

Dr. Hendranus Vermeulen

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Experience

2013 – 2016

POSTDOCTORAL FELLOW
[Department of Computer Science](#)
[University of Cape Town \(UCT\)](#)
Research and develop games with the aim to enhance learning activities and student engagement.

2010 - 2013

CONSULTANT DEVELOPER
[Humanit](#)
[Freelance, Cape Town](#)
Manage several software development projects concurrently, including game development and backend integration.

2009 - 2010

CHIEF MULTIMEDIA DEVELOPER
[Formula D Interactive](#)
[Cape Town](#)
Consult with clients, system specification, mentor software development team and develop interactive educational games and applications.

2008

FLASH DEVELOPER
[Derivco](#)
[Durban](#)
Online game framework design, development and implementation.

2001 - 2003

DEVELOPMENT CONSULTANT
[AST Collaborative Solutions](#)
[e-Learning Division, Midrand](#)
e-Learning strategy development, design for and promoted a blended learning approach, e-Learning course development and integration.

1999 - 2000

WEB DEVELOPER
[Object Technology UK](#)
[London](#)
Website and web application development.

Education

PHD LEARNING IN VIRTUAL WORLDS
[Department of Computer Science](#)
[University of Cape Town](#)
2003 - 2009

MSC EDUCATION AND TRAINING SYSTEMS DESIGN
[University of Twente](#)
[The Netherlands](#)
2000 – 2001

HIGHER DIPLOMA IN EDUCATION
[Department of Education](#)
[University of KwaZulu-Natal](#)
1998 - 1999

BACHELOR SOCIAL SCIENCE
[Faculty of Humanities](#)
[University of KwaZulu-Natal](#)
1993 – 1995

Training

POSTDOCTORAL SUPERVISION TRAINING
[Office for Postgraduate studies, UCT](#)
2015

SERVLETS AND JSP DEVELOPMENT FOR WEBSHERE
[IBM Training](#)
2002

IT PROJECT MANAGEMENT +
[AST Collaborative Solutions](#)
2002

Employment History

POSTDOCTORAL FELLOW
Department of Computer Science
University of Cape Town (UCT)
www.cs.uct.ac.za

MAY 2013 – APRIL 2016

Activities:

- Gamification of Computer Science
- Support academic staff to enhance learning activities
- Facilitate student engagement through innovation
- Design, develop and evaluate learning activities
- Design and integrate blended and online learning
- Develop digital learning content and games
- Managing projects and relationships with stakeholders
- Lecturing, workshops and seminars
- Industry engagement

Achievements:

- Course development:
 - Game Artificial Intelligence
 - Playability and Design
 - Mobile Game Development
- Workshops:
 - Paper Prototyping for games design
 - Games Design
- Educational games developed:
 - Gamification of the Game Development course
 - A* Pathfinder serious game
 - Enforcer Gauntlet Neuro-evolution Tournament

Publications:

Vermeulen, H., Gain, J., Marais, P. & O'Donovan, S.
Reimagining gamification through the lens of Activity Theory. In
*Proceedings of the 47th Hawaii International Conference on
System Sciences*, Hawaii, USA, January 5 - 8, 2016.

Vermeulen, H. & Gain, J. Learning from mistakes: Evaluating
learning in a serious game. In *Proceedings of the 1st
International Conference on Serious Games*, Vanderbijlpark,
South Africa, August 27 - 28, 2014.

Seminars:

Vermeulen, H. *The Gamification of Computer Science*.
Department of Information & Computer Science, University of
Hawaii at Manoa, USA, January 13, 2016.

Vermeulen, H. *Virtual What?* Virtual Reality South Africa, Cape
Town, South Africa, July 29, 2015.

