

## Prof. William D. Tucker (aka Bill)

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### Academic qualifications

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| <b>Doctor of Philosophy (PhD) 2009, Computer Science, University of Cape Town</b><br><i>Thesis</i> Softbridge: A socially aware framework for communication bridges over digital divides   |
| <b>Master of Science (MS) 1995, Computer Science, Arizona State University, Tempe, AZ</b><br><i>Concentrations:</i> Operating systems, Computer graphics, Computer networks<br><i>Thesis</i> HPL Shell - A visual hybrid programming interface to UNIX         |
| <b>Bachelor of Arts 1988 (BA), Trinity University, San Antonio, Texas</b><br><i>Majors:</i> Sociology, Business Administration<br><i>Minor:</i> Computer Science (2 courses short of a third major)  |
| <b>High school diploma 1983, Taipei American School, Taipei, Taiwan</b><br>Advanced Placement (AP)/International Baccalaureate programmes in 11th and 12th grades<br>Student Body President (12th grade), Class president (11th grade), Class Rep (10th grade) |

### Work experience

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| <b>University of the Western Cape, South Africa, 1998-present</b><br><i>Associate Professor of Computer Science</i><br>1998: Technical assistant; 1999: Lecturer; 2002: Senior Lecturer; 2012: Associate Professor <ul style="list-style-type: none"><li>• NRF rating: C3</li><li>• Google h-index: 16 (as of Jan 2017)</li><li>• 7 journal articles; 3 book chapters; conference proceedings 27 international, 49 national</li><li>• Research group: Bridging Application and Network Gaps (BANG)</li><li>• Postgrad completions: PhD: 2, MSc: 25, Honours: 49</li><li>• Postgrad supervision current: PhD: 8, MSc: 1, Honours: 3</li><li>• Research funding: average of R1 million+ per annum since 2002. R2.5 million in 2016!</li><li>• Lecturing (current): 3rd year Operating Systems, Honours ICT4D</li><li>• Administrative: Teaching &amp; Learning committee; Senate; Blended learning champion, Information, Communication and Technology Portfolio Steering Committee (ICTPSC)</li><li>• Associate Editor for Information Technology and International Development <a href="http://itidjournal.org">http://itidjournal.org</a>, the field's top journal.</li><li>• Senior programme committee ICTD 2017.</li><li>• Program committee: SATNAC 2017.</li><li>• Co-organiser: Partnership for Progress on the Digital Divide, PPDD 2017 (Africa chair)</li></ul> |
| <b>UniKix Technologies, Phoenix, Arizona, USA, 1990-1996</b><br><i>Software Engineer/Systems Administrator</i> <ul style="list-style-type: none"><li>• Firsthand experience of the dot.com boom: one of seven initial employees that grew to more than 150 by 1996 with offices in Phoenix, London and Singapore.</li><li>• Primary role: design and build KixScan, a graphical user interface to main product UniKix, for on-site and in-house visual management and debugging.</li><li>• Secondary role: provide systems admin for 14 flavours of UNIX servers, and manage thin client hardware and software for development, testing and administrative computing.</li><li>• By 1995, I was project leader for the KixScan product line leading a team of several software developers; and also supervised two systems administrators.</li></ul>   |

## Selected recent publications

- Tucker, W. D. (2017). Amplifying Positive Deviance with ICT. In J. Choudrie (Ed.), *Information and Communication Technologies for Development (ICT4D 2017, IFIP AICT 504)* (pp. 206–217). Yogyakarta, Indonesia: Springer. [http://doi.org/10.1007/978-3-319-59111-7\\_18](http://doi.org/10.1007/978-3-319-59111-7_18)
- Chininthorn, P., Glaser, M., Tucker, W. D., & Diehl, J. C. (2016). Exploration of Deaf people's health information sources and techniques for information delivery in Cape Town: A qualitative study for the design and development of a mobile health application. *JMIR Human Factors*, 3(2), e28. ISSN: 2292-9495.
- Dearden, A., & Tucker, W. D. (2016). Moving ICTD Research Beyond Bungee Jumping: Practical Case Studies and Recommendations. *IEEE Technology and Society Magazine*, 35(3): 36–43. ISSN: 1932-4529.
- Rey-Moreno, C., Blignaut, R., May, J., & Tucker, W. D. (2016). An in-depth study of the ICT ecosystem in a South African rural community: unveiling expenditure and communication patterns. *Information Technology for Development (ITD)*, 1–20. ISSN: 0268-1102.
- Rey-Moreno, C., Sabiescu, A. G., Siya, M. J., & Tucker, W. D. (2015). Local Ownership, Exercise of Ownership and Moving from Passive to Active Entitlement: A practice-led inquiry on a rural community network. *The Journal of Community Informatics*, 11(2). ISSN: 1712-4441.
- Rey-Moreno, C., Tucker, W. D., Cull, D., & Blom, R. (2015). Making a Community Network Legal within the South African Regulatory Framework. In *ICTD '15*, (Article 57). Singapore: ACM Press, NY, NY. ISBN: 978-1-4503-3163-0.
- Tucker, W. D. (2015). Beyond traditional ethics when developing assistive technology for and with Deaf people in developing regions. In M. Hersh (Ed.), *Ethical Engineering for International Development and Environmental Sustainability* (pp. 293–324). Springer: London. doi:10.1007/978-1-4471-6618-4.

## Community engagement

### SignSupport <http://www.signsupport.org>

Since 2001, BANG has designed novel assistive technologies with and for a marginalized and under-employed Deaf community in Cape Town. These Deaf people are proficient and fluent in signed language, yet due to poverty and under-education exhibit limited functional literacy with written and spoken language when interacting with a hearing majority. A multi-disciplinary and trans-university team is currently busy with iterative and incremental design and evaluation of a mobile tool suite that bridges information and communication gaps between Deaf and hearing people, in the language that these Deaf people understand: South African Sign Language (SASL). We are generalizing this tool to handle a) multiple limited interaction scenarios, b) multiple languages for illiterate users, and c) multiple mobile platforms. There are currently two scenarios in prototype: pharmacy and international computer driver license (ICDL) training. A diabetes self-management scenario and mobile video relay are both in advanced design stage.

### Zenzeleni Networks <http://zenzeleni.net>

Since 2003, we have deployed rural wireless networks in the remote Eastern Cape together with local communities. In 2012, we moved from telehealth towards an economically viable community-owned and run wireless mesh network. This multi-disciplinary trans-university project includes collaborators from Computer Science, Electrical Engineering, Economics, Statistics, Social Development, Gender Studies and Ethnography. A local not-for-profit, Zenzeleni Networks Ltd, installed and now maintains a solar-powered rural mesh network that provides free internal calls and costed calls to landline and mobile operators. Zenzeleni obtained license exemption from ICASA, the regulatory authority, in 2014 to operate telecommunications infrastructure, setting a precedent for other communities. Zenzeleni generates income by charging mobile phone batteries and providing 'breakout' calls at a fraction of the cost. With broadband Internet since 2017, and WiFi access from smartphones, this initiative aims to bridge the gap between inverse infrastructure and mainstream operators to benefit all stakeholders.