W. Othman, PhD.

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SUMMARY

Full Stack Developer, mathematician and PhD-trained computer scientist with a proven track record of leading teams and delivering innovative solutions in financial domains. Expert in developing and optimizing scalable platforms, system migrations, and secure analytics tools for corporate credit and global macro teams. Skilled in Python/Django, ReactJS, Kubernetes, and cloud technologies, with extensive experience managing diverse teams, mentoring talent, and driving cross-functional projects. Combines strong problem-solving skills and a deep mathematical foundation to tackle complex challenges and advance platform efficiency and security.

EDUCATION

Hasselt University, PhD in Theoretical Computer Science, 2005–2009
Thesis: "Uncertainty Management in Spatio-temporal Databases"

K.U Leuven, BSc, MSc Mathematics, 1997–2001
Thesis: "The Discrete Log Problem in GF(p)"

EXPERIENCE

Full Stack Software Developer (AVP), GIC Front Office, (IIG, BPS), 10/2022–02/2025, Singapore
- Supported and developed solutions for Corporate Credit, Alternative Credit, and Global Macro teams in FIMA (Fixed Income & Multi-Asset).
- Built and debugged dashboards on *Narnia*, an internal analytics platform, and worked on *RPSC* (Research Portfolio Systematically Constructed), an application within *Arena*, an internal execution and workflow platform.
- Optimized and enhanced build and deployment pipelines, orchestrating large-scale migrations from GitLab to GitHub, upgrading platforms and ingestion scripts to meet new Cyber Security Policies while ensuring stability and compliance.
- Migrated legacy and standalone applications into *Narnia* and *Arena* platforms, centralizing critical components to reduce reliance on external teams.
- Set up an out-of-the-box development environment for new hires, improving onboarding efficiency and ensuring smooth project integration.
- Led a diverse team of 6–9 interns and consultants, managing recruitment, task assignment, and performance to deliver critical platform enhancements and migrations.
- Tech Stack: Python/Django, ReactJS/TypeScript, Docker (OSD Kubernetes, Docker Compose), Helm, S3, Terraform.

Senior Software Developer, Biomatrix Chain Intelligence, 03/2020–10/2022, Singapore
- Designed and developed new backend services while maintaining and enhancing existing products using Python, Git, and BASH scripting for automation. Created reproducible builds and deployments with Docker.
- Developed and deployed an optical character recognition (OCR) solution for identity verification, achieving production-ready accuracy and introducing innovative model training strategies.
- Migrated a credit scoring solution to a big data framework, transitioning from *Pandas* to *Spark*, and scaled credit line processing capacity from thousands to millions.
- Built a prototype crypto exchange from scratch in Haskell, capable of processing limit and market orders.
- Spearheaded the adoption of best practices for software development across the team, including version control, continuous testing, and automated deployment.

Postdoc and Scientific Co-ordinator, University of Zürich, 05/2012–07/2014, Switzerland
- Organized workshops and coordinated meetings for researchers involved in the COST Action IC0903 MOVE project, fostering collaboration and knowledge exchange.

- Advised master's and PhD students, providing mentorship and guidance on research topics and methodologies.
- Conducted advanced research on uncertainty management for moving objects, leveraging GIS and database theory to develop innovative approaches.
- Designed and implemented proof-of-concept solutions using *Mathematica*, demonstrating the practical applicability of research findings.

Postdoctoral Fellow, Nanyang Technological University, 05/2011–04/2012, Singapore
Research on database theory

Postdoctoral Fellow, University of Münster, 11/2010–04/2011, Germany
Research on spatio-temporal modelling and various GIS topics

Postdoc, University of California Santa Cruz, 01/2010-06/2010, USA
Research on data inter-operability on via Schema Mappings

SKILLS

Languages: Python, React, Haskell, SQL, Java, Swift, Objective-C, Pascal, Ruby on rails, Node,
Tools: Git, Docker, Kubernetes and other Google Cloud products, ElasticSearch, Kibana, BASH, AWS

SELECTED PUBLICATIONS

Coauthored 18 scientific publications (11 of which I was first author), demonstrating the ability to conduct rigorous research in a team environment and apply abstract mathematical concepts to real-life solutions. A more complete list can be found here https://othmanw.submanifold.be/

- Bart Kuijpers, Rafael Grimson and **W. 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)**
- Phokion Kolaitis, W. Othman, Balder Ten Cate, "Data Exchange with Arithmetic Operations", Proceedings of the 16th International Conference on Extending Database Technology, pp 537—548, 2013.
- Bart Kuijpers, Harvey J. Miller, Tijs Neutens and **W. 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)**

PERSONAL PROJECTS

iOS and Android Apps, 2012–Present
- Created several apps for iOS and Android using Objective-C, Swift, and Java
- Developed Pente Live, an app version of the popular strategy game Pente (pente.org)
- Implemented iOS runtime modifications to create WeatherLock and MoonPhase, which display weather and lunar phase information on the lock screen and home screen

FGInt, 1999–2012
- Single-handedly created the first library for FreePascal and Delphi to manipulate extremely large integers, which has been used by the Swiss military as well as by Skype
- Implemented state of the art public key algorithms used to secure communications globally, namely RSA, ElGamal, DSA, GOSTDSA, Elliptic Curve ElGamal, and Elliptic Curve DSA
- Continued maintenance and ongoing development, including assisting with the integration of these libraries and recreating them for Objective-C.