

# CURRICULUM VITAE



**Prof. Bill Tucker**

## Personal Details

Full Name:	William David Tucker
Known as:	Bill
Address:	7th Avenue, Boston Estate, Bellville 7530
Marital Status:	Married since 1996 with one child born 2010.
Language Proficiency:	Home language: English Rudimentary conversation: Spanish, Mandarin (Chinese), Afrikaans Greetings/pleasantries: isiXhosa and South African Sign Language
Health:	Pretty fit for my age (will retire a 2 <sup>nd</sup> time in 2030)
Nationality:	United States of America with Permanent Residence in South Africa (naturalisation approved in Mar 2017; still awaiting documentation from Home Affairs)
Digital contact:	btucker@sun.ac.za cs.sun.ac.za/~btucker
Voice contact:	Mobile and WhatsApp: +27 (0)82 494 8884
Hobbies:	Rock climbing, surfing/bodyboarding & mountain biking; song-writing/guitar; punk rock, indie and Americana music; sociobiology, non-fiction and comparative religion & cultural studies; and almost anything sci-fi and socially responsible activism.
Aspirations:	To help shape the Way Forward by enabling agency in all sectors with capable and forward thinking (former) students and collaborators; i.e. to get better at getting better.





## BIOGRAPHY

My name is William D. Tucker. Most people call me Bill. I am a Professor of Computer Science at Stellenbosch University in South Africa. My passion is Computing and Society, mainly social innovation and enterprise with, by and for disadvantaged communities in the iterative design and development of information and communication technology (ICT). This space is often called ICT for development (ICT4D). For various reasons, I am well-known for two community-based initiatives that commenced with my own PhD around 2001 that eventually led to both Zenzeleni and SignSupport which provide alternative and inexpensive forms of ICT in local languages.

In collaboration with a host of partners and stakeholders, our research and technology transfer efforts have attracted much attention and funding. After Zenzeleni was a semi-finalist in Mozilla Foundation's Equal Rating Challenge, and won Best Innovation with Social Impact from the South African Department of Science and Technology's (DST) Technology Innovation Agency (TIA) in 2017, the BBC made a documentary about the project in 2019. SignSupport has featured in local magazines, radio and television (SABC). Long-term research funders have included: South Africa's National Research Foundation (NRF), Telkom SA, Aria Technologies SA, Cisco SA, the Dutch government's SANPAD initiative and THRIP of the dti (Department of Trade and Industry). Other significant funders over the decades include: Internet Society (ISOC), Association for Progressive Communications (APC), AFRINIC FIRE, TIA (Technology Innovation Agency), Siemens SA, Canada's IDRC, and the European Commission's FP7 Horizons 2020.








I hold a Bachelor's degree with a double major in Sociology and Business Administration, and a minor in Computer Science, from Trinity University in San Antonio, Texas; a Master's via coursework and mini-thesis in Computer Science from Arizona State University in Phoenix; and a PhD in Computer Science from the University of Cape Town. Before a year-long honeymoon culminating in moving to Cape Town in 1997, I spent six years as a programmer and systems administrator in a start-up called UniKix Technologies in the original dot com boom in Phoenix, AZ. Based at UWC from 1998-2021, I worked up from Technical Assistant to Associate Professor. I co-chaired the 4th ACM Annual Symposium on Computing for Development (DEV) and also helped co-chair ICTD (Information and Communication Technologies and Development). I was the Africa chair for PPDD (Partnership for Progress on the Digital Divide) in 2017. I was an Associate Editor for ITID journal from 2014-2020. In 2021, I accepted a promotion to 'Fool' Professor at Stellenbosch University ;-). My research outputs can be found on UWC's Open Access Repository and on Google Scholar. Whilst at UWC, I won several prestigious institutional and faculty awards including excellence in teaching, research and community engagement. In South Africa, I am NRF-rated C1. I also enjoy the admin/service side of the university. I expect similar things at Stellenbosch and look forward to gunning for them until I retire again in 2030.

## ACADEMIC QUALIFICATIONS

 <p><b>University of Cape Town</b> 2009</p>	<p><b>PhD, Computer Science</b> Cape Town, South Africa</p> <p>Dissertation: Softbridge - A socially aware framework for communication bridges over digital divides</p>
 <p><b>Arizona State University</b> 1995</p>	<p><b>Master of Science, Computer Science</b> Tempe, Arizona, USA</p> <p>Concentrations: Operating systems, Computer graphics, Computer networks Thesis: HPL Shell - A visual hybrid programming interface to UNIX</p>
 <p><b>Trinity University</b> 1988</p>	<p><b>Bachelor of Arts</b> San Antonio, Texas, USA</p> <p>Majors: Sociology and Business Administration Minor: Computer Science (2 courses short of a third major)</p>
	<p><b>High school matric</b> Taipei, Taiwan</p> <p>Student government: Grade 12: Student body president</p>

<b>Taipei American School 1983</b>	Grade 11: Class president Grade 10: Class representative
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## EMPLOYMENT HISTORY

 <b>Stellenbosch</b> <small>UNIVERSITY IYUNIVESITHI UNIVERSITEIT</small>  <b>2021-current</b>	<b>Professor of Computer Science</b> Stellenbosch, South Africa  2021-current: Professor  See below for more detail.
 <small>UNIVERSITY of the WESTERN CAPE</small>  <b>1998-2021</b>	<b>Associate Professor of Computer Science</b> Bellville, South Africa  2012-2021: Associate Professor 2002: Senior Lecturer 1999: Lecturer 1998: Technical assistant  See below for more detail.
  <b>1990-1996</b>	<b>Software Engineer/Systems Administrator</b> Phoenix, Arizona, USA  <ul style="list-style-type: none"> <li>• First-hand experience of the dot.com boom: I was one of seven initial employees that grew to more than 150 by 1996 with two overseas offices.</li> <li>• My primary role was to design and build KixScan, a graphical user interface to our main product, UniKix, for on-site management and debugging.</li> <li>• My secondary role was to provide systems administration for 14 flavours of UNIX servers, and to manage the development, testing and administrative computing and networking infrastructure (HP and Sun Microsystems).</li> <li>• I was promoted in 1995 to project leader for the KixScan product line, and also to oversee two systems administrators.</li> </ul>
  <b>1989-1990</b>	<b>Teaching assistant/UNIX systems administrator</b> Phoenix, Arizona  <ul style="list-style-type: none"> <li>• Marked C programming assignments for Masters students in the Decision and Information Systems Department</li> <li>• Performed systems administration for research lab of Sun i386 workstations</li> </ul>
  <b>Fall 1988</b>	<b>Teaching assistant</b> Edmonton, Alberta, Canada  <ul style="list-style-type: none"> <li>• Taught introductory Pascal programming to undergraduate students in the Business School.</li> <li>• Funded by Computer Science department while studying for Masters.</li> </ul>
  <b>Summer 1988</b>	<b>Computer programmer</b> Taipei, Taiwan  <ul style="list-style-type: none"> <li>• Coded an inventory management system in FoxBase Pro.</li> <li>• Assembled and installed network of 80286-based PCs to run the software.</li> </ul>
  <b>Taiwan</b> <b>1979-1987</b>	<b>English teacher</b> Kaohsiung and Taipei, Taiwan  <ul style="list-style-type: none"> <li>• Taught English as a second language, e.g. TOEFL preparation,</li> <li>• For various language schools and private students, individuals and groups.</li> </ul>

## AWARDS

- **Innovation Award with Impact in Society**, for Zenzeleni with Shaun Pather, UWC, 2020.
- **Engagement Excellence Award**, for Zenzeleni, UWC, 2019.
- **NRF C1 rating in 2019** (see feedback from NRF below, Annexure A).
- **Faculty Excellence in Teaching** award to senior academic in Faculty of Natural Sciences, UWC, 2018.
- **Recognition of Excellence** by UWC Technology Transfer Office for Zenzeleni, 2018.
- **Best Innovation with Social Impact** at the DST/TIA Innovation Bridge, for Zenzeleni, 2017.
- **Semi-finalist Mozilla Foundation Equal Rating Challenge** for Zenzeleni, 2017.
- **Long Service Award**, 20 years at UWC, 2017.
- **DCCT service award** given at their 25th<sup>th</sup> anniversary celebration in 2012 (Deaf Community of Cape Town).

