

## RÉSUMÉ: TOM MCWALTER

Dr Thomas McWalter  
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Citizenship: RSA and UK.

### Academia

- 1990: B.Sc. from the University of the Witwatersrand (Wits), with distinction in Computer Science. Awarded the Colin James Young prize for best real world project in any area of the Mathematical Sciences.
- 1991: B.Sc. (Hons) in Computer Science from Wits, with distinction. Awarded the Colin James Young prize for best real world project in any area of the Mathematical Sciences. Awarded the Liberty Life gold medal for outstanding performance.
- 2002: B.Sc. (Hons) in Advanced Mathematics of Finance from Wits, with distinction.
- 2006: M.Sc. in Advanced Mathematics of Finance from Wits, with distinction. Awarded the Standard Bank Award for best masters dissertation in Mathematics of Finance.
- 2010: Ph.D. from Wits with a thesis entitled HIV Incidence Estimation Using Biomarkers for Recent Infection.

### University of Witwatersrand

From 2007 until the present, I have been, and am still, employed as a visiting lecturer at the University of the Witwatersrand in the school of Computational and Applied Mathematics. I am responsible for teaching Mathematical Computing Skills (MCS) and Numerical Methods in Finance (NMF) to honours level students in the Programme in Advanced Mathematics of Finance. I have and continue to supervise several honours and masters students, all in the area of Mathematical Finance.

### The Internet Solution

From 1993 until 2000, I co-founded South Africa's first commercial Internet Service Provider and performed the role of Technical Director until the business was acquired by Dimension Data. My responsibilities included all technical aspects of Internet service provision, including international and national wide area networks, all point of presence infrastructure (including local area networks, corporate customer connectivity, dial-up facilities and computer room facilities), help desk/logistics center (including PABX installation, work flow tools, network management tools), provision of basic network services and security for clients.

### Publications

- McWalter TA (1991) Edge Adaptive Image Smoothing. Proc. South African Symposium on Communications and Signal Processing, 30 August 1991 - Pretoria, South Africa.

- Hulley H, McWalter TA (2008) Quadratic Hedging of Basis Risk (Preprint: QFRC research papers, available at <http://econpapers.repec.org/paper/utsrpaper/225.htm>)
- Bärnighausen T, Wallrauch C, Welte A, McWalter TA, Mbizana N, Viljoen J, et al (2008) HIV incidence in rural South Africa: comparison of estimates from longitudinal surveillance and cross-sectional cBED assay testing. PLoS ONE; 3:e3640.
- Welte A, McWalter TA, Bärnighausen T (2009). A simplified formula for inferring HIV incidence from cross-sectional surveys using a test for recent infection. AIDS Res Hum Retroviruses; 25:125-6.
- McWalter TA, Welte A (2009) A comparison of biomarker based incidence estimators. PLoS One; 4(10):e7368.
- Welte A, McWalter TA, Bärnighausen T (2009) Reply to 'Should biomarker estimates of HIV incidence be adjusted?' AIDS; 23:2062-3.
- McWalter TA, Welte A (2010) Relating recent infection prevalence to incidence with a sub-population of assay non-progressors. J Mathematical Biology; 60:687-710.
- Welte A, McWalter TA, Layendecker O, Hallet TB (2010) Using tests for recent infection to estimate incidence: problems and prospects for HIV. Eurosurveillance; 15:pii=19589.
- Bärnighausen T, McWalter TA, Rosner Z, Newell M-L, Welte A (2010) HIV Incidence estimation using the BED Capture Enzyme Immunoassay: systematic review and sensitivity analysis. Epidemiology; 21(5):685-697.
- Kassanjee R, Welte A, McWalter TA, Keating SM, Vermeulen M, Stramer SL, Busch MP (2011) Seroconverting blood donors as a resource for characterising and optimising recent infection testing algorithms for incidence estimation. PLoS One; 6(6): e20027.
- Kassanjee R, McWalter TA, Bärnighausen T, Welte A (2011) A New General Biomarker-Based Incidence Estimator. (Preprint)

### Conference Presentations

A list of conference presentations/posters is available on request. These include 5 image processing conferences, 5 mathematical finance conferences and 8 HIV/AIDS conferences.