Application

Title	Dr
Initials	CA
Name	Clint Alex Steed
Email	alex.steed88@gmail.com
ID/Passport Number	8808265160083
Race	Coloured
Gender	Male
Citizenship	South African citizen
Organisation	Stellenbosch University
Birth Date	26 August 1988
Date Generated	26 September 2025 12:14

Table Of Contents

CV

Career History

Type Permanent appointment	Position Lecturer
Organisation Department of Mechanical and Mechatronic Engineering, Stellenbosch Unversity	
Sector Higher Education Sector	Is Current Yes
Appointed From 2025-01-01	

Type Contract appointment	Position Junior Lecturer
Organisation Department of Industrial Engineering, Stellenbosch University	
Sector Higher Education Sector	Is Current Yes
Is Fulltime Yes	Appointed From 2023-02-01

Patents

Application Date 2023-10-01	Application Number WO/2023/075083
Full Title VIRTUAL REALITY-BASED HUMAN-IN-THE-LOOP EXPERIMENT APPARATUS AND METHOD USING REAL-TIME AGENT STATUS LINKAGE	

Description

The present invention relates to a virtual reality-based HITL experiment apparatus and method for developing an agent-based model to which cognitive characteristics of residents are reflected during metropolitan city introduction, by using an environment involving driving, walking, and object interaction for movement of a subject, in a virtual environment constructed on the basis of a node-based road network referring to actual road data, the virtual reality-based HITL experiment apparatus comprising: a simulation implementation processing unit that constructs a virtual background environment for scenario implementation by distinguishing between an outdoor environment, an indoor environment, a road environment, a subject environment, and a virtual agent, and performs data extraction and subject behavior observation by reflecting the environment involving driving, walking, and object interaction for movement of a subject, in the constructed virtual environment; and a simulation implementation support unit that supports the subject and an experimenter to identify and manipulate a VR simulation according to stepwise progress of a scenario by the simulation implementation processing unit.

https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2023075083&_cid=P10-LQ628J-67839-1

Inventor
KIM, Namhun,
C Steed,
PARK, Soohyung
PARK, Younghee

Application Type
PCT

Region
South Korea

Status
Filed

Application Date
2023-10-01

Application Number
KR20230137566A

Full Title
A simulation method and system using a real-time agent status linkage

Description
The present disclosure relates to an agent state-linked simulation system including a first simulator including a first agent and a second simulator including a second agent, wherein the first agent provides state information corresponding to the behavior of the first agent. Discloses an agent state-linked simulation system in which information is transmitted to the second agent, and the second agent acts based on state information corresponding to the behavior of the first agent.

Inventor
Kim, Namhun
Park, Sooyung
Steed, Clint

Application Type
National Phase

Region
South Africa

Status
Filed

Qualifications/Certifications

Academic Level of Qualification
Doctoral

Study Fields
Manufacturing

Title of Thesis/Dissertation
A Human-in-the-Loop Digital-Twin Continuous- Improvement Framework Integrating Virtual Reality and Human Performance Models

Institution
Ulsan National Institute of Science and Technology

Name Of Degree/Diploma (e.g. PhD)
PhD

Fulltime
Yes

Distinction
N/A

Date of First Registration
2019-03-01

Completed
Yes

Highest Qualification
Yes

Date Obtained 2024-02-15	Academic Record/Transcript CASTeed Diploma PhD_.pdf

Academic Level of Qualification Masters	Name Of Degree/Diploma (e.g. PhD) MEng (Thesis)
Fulltime Yes	Distinction No
Date of First Registration 2013-02-01	Completed Yes
Highest Qualification No	Intended Completion Date 2015-11-01

Academic Level of Qualification Undergraduate degree (four year)	Name Of Degree/Diploma (e.g. PhD) BEng Mechanical
Fulltime Yes	Distinction No
Date of First Registration 2009-10-01	Completed Yes
Highest Qualification No	