## TEACHING AND LEARNING overview

- 3<sup>rd</sup> year Human Computer Interfaces: 2018–present
- Honours ICT4D: 2017–present
- **Post-doc supervision commenced 2017**
- *Half year paid study leave: 2016 interrupted by #FMF*
- 3<sup>rd</sup> year Databases: 2016
- *Half year paid study leave: 2012*
- **PhD supervision commenced 2010**
- 1<sup>st</sup> year Introduction to programming in Java: 2009–2015
- 3<sup>rd</sup> year Operating Systems: 2005–2015, 2017–2018
- Honours Operating Systems: 2005–2013
- *Unpaid study leave: 2004 to work on PhD*
- *Paid study leave: 2003 to work on PhD*
- 3<sup>rd</sup> year/Honours Network Programming and 3<sup>rd</sup> year Computer Networks: 2001–2002
- **Masters supervision commenced 2000, BANG research group established**
- Honours UNIX Programming 1999–2001
- **Honours supervision commenced 1999**
- Honours Network Topologies/Principles and Honours Network Administration 1998–2002

## RESEARCH overview

- NRF Rating: C1 (2019), C3 (2013)
- R24 million in research funding since 2002
- h-index = 20 (Google Scholar, as of Nov 2021)
- 120+ peer-reviewed academic publications (listed below; 130+ according to Google Scholar)

## LEADERSHIP AND ADMINISTRATION/SERVICE overview

- Student Affairs Committee 2020-Apr 2021
- ICT Portfolio steering Committee 2017-Apr 2021
- Faculty Research committee, 2017
- Blended learning champion, 2016-Apr 2021
- Faculty Teaching and Learning committee, 2015–2019
- Department Deputy HOD, 1<sup>st</sup> semester 2015
- Faculty Research committee and Ethics sub-committee, 2013
- Senate, 2013–present
- Faculty Higher Degrees committee, 2005–2014, Exco 2014
- Faculty Media & Recruitment committee, 2001–2002
- Department Postgraduate co-ordinator H & M: 1999–2002, M: 2018–2019
- Faculty Safety committee, 2000–2002

## COMMUNITY ENGAGEMENT overview (more detail below)

- Zenzeleni Zithulele community cooperative established 2019
- Zenzeleni Networks not-for-profit spin-off established 2017 (reincorporated 2019), became Public Benefit Organisation (PBO) in 2020
- Zenzeleni Mankosi community cooperative (2014), after having worked in and around the community since 2004.
- Deaf Community of Cape Town (DCCT since 2001), later working with National Institute for the Deaf (NID, Worcester), DeafSA (Western Province), and DeafNet (also Worcester, now defunct).

## COMMUNITY ENGAGEMENT

Zenzeleni Networks [zenzeleni.net](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 project is one of the world's most visible and highly regarded rural community networks. This multi-disciplinary trans-university project spans Computer Science, Electrical Engineering, Economics, Statistics, Social Development and Gender Studies. A local not-for-profit umbrella spin-off (established in 2017) currently mentors and facilitates operations and revenue generation for two community-owned and run cooperatives who are fully legal ISPs (Internet Service Providers) who install and maintain a 12v battery-powered (charged by solar and by mains) rural network that provides ***uncapped access for end users at R25/month!*** Zenzeleni cooperatives and the umbrella have obtained license exemption from ICASA, the regulatory authority (initially in 2014) to operate telecommunications infrastructure, setting a precedent for other communities, e.g. from Mankosi (2014) to Zithulele (2018). Zenzeleni subsidises affordable access to community residents by servicing 'anchor tenants' such as schools, clinics and small businesses who pay competitive commercial rates. With broadband fibre accessed 80km away via long-range WiFi, Zenzeleni rural community network model is a beacon for the Province, Nation, Region and World. In 2019, UWC recognized this project with an Innovation Award with Impact in Society in 2020 and an Engagement Excellence award in 2018; and the BBC filmed a short documentary on the project in 2019. Zenzeleni is regularly name-checked at national and international conventions and bodies. By 2020, the cooperatives are becoming financially sustainable and increase the number of users on a regular basis, especially under covid.

SignSupport [www.signsupport.org](http://www.signsupport.org)



SignSupport

Since 2001, BANG has designed novel assistive technologies with and for marginalized and under-employed members of Deaf Community of Cape Town (DCCT, an NGO). We also currently work with National Institute for the Deaf (NID) in Worcester and the Western Cape provincial arm of DeafSA (a national Deaf organization). The Deaf people served by these Deaf People's Organisations are proficient and fluent in signed language, yet due to marginalisation, poverty and under-education exhibit limited functional literacy with written and spoken language when interacting with a hearing majority. A multi-disciplinary team at UWC comprising Computer Science, Pharmacy, Information Systems and Statistics, together with industrial design at TU Delft, is currently busy with iterative 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 have generalised this tool suite to handle a) multiple limited interaction scenarios, b) multiple languages for illiterate users, and c) multiple device platforms. While there are currently several scenarios in prototype, we are now concentrating on assistance centre prototypes for a diabetes self-management scenario, emergency services and a remote interpretation service/relay that relies on Deaf people to translate between SASL and written/spoken languages. The aim is to leverage innovative and low cost technology to empower Deaf people to design, populate and maintain their own services. We hope to commercialise our innovative technologies and realise a sustainable business model together with all stakeholders.

# BANG RESEARCH FUNDING

[illegible]

## Annexure A

### FEEDBACK: PROF WD TUCKER

#### **Reviewer Profile:**

##### **Total number of reviewers approached\*:**

Number approached nominated by applicant	6
Number approached nominated by Specialist Committee	5

##### **Total number of reports received:**

Number of reports from reviewers nominated by the applicant	5
Number of reports from reviewers nominated by the Specialist Committee	3
Number of reports from reviewers based in South Africa	2
Number of reports from reviewers based outside South Africa	6
<b>Total number of reports used:</b>	<b>8</b>

\*Includes reviewers who declined to assist, who indicated that they are not to be approached on the system, who did not respond to the invitation to review or who were not approached because they were marked as inappropriate by the members of the Specialist Committee.

#### **Narrative justification of outcome** (See attached the Definition of NRF Rating Categories document):

It is the firm belief of all of the reviewers that you are a well-established researcher that is recognized nationally by your peers with a body of high quality research output in the area of Information and Communication Technologies for Development, along with a majority view that you also have a sound international standing in your field.

#### **Points raised by reviewers which you may wish to consider:**

You are acknowledged by reviewers for having made important contributions to the field of Information and Communication Technologies for Development. Reviewers commended you for your work to develop the BANG research team at UWC, as it has been masterful. Reviewers commented favourably on your supervision of students and future researchers. They were impressed by the quality of your work and your contributions in respected and relevant journals thus far. Reviewers were positive about the number of papers that you have published in national and international conference proceedings. Continue publishing in the top ranked journals as this will be important in extending your international profile and the international impact of your work. You are selecting appropriate venues for your work and should continue to target the top international outlets in the field. Continue to build your network of local and international collaborators. Reviewers advised that you may want to consider including a "social scientist in residence" to your two projects to invite a more in-depth theorizing of the research from a social science theory perspective - e.g. a more in-depth ANT or capabilities approach.