Skills

PROFESSIONAL

Expertise Scale

Web development	●●●●○
Multimedia development	●●●●●
Game development	●●●●○
Digital learning innovation	●●●●●
Instructional design	●●●●○
Learning Analytics	●●●○○
Game based learning	●●●●○
Research	●●●●○
Teaching and Mentorship	●●●●○
Virtual Reality	●●●●●
Human Computer Interaction	●●●●○
Project management	●●●○○
Penetration testing	●●●○○

PROGRAMMING

ActionScript 3.0	●●●●●
JavaScript	●●●●○
HTML5 and CSS3	●●●●○
jQuery	●●●●○
C++	●●●○○
C#	●●●○○
Java	●●○○○
Python	●●●○○
XML	●●●●○
PHP	●●○○○
VBScript (ASP)	●●●○○
SQL	●●●○○
SCORM 2004	●●●●○
IMS LTI	●●●●○

SOFTWARE

Unreal Engine 4.12	●●●●○
Unity3D 5.1	●●●○○
Microsoft Visual Studio 2015	●●●●○
Adobe Flash Builder 4.7	●●●●●
Adobe AIR 3.0	●●●●○
FlashDevelop 5	●●●●●
Adobe Flash CS 5.5	●●●●●
Adobe Dreamweaver CS 5.5	●●●●○
Adobe Photoshop CS 5.5	●●●●○
Adobe Premier CS 5.5	●●●○○

CONSULTANT DEVELOPER

Humanit

Freelance, Cape Town

www.humanit.co.za

NOV 2010 – APRIL 2013

Activities:

- Project management
- Client consultation and needs analysis
- System specification
- Instructional design
- Software development
 - Online games
 - Serious games
 - Interactive wall projections
 - Touch screen
- Digital media development
- e-Learning development
- Learning Management System integration
- Testing and debugging

Achievements:

- Course development (course - client):
 - Interactive Media - <http://www.cfms.uct.ac.za>
- Educational games developed (game - client):
 - Eskom Energy Planner Game - <http://www.eskom.co.za>
 - Series of 3 Android games - <http://www.tanzaniteexperience.com>
 - Fossil Fuels - <http://ctsc.org.za>
- Interactive Wall Projection (application - client):
 - Leopards Leap - <http://www.leopardsleap.co.za>
- e-Learning development (course - client):
 - Series of 7 training programs for laboratory staff - <http://www.distell.co.za>
 - Financial Intelligence Act (FICA) course - <http://www.moonstone.co.za>
 - BDO Spencer Steward Induction program - <http://www.bdo.co.za>
- Games for Change Festival nominee for MOST SIGNIFICANT IMPACT category 2013 - <http://www.gamesforchange.org/festival2013/games/eskom-energy-planner/>

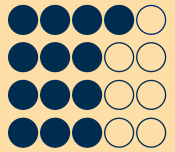
HARDWARE

Microsoft Xbox 360 Kinect

Oculus Rift DK2

Leap Motion

3D Printing



WEB SERVERS

Microsoft IIS

Apache 2.2.22



LEARNING MANAGEMENT SYSTEMS

SAKAI 10

IBM LearningSpace 5

Moodle 2.0



DATABASES

Oracle 8i

MySQL



OPERATING SYSTEMS

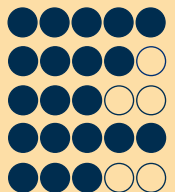
Windows 8.1

Windows XP

Windows 98

OSX 10.6.8

Kali Linux 2016.2



Awards

SCARCE SKILLS
POSTDOCTORAL FELLOWSHIP
[National Research Foundation](#)
2013

AWARD NOMINEE: MOST
SIGNIFICANT IMPACT
[Games for Change](#)
2013

PHD SCHOLARSHIP
[Collaborative African Virtual
Environment Systems](#)
2003

MSC SCHOLARSHIP
[Stichting Studiefonds voor
Zuidafrikaanse Studenten](#)
2000

CHIEF MULTIMEDIA DEVELOPER

Formula D Interactive

Cape Town

www.formula-d.com

OCT 2009 – OCT 2010

Activities:

- Development team management
- Mentor junior programmers
- Research and development
- Client consultation
- System specification
- Instructional design
- Interaction design
- Application development:
 - Online games,
 - Serious games
 - Interactive wall projections
 - Touch screen
- Testing and debugging

Achievements:

- Development of blended learning (game - client):
 - IBP GAME - <http://internationalbudget.org>
- Interactive Wall Projection (application - client):
 - Gravity Game - <http://www.sci-bono.co.za>
- Touch Screen Applications (application - client):
 - NANO - <http://ctsc.org.za>
 - Multi Touch Planner - <http://www.cpsi.co.za>

Seminars:

Vermeulen, H. *Using e-learning games to inform didactic practice*. Education Week Conference, Johannesburg, September 28, 2010.

