drs. ir. Luke MEYER

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SUMMARY

Highly qualified PhD candidate at the University Medical Centre Groningen, with seven years of research experience in the field of life sciences, and robotics. Experienced in medical data analysis, research and development methods, and various programming languages. Skilled in project management, problem-solving, and team coordination. Seeking a professional opportunity to leverage biomedical engineering and robotics expertise in the healthcare industry.

EXPERIENCE

UNIVERSITAIR MEDISCH CENTRUM GRONINGEN (UMCG)
2020-2024 | Groningen, Netherlands

RESEARCHER
- Developed the implementation of humanoid robots as interfaces for audiological testing.
- Programed of a NAO robot in Python and ROS to run various auditory psychophysical tests.
- Created a webserver to communicate with NAO robot and act as a user interface to run audiological tests.
- Attended and presented at various robotics and audiological conferences world wide.
- Assisted in lecturing and grading for second-year bachelor course Human-Computer Interaction.
- Responsible for supervising bachelor and masters students during their internship or thesis projects.

RIJKSUNIVERSITEIT GRONINGEN
2022 | Groningen, Netherlands

TEACHING ASSISTANT
- Conducted practical and tutorial sessions for Human-Computer Interaction course.
- Graded exams and assignments.

RIJKSUNIVERSITEIT GRONINGEN
2019 | Groningen, Netherlands

TEACHING ASSISTANT
- Assisted in running practical and tutorial sessions for Control Engineering course.
- Graded exams and assignments.

WELLINQ
Summer 2019 | Leek, Netherlands

R&D INTERN
- Designed a mechanically steerable catheter for potential endovascular procedures.
- In depth design and analysis process followed to development various actuation mechanisms.
- Produced Solidworks CAD renderings for prototype designs.
- Conducted FEM analyses on steerable catheter actuation designs.
- Provided in depth stakeholder analysis and risk assessment for final prototype.

CONDRIAC DIGITAL AGENCY
2015 - 2018 | Johannesburg, South Africa

FULL-STACK DEVELOPER (PART-TIME)
- Worked on and maintained a Wordpress website for TATA South Africa.
- Responsible for the maintaining of client Wordpress websites.
- Developed iOS application for South African vaccination scheduling (project did not go live).
- Started front and back-end development on a web platform for visualising and reporting advertisement analytics built using Python, Django, Angular, MySQL, HTML, CSS and Javascript (project did not go live).

EDUCATION

RIJKSUNIVERSITEIT GRONINGEN | NETHERLANDS
2020-2024

PHD MEDICAL SCIENCES | ROBOTICS (*EXPECTED DEFENCE - SUMMER 2024*)

Thesis topic: Investigating the Feasibility of a NAO Robot in Audiology (AuRoRA: Audiology Robotics for Research Applications)
Advisors: Prof. dr. ir. Deniz Başkent, dr. Laura Rachman, dr. ir. Gloria Araiza-Illan

RIJKSUNIVERSITEIT GRONINGEN | NETHERLANDS
2018-2020

MSc BIOMEDICAL ENGINEERING

Thesis topic: Implementation of psychophysics experiments with Sam the humanoid robot
Advisor: Prof. dr. ir Bart Verkerke

STELLENBOSCH UNIVERSITY | SOUTH AFRICA
2013-2017

BSc HUMAN LIFE SCIENCES (HONORS DEGREE IN HUMAN ANATOMY)

Majors: Human Anatomy and Physiology
Thesis topic: Quantitative study of T-Lymphocytes in the spleen and pancreas in STZ diabetic Wistar rats: correlation with renal histomorphology

R&D Projects

IMPLEMENTED AUTOMATIC SPEECH RECOGNITION (ASR) FOR AUDIOLOGICAL TESTING
- Made use of an open-source ASR toolkit to decode spoken responses used in aduiological tests.
- Reduced the time for decoding responses through analysing and restructuring the ASR codebase.

BUILT A WORKING POWER UNIT WITH VARIABLE VOLTAGE OUTPUTS
- Made use of linear voltage regulators to output various voltages when connected to main power outlets.
- 3D printed enclousre for power unit.

BUILDING A 5-DOF ROBOTIC ARM (IN PROGRESS)
- Using various stepper and servo motors to actuate a five degree of freedom robotic arm.
- Implementing low level C++ programming to control actuators.
- 3D printing components to house motors and electrical components, and various gears to actuate arm.

BUILDING A WEARABLE SIGN LANGUAGE INTERPRETER
- Makes use of five flexible sensors (one for each digit) on a glove to read the degree of flexion of each finger.
- Makes use of an inertial measurement unit (IMU) to measure cartesian and gyroscopic accelerations of the hand.
- Intend to make use of embedded machine learning to recognise various hand gestures, such as the american sign language alphabet.

BUILT AN iOS APPLICATION FOR CATALOGUING AN OSSUARY ARCHIVE
- Designed and developed a system to log ossuary skeletal remains using QR codes.
- Created an application to scan QR codes and display stored information inn strutured format.
- Application was never released on app store as it was intended to be used locally.

CYBERSECURITY AND PENETRATION TESTING
- Developed skills related to penetration testing and securing of servers.
- Developed skills on cloud and network security.

Skills

PROGRAMMING LANGUAGES	Python | ROS | C++ | Bash
SOFTWARE	GIT | Linux | CLI | Solidworks | Fusion360
FRAMEWORKS & LIBRARIES	Jupyter | Matplotplib | Numpy | Pandas | Scikit-learn | PyTorch
FIELDS OF INTEREST	Robotics | Biomedical Engineering | Embedded Systems | Medical Device Design | 3D Printing
LANGUAGES	*Native:* English *Intermediate:* Dutch
HOBBIES	Bouldering | Boardgames | Reading

References

PROF. DR. IR. DENIZ BAŞKENT, PHD
Professor of Otorhinolaryngology
University Medical Centre Groningen (UMCG)
PRECISION - Innovative technologies for diagnostics, treatment and transplantation
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DR. IR. GLORIA ARAIZA-ILLAN, PHD
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