## POSTGRADUATE SUPERVISION

**Total postgrads completed: 90**

Honours	Masters	PhD	Post-doc
61	26	9	2

### Post-doctoral fellows

1. Dr Carlos Rey-Moreno 2016-2017 Zenzeleni NPC spin-off
2. Dr Lwando Mdleleni 2018-2018 Zenzeleni data collection, co-supervised w/Prof. Shaun Pather

### PhD graduates (by dissertation)

1. Mr Rashidi Francois Kassongo (2022). Perceptions of government facilitated access on the well-being of indigent citizens: a case study in the Overberg District, South Africa, PhD UWC Institute for Social Development, Supervised by Prof. Bill Tucker, co-supervised by Prof. Shaun Pather.
2. Ms Tigist Hussien Shewarega (2022). Digital activism in Africa: the case of social movements #SomeoneTellSaudiArabia, #BringBackOurGirls, and #FeesMustFall, PhD UWC Gender Studies, Supervised by Prof. Desiree Lewis and Prof. Nic Bidwell; supported by Prof. Bill Tucker.
3. Ms Prangnat Chininthorn (2021). Health knowledge transfer system for Deaf people and knowledge providers in Cape Town, PhD TU Delft Industrial Design Engineering, Supervised by Proff. JC Diehl and Jo van Engelen, co-supervised by Prof. Bill Tucker.
4. Mr Shree Om (2021). Scalability of a wireless mesh community network in rural South Africa, PhD UWC Computer Science, Supervised by Prof. Bill Tucker.
5. Ms Fazlyn Petersen (2020). Utilising information communication and technology (ICT) to improve self-management for patients with diabetes in previously disadvantaged communities in the Western Cape, South Africa, PhD UWC Information Systems, Supervised by Prof. Shaun Pather and co-supervised by Prof. Bill Tucker.
6. Mr Leon Tinashe Gwaka (2019). Digital infrastructure and food systems in rural communities of Zimbabwe, PhD UWC Institute for Social Development, Supervised by Prof. Bill Tucker and co-supervised by Julian May.
7. Mr Lwando Mdleleni (2017). Can e-government aid young people in indigent communities gain access to higher education? Case study of OR Tambo District. PhD School of Government, UWC, Supervised by Prof. Julian May and supported by Prof. Bill Tucker.
8. Ms Mariam Parker (2016). Investigating medicine use in the Deaf community: toward informing a mobile pharmaceutical application for Deaf users and pharmacists. PhD Pharmacy, UWC, Supervised by Prof. Angeni Bheekie & co-supervised by Prof. Bill Tucker.
9. Mr Carlos Rey-Moreno (2015). Community Telco: An acceptable solution for providing affordable communications in rural areas of South Africa. PhD Electrical Engineering, UJRC, Spain. Supervised by Prof. Javier Simó-Reigadas and co-supervised by Prof. Bill Tucker.

### MSc graduates (by thesis, all supervised by Prof. Bill Tucker unless otherwise indicated)

1. Ms Tovide Semande (2021). A mobile emergency service system for Deaf people. MSc Computer Science, UWC.
2. Mr Lindokuhle Sifiso Duma (2017). Mobile application generalisation: an authoring tool for SignSupport. MSc full thesis, UWC. **Cum laude.**
3. Ms Ghislaine Livie Ngangom Tiemeni (2015). Performance estimation of wireless networks using traffic generation and monitoring on a mobile device. MSc full thesis, UWC co-supervised with Prof. I Venter. **Cum laude.**
4. Ms José Marie Ufitamahoro (2015). Understanding the factors that Influence trust in e-services: a case study of a wireless mesh network implementation in Mankosi, South Africa. MSc full thesis, UWC co-supervised with Prof. I Venter.
5. Mr Michael Motlhabi (2014). Usability and Content Correctness of a Mobile Tool to help a Deaf person with Pharmaceutical Instruction. MSc full thesis, UWC.
6. Mr Zimani Chitedze (2013). Mobility management for Wi-Fi infrastructure and mesh networks. MSc full thesis, UWC.
7. Mr Ryno Hoorn (2012). Comparison and evaluation of mass video notification methods used to assist Deaf people. MSc full thesis, UWC co-supervised with Prof. I Venter.
8. Ms Mimi Iraba (2012). Inexpensive mobile technologies to empower rural farmers with m-agriculture. MSc full thesis, UWC co-supervised with Prof. I Venter.
9. Mr Hlabishi Isaac Kobo (2012). Situation aware routing for static mesh networks with mobile nodes. MSc full thesis, UWC.
10. Mr Tariq Meeran (2012). An analysis of voice over Internet Protocol in wireless mesh networks. MSc full thesis, UWC.
11. Ms Docas Zulu (2012). Packet aggregation for voice over Internet Protocol on wireless mesh networks. MSc full thesis, UWC.
12. Mr Muyowa Mutemwa (2011). A mobile Deaf-to-hearing communication aid for medical diagnosis. MSc full thesis, UWC co-supervised by Mr M Norman.
13. Mr Adeola Poroye (2011). Secure contactless smart card transactions with Near Field Communication. MSc full thesis, UWC co-supervised by Mr M Norman. **Cum laude.**
14. Mr Salim Saay (2011). Toward authentication mechanisms for Wi-Fi mesh networks. MSc full thesis, UWC.

15. Ms Prangnat Chininthorn (2011). Communication tool design for Deaf to hearing in South Africa. Mini-thesis + coursework at TU Delft co-supervised with Proff. A Freudenthal and J Verlinden. **Cum laude.**
16. Ms Yuan Yuan Wang (2011). Browser-based and mobile video communication alternatives for Deaf people. MSc full thesis, UWC.
17. Mr David Wafula Wanyonyi (2011). Mobile presentations with interactive chat for m-Learning. MSc full thesis, UWC.
18. Mr Koos Looijesteijn (2009). The design of a Deaf-to-hearing communication aid for South Africans. Mini-thesis & coursework, TU Delft, co-supervised with Proff. A Freudenthal and H Christiaans. **Cum laude.**
19. Mr Zhen Yu Ma (2009). Semi-synchronous video for Deaf telephony with an adapted synchronous codec. MSc full thesis, UWC.
20. Ms Marshini Chetty (2006). Developing locally relevant applications for rural South Africa: A telemedicine example. MSc full thesis, UCT, co-supervised with Prof. E Blake. **Cum laude.**
21. Mr Kayode Adesemowo (2006). Affective gesture fast-track feedback Instant Messaging (AGFIM). MSc full thesis, UWC.
22. Mr Elroy Julius (2006). Guaranteed delivery of multimodal semi-synchronous IP-based communication. MSc full thesis, UWC.
23. Mr Xolisa Vuza (2006). Social and technical issues of IP-based multi-modal semi-synchronous communication: Rural telehealth communication in South Africa. MSc full thesis, UWC. **Cum laude.**
24. Mr Yan Hao Wu (2006). SIP-based location service provision. MSc full thesis, UWC co-supervised with Mr A Radovanovic. **Cum laude.**
25. Mr Tao Sun (2005). Carrier-grade adaptation for an IP-Based multimodal Application Server: Moving the SoftBridge into SLEE. MSc full thesis, UWC.
26. Mr Vaughn Naidoo (2002). Policy based network management of legacy network elements in Next Generation Networks for voice services. MSc full thesis, UWC.