FLASH DEVELOPER

Derivco

Durban

www.derivco.com

JUNE 2008 – NOV 2008

Achievements:

- Online game framework design and development
- Backend integration
- Testing and documentation
- Games development using framework developed

Education History

PHD LEARNING IN VIRTUAL WORLDS

Department of Computer Science

University of Cape Town

2003 – 2009

Achievements:

- Develop a methodology to design and evaluate learning activities in virtual worlds
- Evaluate Activity Theory as constructivist pedagogy and framework
- Implement methodology to produce and evaluate 2 learning environments
- Unreal 2004 Collaborative Storyboarding Previsualization Virtual Environment
- Unreal2Engine Collaborative Virtual Film Production Learning Environment
- Expand Activity Theory to meet challenges identified in practice
- Teaching (course - client):
 - The CAVES Virtual Reality authoring tool - <http://www.cs.uct.ac.za>
 - Principles of Design for Interactive Media - <http://www.cfms.uct.ac.za>

Publications:

Vermeulen, H. Learning in a virtual world: Expanding activity theory for the design and evaluation of group praxis. *PhD Dissertation*, Department of Computer Science, University of Cape Town, 2009.

Beirowsky, C. & Vermeulen, H. Experiences with virtual reality accessibility in an African context. In *Workshop Proceedings of the IEEE VR 2004 Conference*, Chicago, USA, March 27-31, 2004.

DEVELOPMENT CONSULTANT

AST Collaborative Solutions

e-Learning Division, Midrand

www.gijima.com

DEC 2001 – MARCH 2003

AST Group [merged](#) with Gijima Technologies in 2005.

Activities:

- Client consultation
- Strategy development
- Design for and promote a blended learning approach
- Curriculum planning, instructional design, story boarding, screen capturing and authoring of online course material
- e-Learning course programming and SCORM learning analytics
- IBM LearningSpace5 installation, administration, training and support

Achievements:

- Teaching (course - client):
 - IBM LearningSpace 5 Administration - <http://www.batsa.co.za>
- System administration:
 - IBM LearningSpace5 installation and administration - <http://www.daimler.co.za>
- e-Learning development (course - client):
 - Series of 3 courses - <http://www.eskom.co.za>
 - Data warehousing intranet simulation and course - <http://www.santam.co.za>
 - Series of 5 courses - <http://www.doj.gov.za>
 - Orientation program - <http://www.batsa.co.za>

WEB DEVELOPER

Object Technology UK

London

AUG 1999 – JULY 2000

Achievements:

- Design, develop and maintain OTUK's web site and intranet
- Migrate data to Oracle8i
- Develop web-clipping application for the Palm Pilot VII handheld computer
- Develop the Seagram web management system to access, view, query and monitor data models running on data warehousing servers
- Integrate Dimensional Insight's Diver BI java applet into web management system

MSC EDUCATION AND TRAINING SYSTEMS DESIGN

University of Twente

The Netherlands

2000 – 2001

Course Components:

- Instructional Design Theories
- Human Computer Interaction
- Learning in Virtual Environments
- Organization and management perspectives of education
- Models and strategies of curriculum development
- Principles of learning and instructional design
- Instrumentation for instruction and training
- Design methodologies for education and training system
- Evaluation and research as tools of the educational technologist

Publications:

Vermeulen, H. Constructing Virtual Learning Environments: Urban Design through a Multi-user Virtual World. *MSc Dissertation*, University of Twente, 2001.

References

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