

Prof. William D. Tucker (aka Bill)

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Academic qualifications

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

Work experience

University of the Western Cape, South Africa, 1998-present <i>Associate Professor of Computer Science</i> 1998: Technical assistant; 1999: Lecturer; 2002: Senior Lecturer; 2012: Associate Professor <ul style="list-style-type: none">• NRF rating: C3• Google h-index: 16 (as of Dec 2016)• 7 journal articles; 3 book chapters; conference proceedings 26 international, 48 national• Completions: PhD: 2, MSc: 25, Honours: 46• Supervising 1 post-doc; 5 PhD: 2 Computer Science (CS), 2 Institute for Social Development (ISD), 1 Industrial Design; 1 MSc CS and 4 Honours CS; 3 PhD and 1 MSc research assistants: ISD, Gender Studies, Information Systems and CS, respectively; 3 community research assistants and 1 postgrad administrator.• Research funding: average of R1 million+ per annum since 2002. R2.5 million in 2016!• Lecturing (current): 1st year programming in Java and 3rd year Database Systems• Administrative: Teaching & Learning committee; Senate; Blended learning champion• Associate Editor for Information Technology and International Development http://itidjournal.org, the field's top journal.• Technical programme committees in 2016: ICTD (Michigan), PDC (Aarhus) and DEV (Nairobi), all published by ACM Press.• Co-organiser: ACM CHI Development Consortium (San Jose, CA) HCI Across Borders
UniKix Technologies, Phoenix, Arizona, USA, 1990-1996 <i>Software Engineer/Systems Administrator</i> <ul style="list-style-type: none">• 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.• Primary role: design and build KixScan, a graphical user interface to main product UniKix, for on-site and in-house visual management and debugging.• Secondary role: provide systems admin for 14 flavours of UNIX servers, and manage thin client hardware and software for development, testing and administrative computing.• By 1995, I was project leader for the KixScan product line leading a team of several software developers; and also supervised two systems administrators.

Selected recent publications

(complete list on Google Scholar and UWC Open Access Research Repository)

- 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., & Westerveld, R. (2015). ICT4D and Local Access. In R. Mansell & H. A. Peng (Eds.), *The International Encyclopedia of Digital Communication and Society* (1st Ed., pp. 365-368). John Wiley & Sons. ISBN: 9781118767771.
- 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, we have 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. Diabetes, antenatal care scenarios are works in progress, and additional scenarios to support food security and health systems can be easily added.

Zenzeleni Networks <http://zenzeleni.net>

Since 2003, we have deployed rural wireless networks in the remote Eastern Cape together with local communities. In 2009, 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 Internet and WiFi access from smartphones, this initiative aims to bridge the gap between inverse infrastructure and mainstream operators to benefit all stakeholders. Such networks can be leveraged to address food security and health systems.