### **Honours graduates (by project, all Computer Science, supervised by Prof. Bill Tucker unless otherwise indicated)**

1. Ms Babalwa Dumane (2020). Zenzeleni chatbot.
2. Mr Onke Cetywayo (2020). Zenzeleni Zifundeleni Platform.
3. Mr Isane Mphela (2020). Online communication platform for Zenzeleni network.
4. Mr Humphrey Atang Lekhoba (2018) ICT for Neighbourhood Farm: front-end.
5. Mr Valentine Tawira (2018) ICT for Neighbourhood Farm: back-end.
6. Mr Lorenzo Cook (2018) Yeyoluntu civic engagement: crime stoppers.
7. Mr Aphiwe Tyilanga (2018) Yeyoluntu engagement: service delivery.
8. Mr Fabrice Molongo (2018) Yeyoluntu civic engagement: scheduling meetings with the councillor.
9. Ms Zoë Amansure (2018) Helping disadvantaged youth find employment in web development w/I Venter.
10. Mr Ghirish Chibba (2017). Mobile network price plan comparison
11. Mr Jared Lee Christians (2017). Community networks billing services for voice, data and phone battery charging
12. Mr Faieez White (2017). Data visualiser for CommCare
13. Ms Akhona Hoko (2016). Toll bypass in isiXhosa.
14. Ms Saira-Banu Adams (2016). Audio & video based tooltips: A case study with signed language videos for Deaf users.
15. Mr Khaylethu Lizo Stuurman (2016). Video key frame compression for toll bypass.
16. Mr Yonas Engidawork (2015). Mesh potato with DUNDi Protocol.
17. Mr Vuyisa Phindiso (2015). SignSupport video notification.
18. Mr Sbusiso Sibiya (2014). SignCollect: Sign language-based data collection w/M Norman.
19. Mr Jignesh Patil (2014). Web and mobile audio library.
20. Ms Zakhele Ntuli (2014). Adding a video notification reminder to SignSupport. w/I Venter.
21. Ms Cebile Miya (2014). VibeSense: Song-based vibration and light notification for Deaf people. w/I Venter.
22. Mr Lindokuhle Sifiso Duma (2013). Mobile security application for SignSupport.
23. Mr Olabode Ajayi (2013). Back end for monitoring mesh network. w/M Norman.
24. Ms Bongco Buhle (2013). Mobile reminder to improve medicine compliance in Deaf patients. w/I Venter.
25. Ms Siphokazi Dayile (2013). Mobile medical information for the Deaf. w/I Venter.
26. Ms Zine Tshaka (2013). A mobile application to interact with the mesh billing system. w/I Venter.
27. Mr Chisha Malama (2012). Mobile Packet Monitor: Back end. w/M Norman.
28. Mr Joshua Martins (2012). Mobile Packet Monitor: Front end. w/M Norman.
29. Ms Maggie Chimbwanda (2011). Mesh routing protocol comparison for disaster scenarios. w/I Venter.
30. Mr Michael Motlhabi (2011). Android based asynchronous sign language.
31. Mr Warren Nel (2011). Mesh potato phone number lookup.
32. Mr Zukile Roro (2010). Data mart visualisation.
33. Mr Keenan Adamson (2010). Remote mobile data collection with rich media and visualisation.
34. Mr Ryno Hoorn (2009). Web-based mobile sign language dictionary. w/I Venter.
35. Mr Hlabishi Kobo (2009). IP-based peer-to-peer push-to-talk. w/M Norman.
36. Mr Charles Atuchukwu (2009). Web-based Instant Messaging service. w/I Venter.
37. Ms Docas Zulu (2009). Asterisk-based voice relay.
38. Mr Ashley Kerchhoff (2008). Nomad HTTP-based mobile Instant Messaging (IM) service. w/I Venter.

39. Mr Muyowa Mutemwa (2008). Bluetooth vibration to alert Deaf users using PC-based applications with their mobile phone. w/M Norman.
40. Mr Adeola Poroye (2008). SIP-based IM prototype for mobiles. w/M Norman.
41. Mr Zhen Yu Ma (2006). Asynchronous video to support sign language communication.
42. Mr Phemelo Legae (2006). Web-based Instant Messaging. w/A Radovanovic.
43. Mr Emile Diedricks (2006). Generic database API for log collection and visualisation. w/A Radovanovic.
44. Mr Francois Daniels (2006). PSTN/GSM gateway to support controlled PSTN breakout.
45. Mr Marlo Jooste (2006). PSTN/GSM/GPRS gateway to support event notification and remote data collection.
46. Mr Clement February (2002). Web Chat/Virtual Reality Bridge.
47. Mr Sandro da Silva (2002). Toll bypass bypass.
48. Mr Michael Gordon (2002). Scalable Voice/Text Chat.
49. Mr Silulami Libalele (2002). Toll bypass bypass.
50. Mr Yazeed Isaacs (2002). Scalable Voice/Text Chat.
51. Mr Ashraf Salie (2001). Online Post-graduate Admissions System.
52. Mr Cassiem Parker (2001) Visualisation of IP QoS Metrics.
53. Ms Anita Benjamin (2001). Voice Chat Arbitration for KEWL Web-touring.
54. Mr Gavin Arries (2001) Cost Modelling for 802.1p Ethernet Priority Queueing Quality of Service for Voice Traffic.
55. Mr Zakaria Fakier (2000). Using BSP trees for Hidden Surface Removal (HSR) in an OpenGL Rendering Engine.
56. Mr Satish Byrow (2000). Video streaming over ATM.
57. Mr Isaac Sigasa (1999). UNIX Device driver for video camera.
58. Ms Tania Paulse (1999). ATM QoS statistics collection with SNMP.
59. Mr Riaan Jacobs (1999). Web-based Virtual Library.
60. Mr Michael Jeffries (1999). Web-based Examination Environment.
61. Ms Sharon Kwindia (1998). Distance Learning on the Internet.

## **CURRENT POSTGRADS**

### **PhDs**

1. Mr Andrey Henney (expected 2022). Private information protection of video relay services for Deaf users, PhD UWC Computer Science, Supervised by Prof. Bill Tucker.
2. Ms Yodit Zegeye (expected 202?). Working title: ICT and digital inclusive innovation: a case study of Neighbourhood Farm. PhD UWC Institute for Social Development, Supervised by Prof. Bill Tucker, co-supervised by Prof. Julian May.

### **MScs**

1. Ms Kathleen Williams (expected 2022). Implementation and refinement of diabetes self-management prototype for Deaf people. MSc Computer Science, UWC, Supervised by Prof. Bill Tucker.
2. Mr Jared Christians (expected 2023). Design and development of a mobile communication app suite for Deaf people. MSc Computer Science, UWC, Supervised by Prof. Bill Tucker.
3. Mr Valentine Tawira (expected 202?). Application of ICT to enhance market spaces for community farming. MSc Computer Science, ???, Supervised by Prof. Bill Tucker.
4. Mr Lorenzo Cook (expected 202?). Cashless transactions for an ICT platform for small scale food production. MSc Computer Science, UWC, Supervised by Prof. Bill Tucker.
5. Mr Tulani Makhonco (expected 2025). FarmNet: ICT by/with/for farming communities. MSc Computer Science, SUN, Supervised by Prof. Bill Tucker.

## PEER REVIEWED PUBLICATIONS

Peer reviewed journal articles	Peer reviewed book sections	Peer reviewed international conference proceedings	Peer reviewed national conference proceedings	Peer reviewed conference posters
10	3	36	52	22

### *Peer reviewed journal articles*

1. Petersen, F., Baker, A., Pather, S., & Tucker, W. D. (2020). Impact of Socio-Demographic Factors on the Acceptance of Information Communication and Technology (ICT) for Diabetes Self-care. In M. Hattingh et al. (Ed.), IFIP I3E 2020/LNCS 12067 (Vol. 2, pp. 73–83). Skukuza, South Africa: Springer Nature Switzerland.
2. Petersen, F., Brown, A., Pather, S., & Tucker, W. D. (2019). Challenges for the adoption of ICT for diabetes self-management in South Africa. *The Electronic Journal of Information Systems in Developing Countries*, (September 2018), 1–14. <https://doi.org/10.1002/isd2.12113>
3. Gwaka, L. T., May, J., & Tucker, W. (2018). Towards low-cost community networks in rural communities: The impact of context using the case study of Beitbridge, Zimbabwe. *The Electronic Journal of Information Systems in Developing Countries*, (e12029), 1–11. <http://doi.org/10.1002/isd2.12029>
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### **Peer reviewed conference posters (based on paper submissions)**