Academic Level of Qualification Undergraduate diploma	Study Fields Mechanical engineering
Institution CPUT	
Name Of Degree/Diploma (e.g. PhD) Mechanical (National Diploma)	Fulltime Yes
Distinction No	Date of First Registration 2006-01-01
Completed No	Highest Qualification No
Qualification Status Discontinued (stopped)	Reason Changed to University degree

Research Expertise

Scientific Domain

Engineering

Primary Research Fields

Engineering sciences	Technologies and applied sciences

Secondary Research Fields

Industrial Engineering	Manufacturing and process technologies
Engineering	Systems Engineering

Field Of Specialisation

Advanced manufacturing systems	Modern Manufacturing Systems
Manufacturing systems	Design science
Automation Engineering	Applied Information Systems

Research Outputs

Summary

	2025	2024	2023	2022	2021	2020	2019	2018	2017	Total
Articles in Refereed/Peer-reviewed Journals	1	1	2	0	0	0	1	0	0	5
Chapters in Books	3	0	0	0	0	0	0	0	0	3
Refereed/Peer-reviewed Conference Outputs	3	2	1	0	0	0	0	0	0	6

Articles in Refereed/Peer-reviewed Journals

Output Title
A sustainable decarbonisation roadmap for South African priority agro-processing sub-sectors

Title of Journal
Energy for Sustainable Development

ISBN Number 09730826	Volume 88
Authors Steed C.A., Mercuur B.S., Mangaroo-Pilllay M.	
Status Published/produced	Year 2025
DOI 10.1016/j.esd.2025.101788	

Output Title
Suitability of titanium alloys as dental implant material - a review

Title of Journal
MATEC Web of Conferences

Authors
Jacob Wafula, Clint Steed

Status	Year
Published/produced	2024
DOI	
10.1051/matecconf/202440603015	

Output Title
Virtual reality-based assembly-level design for additive manufacturing decision framework involving human aspects of design

Title of Journal
Journal of Computational Design and Engineering

ISBN Number	Volume
22884300	10
Authors	
Ulanbek Auyeskhan, Clint Alex Steed, Soohyung Park, Dong-Hyun Kim, Im Doo Jung, Namhun Kim	
Status	Year
Published/produced	2023
Page From	Page To
1142	1142
DOI	Total Pages
10.1093/jcde/qwad041	-1

Output Title
Deep active-learning based model-synchronization of digital manufacturing stations using human-in-the-loop simulation

Title of Journal
Journal of Manufacturing Systems

ISBN Number	Volume
02786125	70
Authors	
Clint Alex Steed, Namhun Kim	
Status	Year
Published/produced	2023
Page From	Page To
450	450
DOI	Total Pages
10.1016/j.jmsy.2023.08.012	-1

Output Title
A simulation-based approach to develop a holonic robotic cell

Title of Journal
Industrial Robot

ISBN Number
0143-991X

Volume
46

Authors
Clint Alex Steed

Status
Published/produced

Year
2019

Page From
128

Page To
134

Publisher
Emerald

DOI
10.1108/IR-07-2018-0149

Total Pages
-1

Chapters in Books

Output Title
The Conference on Learning Factories: A Keywords Analysis

Authors
Mia Mangaroo-Pillay, Clint Alex Steed

Status
Published/produced

Year
2025

DOI
10.1007/978-3-031-98883-7_11

Output Title
A State-Space Approach to Human Performance Models Considering Sensor Invasiveness and Operator Well-Being

Authors
Clint Alex Steed, Mia Mangaroo-Pillay

Status
Published/produced

Year
2025

DOI
10.1007/978-3-031-98883-7_24

Output Title
Simulating Wearable Sensors in Virtual Reality: A Comparison of Physical and Virtual Sensor Movement Identification in a Learning Factory Setting

Authors
Reevan Heppell, Adam Daniel Sendzul, André Francois van der Merwe, Clint Alex Steed, Mia Mangaroo-Pillay

Status
Published/produced

Year
2025

DOI
10.1007/978-3-031-98883-7_25

Refereed/Peer-reviewed Conference Outputs

Output Title
Designing a Low-Cost Photovoltaic Prototype for Informal and Rural Settlements

Proceeding Title
Proceedings of the 31st ICE IEEE Itmc Conference on Engineering Technology and Innovation AI Driven Industrial Transformation Digital Leadership in Technology Engineering Innovation and Entrepreneurship ICE 2025

Authors
Vermaak R.J., Mercuur B.S., Roopa M., Mangaroo-Pillay M., Steed C.A.

