion G. Kolaitis, Prof. dr. Wang-Chiew Tan |
| 11/2010 – 04/2011 | University of Münster - Germany Institute For GeoInformatics (IFGI) Prof. dr. Werner Kuhn |
| 06/2011 – 04/2012 | Nanyang Technological University – Singapore School of Computer Engineering – CAIS Prof. dr. Xiaokui Xiao |
| 05/2012 – 07/2014 | University of Zürich – Switzerland Department of Geography Prof. dr. Robert Weibel |

About me

Though I 'm an abstract mathematician, my strong point is the ability to switch fluently between abstract concepts and ideas from reality, and thus ensue the best setting to manipulate the given objects.

Areas of interest include discrete mathematics, number theory, graph theory, information theory, combinatorics, public key cryptography, mathematical analysis, topology and differential geometry.

Triade Systems

In 1999 I single-handedly created a library for FreePascal And Delphi called FGInt to manipulate extremely large integers in a time when there existed none. Using this library I implemented classic public key algorithms like RSA, ElGamal, DSA and GOSTDSA. I also implemented state of the art public key algorithms like Elliptic Curve ElGamal and Elliptic Curve DSA. The very algorithms used to secure virtually all secured communications worldwide.

These libraries are used in Skype, see <http://www.skype.com/intl/en-gb/legal/third-party-software/> .

Besides ongoing development and maintenance, I also provide help with the integration of my libraries. Some examples of these projects are:

- The use of FGInt by GS-soft Switzerland to provide asymmetric encryption systems for several Swiss army projects. Details about these projects are not available for public access but Mr Günther Schoch (see references below) could be contacted as a reference for my work.
- And then there is CEPTEST. CEPTEST is an application, which is used by developers of the ep2-protocol. The ep2-protocol is used to communicate between payment terminals and acquiring institutions in Switzerland. CEPTEST simulates this communication line. The RSA-encryption is performed by FGInt.

In 2012, I created the same libraries for Objective-C.

I also created gKnjOn and gSpamCop, which is a python script that forwards gmail's spam to KnjOn.com and spamcop.net respectively. After the demise of bluefrog KnjOn stepped in, but lacked the tools for their clients to submit their spam, this also applied to spamcop. I created these scripts to fill that need by choosing python I ensured this was not platform specific.

References

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| <p>Prof. dr. Bart Kuijpers Databases and Theoretical Computer Science, Hasselt University Bart.kuijpers at uhasselt.be Agoralaan gebouw D, B-3590 Diepenbeek, Belgium Tel: +32 (0)11 26 82 45 Fax: +32 (0)11 26 82 99</p> |
| <p>Prof. dr. Harvey J. Miller Department of Geography, University of Utah harvey.miller at geog.utah.edu 260 S. Central Campus Dr. Room 270 Salt Lake City, UT 84112-9155 USA Tel: +1.801.585.3972 Fax: +1.801.581.8219</p> |
| <p>Prof. dr. Phokion G. Kolaitis Computer Science Department, University of California, Santa Cruz kolaitis at cs.ucsc.edu Santa Cruz, CA 95064, USA Tel: +1.831.459.4768</p> |
| <p>Prof. Dr. Robert Weibel Geographic Information Science (GIS) Department of Geography University of Zurich - Irchel Winterthurerstr. 190 robert.weibel at geo.uzh.ch Tel: +41-44-635 51 90 Fax: +41-44-635 68 48</p> |
| <p>Mr Günther Schoch, Dipl Ing ETH gs-soft ag Delfterstr 10 CH-5000 Aarau, Switzerland Tel: ++41 (0)62 832 20 40 http://www.gs-soft.com</p> |