1. Tovide, A. E. S., & Tucker, W. D. (2018). Design of an emergency service system for Deaf people. In *SATNAC*. Hermanus, South Africa: Telkom.
2. Williams, K. M., & Tucker, W. D. (2018). South African Sign Language Classification To Form An Online Dictionary. In *SATNAC*. Hermanus: Telkom.
3. Henney, A. J., & Tucker, W. D. (2016). Using accessible mobile technologies as communication bridges for Deaf people in healthcare. In *DeafNet*. Johannesburg: DeafNet.
4. Chininthorn, P., Glaser, M., Tucker, W. D., & Diehl, J. C. (2016). Mobile questionnaire for collecting data from Deaf people. In *DeafNet*. Johannesburg: DeafNet.
5. Chininthorn, P., Glaser, M., Tucker, W. D., & Diehl, J. C. (2016). Accessible Health Information for Deaf People Who Use Signed Language for Communication. In *DeafNet*. Johannesburg: DeafNet.
6. Om, S., Erasmus, Z., Rey-Moreno, C., & Tucker, W. D. (2015a). Evaluating Energy Consumption on Low-end Smartphones. In F. Otten & R. Blamahoon (Eds.), *SATNAC* (Vol. 2, pp. 29–30). Hermanus, South Africa: Telkom. ISBN: 978-0-620-67151-4. <http://hdl.handle.net/10566/5253>
7. Om, S., Rey-Moreno, C., & Tucker, W. D. (2015b). Towards a Scalability Model for Wireless Mesh Networks. In F. Otten & R. Balmahoon (Eds.), *SATNAC* (Vol. 2, pp. 49–50). Hermanus, South Africa: Telkom. ISBN: 978-0-620-67151-4. <http://hdl.handle.net/10566/1947>
8. Chininthorn, P., Diehl, J. C., & Tucker, W. D. (2015). The Use of Smartphones and a Health Knowledge Transfer System for Deaf Patients and Health Professionals. In F. Otten & R. Balmahoon (Eds.), *SATNAC* (Vol. 2, pp. 74–75). Hermanus, South Africa: Telkom. ISBN: 978-0-620-67151-4.
9. Duma, L.S. & Tucker, W.D. (2014). An Authoring Tool to Create Multiple Scenarios of a Mobile Communication App for Deaf People. *SATNAC*. Port Elizabeth, South Africa.
10. Abdalla, T., Bagula, A. & Tucker, W.D. (2014). An Extension to B.A.T.M.A.N.-ADV for Extended Wireless Mesh Networks. *SATNAC*. Port Elizabeth, South Africa.
11. Henney, A. J., & Tucker, W. D. (2013). Information Protection in Video Relay Services. In Proc. *4th Annual Symposium on Computing for Development (DEV-4)* (Article 24, 2 pages). Cape Town, South Africa: ACM. ISBN: 978-1-4503-2558-5. <http://hdl.handle.net/10566/1117>
12. Rey-Moreno, C., Tucker, W. D., & Simo-Reigadas, J. (2013). Tuning a mid-range rural WiFi-based mesh network. In Proc. *4th Annual Symposium on Computing for Development (DEV-4)* (Article 30, 2 pages). Cape Town, South Africa: ACM. ISBN: 978-1-4503-2558-5. <http://hdl.handle.net/10566/1114>
13. Ufitamahoro, M. J., Venter, I. M., Tucker, W. D., & Rey-Moreno, C. (2013). Unmasking Community Trust Issues in Rural Field Work. In Proc. *4th Annual Symposium on Computing for Development (DEV-4)* (Article 23, 2 pages). Cape Town, South Africa: ACM. ISBN: 978-1-4503-2558-5. <http://hdl.handle.net/10566/1109>
14. Ufitamahoro, M. J., Venter, I. M., Rey-Moreno, C., & Tucker, W. D. (2013). Promoting Trust for Billing of Services on a Rural Wireless Mesh Network. In R. Volkwyn (Ed.), *SATNAC*. Stellenbosch, South Africa.
15. Motlhabi, M., & Tucker, W. D. (2012). A Limited Communication Domain Mobile Aid for a Deaf patient at the Pharmacy. *SATNAC*. George, South Africa.
16. Chitedze, Z., & Tucker, W. D. (2010). Wireless mesh network and General Packet Radio Service interworking. *SATNAC*. Stellenbosch, South Africa.
17. Hoorn, R. T. L., Venter, I. M., & Tucker, W. D. (2010). Comparison and evaluation of mass video notification methods used to assist Deaf people. *SATNAC*. Stellenbosch, South Africa.
18. Iraba, M. L., Venter, I. M., & Tucker, W. D. (2010). Using inexpensive mobile technologies to empower rural farmers. *SATNAC*. Stellenbosch, South Africa.
19. Kerchhoff, A., & Tucker, W. D. (2010). Rationalisation of heterogeneous rural Internet Protocol networks to achieve sustainability. In *SATNAC*. Stellenbosch, South Africa: Telkom.
20. Kobo, H. I., Tucker, W. D., & Norman, M. (2010). Quality of Service-aware routing for static mesh networks with mobile nodes.

*In SATNAC*. Stellenbosch, South Africa.

21. Mutemwa, M., Tucker, W. D., & Norman, M. (2009b). A Deaf-to-hearing communication aid on a mobile phone. *In SATNAC*. Swaziland.
22. Maunder, A., Tucker, W. D., & Marsden, G. (2005). Usability evaluation of the MuTI rural telehealth system. *In SATNAC*. Central Drakensberg, Kwazulu-Natal, South Africa: Telkom.

## COLLABORATION

### Internal collaboration

Prof. Shaun Pather, 2017-present, UWC Information Systems and also Deputy Dean Research EMS: Zenzeleni co-leader and board member (chairperson); co-supervisor of post-doc (Lwando Mdleleni), PhD students (Fazlyn Petersen and Frank Kassongo) and Honours students for Yeyoluntu: civic engagement project. Expertise: ICT policy, usage, barrier and adoption of ICT, and government-facilitated access.

Prof. Julian May, 2013–present, UWC Institute for Social Development (ISD) Director and also Director of DST CoE in Food Security; co-supervision of PhD students (Leon Gwaka, Lwando Mdleleni, Yodit Zegeye), EC FP7 CONFINE/ICARUS collaborator. Expertise: food security, poverty reduction, ICT4D, socio-economic impact experimental design and analysis.

Prof. Renette Blignaut, 2013–present, UWC Statistics  
EC FP7 CONFINE and Zenzeleni collaborator. Expertise: statistical analysis.

Prof. Isabella Venter and Dr Michael Norman, 2008-present, UWC Computer Science  
Co-supervision of Honours and Masters projects/theses; and some co-authoring, too.

### National collaboration

Dr Melissa Densmore, 2015-, University of Cape Town, Computer Science Department and ICT4D Centre. We co-organised ICTDEvers while it was still active, and link up in parallel with respect to community networks, HCI research and courseware. Expertise: HCI4D, ICT4D, HCI.

Dr Brian DeRenzi, 2016-present, University of Cape Town, Computer Science and Dimagi. We link up in parallel with respect to paradigm switching positivism and post-positivism in the ICT4D space. Expertise: random control trials, ICT for community health workers, data analytics, HCI, ICT4D

Prof. Edwin Blake, 2001–2017, University of Cape Town, Computer Science Department (retired)  
Director of UCT's ICT4D Centre; former PhD supervisor, continual research proposal and paper/article co-author, SANPAD project leader, inter-university CoE collaborator. Expertise: ICT4D, human computer interaction, community-based co-design.

Ms Faith Cronwright, 2001-present, Deaf Community of Cape Town (DCCT), Heathfield, Chairperson. Expertise: Deaf culture and South African sign language.

Mr Jabaar Cassiem Mohammed, 2015-present, DeafSA Western Cape, Provincial Director. Expertise: Deaf culture and South African sign language.

Ms Ilse Bloem, 2016-present, National Institute for the Deaf (NID), Worcester, Academy Head. Expertise: Deaf education and project implementation.