Status
Published/produced

Year
2025

DOI
10.1109/ICE/ITMC65658.2025.11106576

Output Title
ICE Over the Years - A Keyword Analysis

Proceeding Title
Proceedings of the 31st ICE IEEE Itmc Conference on Engineering Technology and Innovation AI Driven Industrial Transformation Digital Leadership in Technology Engineering Innovation and Entrepreneurship ICE 2025

Authors
Mangaroo-Pillay M., Roopa M., Steed C.A., Mercuur B.S., Vermaak R.J.

Status
Published/produced

Year
2025

DOI
10.1109/ICE/ITMC65658.2025.11106633

Output Title
Exploring the Applications of Atmospheric Water Harvesting Technologies: A Scoping Review

Authors
Reeder J Vermaak, Meelan Roopa, Clint Alex Steed, Mia Mangaroo-Pillay

Status
Published/produced

Year
2025

DOI
10.1109/ICE/ITMC65658.2025.11106610

Output Title
Solar PV-Battery Sizing for SA Tourism: A Data and Simulation Backed Graphical Analysis Method

Proceeding Title
2024 IEEE PES/IAS PowerAfrica, PowerAfrica 2024

Authors
Mercuur B.S., Steed C.A.

Status	Year
Published/produced	2024

DOI
10.1109/PowerAfrica61624.2024.10759382

Output Title
A Solar PV Hybrid System Sizing Procedure for the South African Tourism Industry

Proceeding Title
2024 IST-Africa Conference, IST-Africa 2024

Authors
Mercuur B.S., Steed C.A.

Status	Year
Published/produced	2024

DOI
10.23919/IST-Africa63983.2024.10569808

Output Title
Human internal state estimation as blind source separation using a dynamic auto-encoder

Title of Journal
2023 15th International Conference on Advanced Computational Intelligence (ICACI)

Proceeding Title
2023 15th International Conference on Advanced Computational Intelligence Icaci 2023

Authors
Clint Alex Steed, Namhun Kim

Status	Year
Published/produced	2023

DOI
10.1109/icaci58115.2023.10146132

Student Supervision

Title	Initials
Mr	Jacob

Surname	Citizenship Status
Wafula	Non-South African citizen

Country Of Birth Kenya	Race African
Gender Male	Institution Stellenbosch University
Level Masters	Name Of Degree/Diploma (e.g. PhD) Masters of Engineering
Title of Thesis/Dissertation Optimization of process parameters of selective laser melted Ti 6Al-4V alloy using Taguchi method	
Is Fulltime Yes	Supervised From 2024
Supervised To 2026	Role Supervisor
Year First Registration 2024	Is Completed No
Qualification Status In Progress	

Title Mr	Initials P
Surname Bambi	Citizenship Status Non-South African citizen
Country Of Birth Angola	Race African
Gender Male	Institution Stellenbosch University
Level Doctoral	Name Of Degree/Diploma (e.g. PhD) PhD Industrial Engineering
Title of Thesis/Dissertation DATA-DRIVEN QUALITY ASSURANCE, CONTROL, AND MACHINE LEARNING IN DIAMOND MINING	
Is Fulltime Yes	Supervised From 2025
Supervised To 2029	Role Co-supervisor
Year First Registration 2025	Is Completed No
Qualification Status In Progress	

Title Mr	Initials W

Surname Jordaan	Citizenship Status South African citizen
Race White	Gender Male
Institution Stellenbosch University	Level Masters

Title of Thesis/Dissertation
Car as the cloud: Feasibility of vehicle cloud techniques in production and assembly