Ms Meryl Glaser, 2001–2015, Deaf Community of Cape Town (DCCT), Newlands  
Deaf education specialist, on-site consultant for Deaf communication project, frequent co-author and co-presenter, SANPAD collaborator, Deaf literacy (English and IT). Expertise: Deaf adult literacy (English and computer), communication disorder, South African Sign Language.

Prof. Gary Marsden, 2001–2013 (deceased), University of Cape Town, Computer Science Department  
PhD co-supervisor, research proposal and paper co-author. Expertise: mobile HCI and design for development.

Prof. Alfredo Terzoli, 2001–2004, Rhodes University, Computer Science  
Research collaborator, Deaf telephony w/H.323 (J Penton's MSc). Expertise: rural telecommunication networks and their applications and associated business models.

### International collaboration

Dr Gertjan Van Stam, 2016-present, Scientific and Industrial Research and Development Centre (SIRDC), Zimbabwe. Expertise: rural community networks, post-colonial thinking.

Prof. Leandro Navarro, 2014-2015, Polytechnic University of Catalonia, Spain. Expertise: community networks, WiFi networks, testbed management systems, WiFi simulation. Leader of the EC FP7 CONFINE project of which we were round 2 partners, and based a follow-up Horizons proposal on the Zenzeleni approach which was narrowly rejected likely due to too much emphasis on Africa (and not enough benefit for EU).

Prof. Jan Carel Diehl, 2014-present, Delft University of Technology, Faculty of Industrial Design, Netherlands  
Industrial design engineer, PhD co-supervision (Prangnat Chininthorn). Expertise: sustainable development, e.g. toilets for Africa (Gates Foundation recipient) and super-efficient wood burning stoves.

Prof. Javier Simó-Reigadas, 2012-present, Rey Juan Carlos Universidad, Madrid, Spain, Electrical Engineering.  
PhD co-supervision (Carlos Rey-Moreno), co-author; Expertise: Layer 2 networking, long distance Wi-Fi, telehealth. Co-director of EHAS which builds long-range WiFi networks in rural Peruvian rain forest, and is now integrating incumbent operator backhaul and last mile. We have mutual interest in deploying new devices and firmware from the LibreRouter and LibreMesh projects.

Prof. Andy Dearden, 2010-present, Sheffield-Hallam University, United Kingdom.  
Expertise: Participatory design, software engineering, ethics. Both of us chaired different ACM DEV conferences. Sabbatical visit and IEEE paper co-author.

Prof. Nic Bidwell, 2008-present, University of Namibia  
on-site collaborator on rural communication project; co-author. Expertise: human computer interaction design, ethnography and ethnographic Action Research.

Prof. Adinda Freudenthal, 2008-2014 (deceased)  
Delft University of Technology, Faculty of Industrial Design, Netherlands  
SANPAD collaborator on Deaf project (two 3-year cycles), MSc and PhD co-supervision. Expertise: Industrial design engineering, community-based co-design.

Prof. Rudi Westerveld, 2004-present  
Delft University of Technology, Faculty of Technology, Policy and Management, Netherlands (retired)  
SANPAD collaborator on rural telehealth project, paper co-author. Expertise: inverse infrastructure, particularly in Africa. Annual visits, here or there, since 2004.

Dr Murray Pearson, 2004-2006  
University of Waikato, Computer Science Department, New Zealand (left in 2008)  
RuralLink, New Zealand (General Manager). Designed and built rural WiFi networks together in Eastern Cape, co-author. Expertise: wireless infrastructure.

Dr Michael Best, 2003-present, United Nations University, Macao, China; Georgia Tech University, Computer Science, Atlanta, GA, USA. Met at first ICT4D conference on African soil, ACACIA in 2003. Founder of ITID Journal while based at MIT, setup MIT Media Lab in India, co-chair of ICTD 2012 at Georgia Tech, and did sabbatical with us 2<sup>nd</sup> semester 2012, when he helped establish ICTDEvers and gave an Honours course on ICT4D at UWC. Co-edited Gary Marsden Special Issue for ITID. Expertise: ICT and peacekeeping (particularly in Africa, e.g. Liberia), big and/or small data, gender and ICT.

## LEADERSHIP AND ADMINISTRATION

### **Bridging Application and Network Gaps (BANG) research group founder and director, 2000-present**

I established the BANG research group in 2000 to design, introduce and evaluate innovative Computing for Development interventions with and for disadvantaged communities. ICT for development (ICT4D) is currently one of the most challenging research problems in the world, specifically for computer scientists because we often lack the socio-economic skills to address technical concerns. BANG addresses such gaps. BANG has a rolling annual postgraduate population average of 12-15 students, including Honours, MSc and PhD students; and post-docs, too. BANG enjoys multi-disciplinary collaboration with both national and international universities, companies and NGOs; with collaborative expertise in computer science, ethnography and social anthropology, social development, economics, electrical engineering, industrial design engineering, pharmacy, gender studies, and most importantly, communities, via NGOs and local governance structures. BANG is now pioneering (at least for the Computer Science department) technology transfer and spin-offs of not-for-profit and cooperatives to implement the fruits of research in a sustainable fashion.

### **Information, Communication and Technology Portfolio Steering Committee (ICTPSC), 2017-present.**

### **Faculty Research and Ethics committee, 2013, 2017**

Member of ethics and research application sub-committees.

### **Blended Learning Champion, 2016-present (appointed by DVC Academic).**

### **Faculty Teaching and Learning committee, 2015-present**

### **IPLM programme 2015-2016 with new executive. Participated in all workshops.**

### **Faculty Postgraduate/Higher degrees committee, 2005-2014**

I helped with postgraduate and research activities, including but not limited to submitting documentation in the appropriate format in a timely fashion. Served on Exec during 2014.

### **ICTDEVers coordinator, 2012-2016**

Widened the net to include all Cape Town universities and NGOs operating in the ICT4D space. We meet monthly at various locations around town, including UWC, UCT and CPUT.

### **SACBANGers coordinator, 2009-2010**

This monthly meeting alternated between UWC and UCT campuses, comprising the BANG and Socially Aware Computing (SAC) research groups at each university, respectively.

### **Department Postgraduate committee, 2005-present**

All department lecturers belong to this committee.

### **Faculty Media & Recruitment committee, 2001-2002**

I attended the Science Festival in 2002 in Grahamstown, and was responsible, with Melody Windvogel, for conceptualising and designing the backdrop that won UWC's display an award that year.

### **Faculty Safety committee, 2000-2002**

This was by and large a token assignment, as our senior technical officer assumes most duties involving safety.

### **Department Postgraduate co-ordinator, 1999-2002**

I designed the Honours programme that our department still uses today, in particular with respect to the yearlong project that is required for every Honours student. The Honours project is based on industry experience in the dot com boom with respect to the traditional software development life cycle: user requirements, requirements analysis, prototype, high level design, low level design, implementation, testing and user documentation. The rest of the Honours programme is course-based, allowing students to take up to 25% of credits from other departments. Because the coursework emphasises research skills in addition to advanced programming skills, our Honours students are prepared for both the workplace and advanced postgraduate studies.

## PROFESSIONAL REVIEWS AND DUTIES

2020

- ITID AE duties: two submissions seen through review process.
- Conference programme committee: ICTD

2019

- Journal reviews for JMIR and EJISDC
- ITID AE duties: three submissions seen through review process.
- Africa track programme chair, Partnership for Progress on the Digital Divide (PPDD 2019)
- NRF researcher rating of an ICT4D peer
- Conference programme committee: ICTD

2018

- Conference programme committees: PDC, AfriCHI, ICTDX, CHI, ICT4D and SATNAC
- EJISDC journal manuscript review
- ITID AE duties: two submissions rejected

2017

- ICTD Senior programme committee
- Africa track programme chair, Partnership for Progress on the Digital Divide (PPDD 2017)
- SAJIM journal manuscript double blind review
- NRF researcher rating of an ICT4D peer
- ITID AE duties: two submissions rejected
- SATNAC programme committee

2016

- Program committees: ICTD, PDC, DEV, SATNAC and CHI
- ACM CHI Development Consortium: HCI4D co-chair w/Neha Kumar and Susan Dray
- ITID AE duties: two submissions rejected
- NRF researcher rating \* 2 of ICT4D peers

2015

- ITID AE and Guest Editor; Gary Marsden Special Issue editor, Vol 11, Issue 4 (itidjournal.org)
- Program committees: ICTD, DEV, SATNAC

2014

- Program committee: SATNAC

2013

- Chaired ACM DEV in Cape Town (Dec) and co-chaired ICTD (co-located)
- NRF researcher rating review (Oct) of an ICT4D peer.
- NRF South Africa-Namibia research project review (May).
- Programme committees: ICTD, SATNAC
- ITIDa journal manuscript blind review for ICTD 2012 special issue.
- ITIDb journal manuscript double blind review, 3 cycles 2012-2013.

2012 and earlier

- SATNAC programme committee since 1999
- NRF researcher rating review (June, 2012).
- ICTD conference proceedings double blind reviews: 4 papers for ICTD 2011 in Atlanta, GA.
- NRF review: Competitive Support for Unrated Researchers: July 2009.
- THRIP/DTI/NRF review, Information and Communication Technology (ICT) sector, Pretoria, 21 Feb 2007.
- NRF Research Niche Area evaluation. Technikon Research Development Programme, "ICT for Empowering Disadvantaged Communities", Pretoria Technikon. 2003.
- SAICSIT programme committee, blind peer review, 2004.

## EXTERNAL EXAMINATIONS

PhD examinations	MSc examinations
3	18

### PhD external examinations

1. HA Haji (2016). Investigating mobile graphic-based reminders to support compliance of tuberculosis treatment. PhD Computer Science, University of Cape Town (U Rivett and H Suleman)
2. CL Sahd (2015). Bridging wireless access technologies to connect the unconnected. PhD Computer Science, Rhodes University (H Thinyane).
3. ZS Koradia (2015). Exploring the role of information and communication technologies in community radio stations in India. PhD Computer Science, India Institute of Technology Bombay (B Raman).

### MSc external examinations

1. K Chigudu (2018). Design of a prototype mobile application interface for efficient accessing of electronic laboratory results by health clinicians. MIT, Computer Science, University of Cape Town (M Kuttel).
2. M Reddy (2015). SignDIn: Designing and assessing a generalisable and extensible mobile interface for Sign Support. MIT, Computer Science, University of Cape Town (E Blake).
3. S Yalezo (2015). Enhancement of the usability of Service Oriented Architectures for novice users. MSc, Computer Science, Fort Hare (M Thinyane).
4. S Honye (2014). Mobile application development for converged telecommunication/Internet environments. MSc, Computer Science, Rhodes University (H Thinyane and M Tsietsi).
5. details removed (2013) to preserve anonymity of self, student and supervisor(s). I uncovered plagiarism and student was expelled.
6. ST Ndakunda (2013). A mobile toolkit and customised location server for the creation of cross-referencing location-based services. MSc, Computer Science, Rhodes University (M Wright and A Terzoli).
7. G Yeratziotis (2013). Guidelines for the Design of Websites and phone applications for the Deaf. MIT (Information Technology), Engineering, the Built Environment and Information Technology, Nelson Mandela Metropolitan University (D van Gruenen).
8. N Ampofo-Anti (2012). A context orientated service brokering platform for the IP multimedia subsystem. MSc Electrical Engineering, University of Cape Town (N Ventura).
9. D Erasmus (2012). Video quality requirements for South African Sign Language communications over mobile phones. MSc Computer Science, University of Cape Town, South Africa. mini-thesis (E Blake).
10. T Gavaza (2012). Culturally-relevant augmented user interfaces for illiterate and semi-literate users. MSc Computer Science, Rhodes University (H Slay/Thinyane).
11. DT Kunjuzwa (2011). Investigating the development of user-driven telephony services in an information and communication technology for development context. MSc Computer Science, University of Fort Hare (M Thinyane).
12. BA Zimba (2011). Extensibility in end-user network applications: a feature or a flaw? MSc Computer Science, University of Cape Town. mini-thesis (H Le).
13. G O'Loughlen (2010). Weather-related causal network model to estimate consolidated delay at an airport hub. MSc Computer Science, University of Cape Town. mini-thesis. (H Le).
14. K Duff (2007). Network-layer reservation TDM for ad-hoc 802.11 networks. MSc Computer Science, Rhodes University (A Terzoli).
15. J Hitchcock (2006). Decorating Asterisk: Experiments in service creation in a multi-protocol telephony environment using open source tools. MSc Computer Science, Rhodes University, Grahamstown (A Terzoli).
16. A Jacobs (2005). Investigating call control using MGCP in conjunction with SIP and H.323. MSc Computer Science, Rhodes University (P Clayton).
17. J Penton (2003). An empirical, in-depth investigation into service creation in H.323 version 4 networks. MSc Computer Science, Rhodes University (A Terzoli).
18. TJ Ndwe (2001). An investigation into the viability of deploying thin client technology to support effective learning. MSc Computer Science, Rhodes University, mini-thesis (P Clayton).

## OTHER PUBLICATIONS

### *Non-peer reviewed publications*

1. Tucker, B. (2017, November 18). How a rural community built South Africa's first ISP owned and run by a cooperative. *The Conversation Africa*.
2. Tucker, W. D., Bidwell, N. J., & Best, M. L. (2015). Celebrating Gary Marsden. *Information Technologies & International Development*, 11(4), iii–iv. ISSN: 1544-7529.
3. Blake, E. H., Tucker, W. D., Glaser, M., & Freudenthal, A. (2011). Deaf Telephony: Community-based Co-design. In Y. Rogers, H. Sharp, & J. Preece (Eds.), *Interaction Design: Beyond Human-Computer Interaction*. [http://www.id-book.com/casestudy\\_11-1.php](http://www.id-book.com/casestudy_11-1.php) or <http://hdl.handle.net/10566/844>.
4. Tucker, W. D., & Glaser, M. (2009). Tutorial: ICT for Deaf people in developing regions. In M. A. Hersch (Ed.), *Conference and Workshop on Assistive Technologies for Vision and Hearing Impairment (CVHI)*. Wroclaw, Poland.
5. Tucker, W. D., Vuza, X., Chetty, M., Blake, E. H., Marsden, G., Pearson, M., & Westerveld, R. (2007). MUTI Telehealth. <http://hdl.handle.net/10566/655>.
6. Tucker, W. D. (2005). Case study: Internet Protocol-based tele-consultation: a VoIP project. *VoIP World Africa* (pp. 34–39). Johannesburg, South Africa: Terrapin.
7. Tucker, W. D., Blake, E. H., & Glaser, M. (2003). Building bridges for Deaf Telephony in South Africa: A Community-centred Approach. *IFIP Working Group 9.4 Newsletter*. Retrieved from <http://www.iimad.ernet.in/egov/ifip/nov2003/nov2003.htm>
8. Tucker, W. D., Glaser, M., & Penton, J. (2002). A Bridge for the Problem of Deaf Telephony. *Science in Africa*. Retrieved from <http://www.scienceinafrica.co.za/2002/june/deaf.htm>

### *Conference 'papers' presented*

1. Petersen, F., Jacobs, M., Pather, S., & Tucker, W. D. (2019). Barriers for user acceptance of mobile health applications for diabetic patients: Applying the UTAUT model. In *PHASA*. Cape Town, South Africa.
2. Gwaka, L., Tucker, W. D., & May, J. (2017). Desired and sustainable livestock systems for food security: A community visioning approach. In *3rd International Conference on Global Food Security*. Cape Town, South Africa.
3. Tucker, W. D., Chetty, M., Marsden, G. and Olson G (2004). Fishing for Open Source Software in Africa. *Idlelo: First African Conference on the Digital Commons*. University of the Western Cape, Cape Town. 11-15 Jan, 2004.
4. Chetty, M. & Tucker, W. Bridging the digital divide with voice over Internet Protocol. *Acacia: Networking Africa's Future*, Kwa Maritane Game Lodge, Pilanesberg, South Africa, 11-13 April, 2003.
5. Tucker, W., & Hearn, G. Integrating tools into KEWL. *Knowledge Environment for Web-based Learning (KEWL) 1st Annual User-Developer Workshop*, University of the Western Cape, Cape Town, June 28, 2002.
6. Tucker, W. D. (2003). Social Amelioration of Bridged Communication Delay. *8th European Conference of Computer-supported Cooperative Work (Doctoral Colloquium)*. Helsinki, Finland.