Name Of Degree/Diploma (e.g. PhD) M Eng	Is Fulltime Yes
Supervised From 2024	Supervised To 2026
Role Co-supervisor	Year First Registration 2024
Is Completed No	Qualification Status In Progress

Title Mr	Initials A
Surname Twala	Citizenship Status South African citizen
Race African	Gender Male
Institution Stellenbosch University	Level Masters

Title of Thesis/Dissertation
Evaluating the Role of Artificial Intelligence (AI)- Driven Virtual Agents in Enhancing Efficiency and customer Experience in an E-Commerce contact

Name Of Degree/Diploma (e.g. PhD) Masters Degree in Engineering Management	Is Fulltime No
Supervised From 2025	Supervised To 2026
Role Supervisor	Year First Registration 2025
Is Completed No	Qualification Status In Progress

Title Mr	Initials D
Surname Opperman	Citizenship Status South African citizen

Race White	Gender Male
Institution Stellenbosch University	Level Masters

Title of Thesis/Dissertation
A digital twin system to support machine learning analysis of water distribution systems

Name Of Degree/Diploma (e.g. PhD) MEng Mechanical and Mechatronic	Is Fulltime Yes
Supervised From 2025	Supervised To 2026
Role Co-supervisor	Year First Registration 2025
Is Completed No	Qualification Status In Progress

Title Mr	Initials M
Surname Potgieter	Citizenship Status South African citizen
Race White	Gender Male
Institution Stellenbosch University	Level Honours/BTech
Name Of Degree/Diploma (e.g. PhD) B Eng Industrial Engineering	Is Fulltime Yes
Supervised From 2024	Supervised To 2025
Role Supervisor	Year First Registration 2024
Is Completed Yes	Year Awarded 2024

Title Mrs	Initials S
Surname Nichols	Citizenship Status South African citizen
Race White	Gender Female
Institution Stellenbosch University	Level Honours

Name Of Degree/Diploma (e.g. PhD) B Eng Industrial	Is Fulltime Yes
Supervised From 2024	Supervised To 2024
Role Supervisor	Year First Registration 2024
Is Completed Yes	Year Awarded 2025

Title Mr	Initials R
Surname Vermaak	Citizenship Status South African citizen
Race White	Gender Male
Institution Stellenbosch University	Level Bachelor/Advanced Diploma
Name Of Degree/Diploma (e.g. PhD) BEng Industrial	Is Fulltime Yes
Supervised From 2024	Supervised To 2024
Role Supervisor	Year First Registration 2024
Is Completed Yes	Year Awarded 2025

Title Mr	Initials Reeder
Surname Vermaak	Citizenship Status South African citizen
Race White	Gender Male
Institution Stellenbosch University	Level Masters
Name Of Degree/Diploma (e.g. PhD) MEng Industrial	Is Fulltime Yes
Supervised From 2025	Supervised To 2027
Role Co-supervisor	Year First Registration 2025

Is Completed No	Qualification Status In Progress

Title Mr	Initials M
Surname Beyer	Citizenship Status South African citizen
Race White	Gender Male
Institution Stellenbosch University	Level Masters/MTech
Name Of Degree/Diploma (e.g. PhD) MEng Mechanical and Mechatronic	Is Fulltime Yes
Supervised From 2025	Supervised To 2026
Role Co-supervisor	Year First Registration 2025
Is Completed No	Qualification Status In Progress

Title Mr	Initials M
Surname Van Dyk	Citizenship Status South African citizen
Race White	Gender Male
Institution Stellenbosch University	Level Honours
Name Of Degree/Diploma (e.g. PhD) B Eng Industrial	Is Fulltime Yes
Supervised From 2024	Supervised To 2024
Role Supervisor	Year First Registration 2018
Is Completed Yes	Year Awarded 2025

Personal Details

Citizenship Status South African citizen	Country South Africa

Country Of Birth South Africa	Gender Male
Identity Number 8808265160083	Identity Type SA ID Number
Institution Stellenbosch University	Institution Country South Africa
Institution Type South Africa	Position Lecturer
Race Coloured	Research Expertise System Engineering
Research Expertise Type Field of Specialisation	