### *Conference and workshop attendances (without presenting papers)*

- Smart Community Safety & Security Project launch. Partnership for a Digital Africa. I-Cann Centre, Elsies River. Nov 28, 2018.
- Digital Inclusion and Participation Toolkit, organised by University of Swansea, held at UCT Business School, Oct 8, 2018.
- SATNAC 2018 at the Arabella Hotel & Spa, Hermanus, Sep 2-5, 2018 (two student posters).
- World Sustainability Forum. Demos for both Zenzeleni and SignSupport in main hall. Jan 27-28, 2017.
- 6th International Conference and Information and Communication Technologies and Development (ICTD), Cape Town, Dec 7-10, 2013.
- 4th Annual Symposium on Computing for Development (ACM DEV-4), Cape Town, Dec 6-7, 2013.
- SANPAD Writing for Scientific Publication (WSP) 2, Durban, 29 Oct – 1 Nov, 2012.
- SANPAD Writing for Scientific Publication (WSP) 1, Durban, 27 – 29 Aug, 2012.
- 2<sup>nd</sup> Annual Symposium on Computing for Development (DEV), Georgia Tech, USA, 11-12 Mar, 2012.
- 6<sup>th</sup> International conference on Information and Communication Technologies and Development (ICTD), Georgia Tech, USA, 12-15 Mar, 2012.
- 5<sup>th</sup> International conference on Information and Communication Technologies and Development (ICTD), Royal Holloway, UK, 13-16 Dec, 2010.
- Tutorial; Using Ethnographic methods in Software Engineering Research By Sharp, De Souza and Dittrich. IEEE International Conference on Software Engineering (ICSE), ITICC, Cape Town, 4 May, 2010.
- David & Elaine Potter Charitable Trust seminar on ICTs and development in South Africa: an examination of the role of telecentres, Otto Beit Bldg, UCT, Mar 30, 2005.
- .NET Crash Course IV, 25-28 March 2003, Microsoft Research, Microsoft University Relations, St. John's College, Cambridge, UK.
- Southern African Internet Forum, Kwa Maritane Game Lodge, Pilanesberg, South Africa, 11-13 April, 2003.

- Microsoft Academic and Curriculum Workshop, .NET Crash Course V, 23-25 November 2003, Microsoft Research, Microsoft University Relations, University of Cape Town, Cape Town, South Africa.

## INVITED TALKS, PANELS and KEYNOTES

- “Weekly Seminars” at UWC elearning colloquium, Thu 17 Sep, 2020.
- SignSupport invited talk given at UWC Research Week, Thu 24 Oct, 2019.
- Research Week talk on SignSupport @ UWC Wed 24 Oct, 2018.
- Community engagement event talk on Zenzeleni and SignSupport @ UWC Tue 31 Oct, 2017.
- IFIP ICT4D Ethics co-convenor with Andy Dearden and Linus Kendall, Yogyakarta, Indonesia, 24 May 2017.
- Africa and the Digital Divide, pre-recorded video presentation to introduce the Africa track, which I chaired for Partnership for Progress on the Digital Divide (PPDD 2017), San Diego, CA, 22–24 May, 2017.
- Public policy and modalities for providing public access to Internet. Panelist with Shaun Pather, Wallace Chigona and Raven Naidoo at African Conference on Information Systems Technology (ACIST), Cape Town, 10 Jul, 2017.
- #ICTTEthics co-convenor with Andy Dearden, Melissa Densmore and Tigist Hussen, Cape Town, ICTDEVers, 20 Apr 2017.
- ICTD Open Session Chair for Gary Marsden Memorial, Singapore, 15 May, 2015.
- ICTD co-chair w/Dorothea Kleine for careers open session, Singapore, 18 May, 2015.

## PUBLIC APPEARANCES AND MEDIA

- **SABC interview:** Sunrise closing the gap between urban and rural internet access, July 8, 2020
- **BBC documentary** on Zenzeleni (Mar 2019). See <https://www.bbc.com/news/av/world-africa-47723967/internet-access-in-africa-are-mesh-networks-the-future>
- Both Zenzeleni and SignSupport representatives talked with Minister Naledi Pandor at the CAMS building opening, Nov 13, 2018
- Both Zenzeleni and SignSupport featured in 2018 Faculty of Natural Sciences’ Science Snapshots @ UWC, pp. 13–14.
- Cape Times article on Zenzeleni by Morgan Morris, “Landline, cellphone, internet plan empowers communities on their terms”. Nov 21, 2017.
- Closed for Gertjan van Stam’s talk on decolonialisation of Science T&L @ UWC Nov 6, 2017.
- SAfm radio interview on SignSupport, Tue 26 Sep 2017 at 2:40pm (5 minutes).
- Argus, Sep 19. Page 2!
- Popular mechanics, “Speaking for the Deaf”, Sep 2017, p57.
- **SABC coverage** of SignSupport with Jabaar Cassiem Mohamed (DeafSA Western Cape Provincial Director) and Dr Mariam Parker (UWC Pharmacy). Sun 30 July, 2017. See <https://youtu.be/YNQ89Eosv0E>
- Voice of the Cape radio interview on SignSupport Tue 1 Aug, 2017 at 11:12am (20 minutes).
- CONFINE 3rd annual plenary review meeting, Presentation: ICARUS: Impact of Community networks as Alternative infrastructure in remote and Underserved areaS. Rome, Italy 26-29 Nov, 2014.
- Conference co-chair, Local practitioner and research showcase, 6th International Conference and Information and Communication Technologies and Development (ICTD), Cape Town, Dec 7, 2013.
- Conference Chair, 4th Annual Symposium on Computing for Development (ACM DEV-4), Cape Town, Dec 6-7, 2013.
- ICTDEVers convenor: every 3<sup>rd</sup> Tuesday, commencing 18 Sep 2012 – present at various venues: UWC, CPUT, UCT and the varsity-neutral Mountain Club of South Africa (most often).
- Steering committee dinner, ACM DEV: Georgia Tech, USA, 13 Mar, 2012.
- ViP dinner, ICTD, Georgia Tech, USA, 14 Mar, 2012.
- Black tie event, SATNAC, Fancourt Hotel and Country Club, Southern Cape, 3 Sep, 2012.
- Session chair, SATNAC, Fancourt Hotel and Country Club, Southern Cape, 5 Sep, 2012.
- Participant, "Ethnography and Intervention in ICT4D" workshop, organized by Proff. E Blake and G Marsden, that included leading local ICT4D researchers and practitioners, UCT, 5 Aug 2011.
- Lecture entitled "Some ICT4D tools for a Deaf telephony field study" for an Honours course on ICT for development at UCT Computer Science, 17 Aug, 2011.
- Session chair, SATNAC, East London Convention Centre, Eastern Cape, 7 Sep, 2011.
- Lecture entitled “An ICT4D Deaf telephony field study in South Africa”, TU Delft Industrial Design Engineering, The Netherlands, 27 Sep, 2011.
- Talk entitled "An ICT4D Deaf telephony case study", CHEC/CITI 2nd Research Showcase, STIAS Stellenbosch, 28 Oct 2011.