Eric James McDermott

•PhD Candidate: Neuroscience
•Project Lead: Rehality

I develop innovative solutions to improve the livelihood of people and the planet

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EXPERIENCE

Project Lead
'Rehality'
05/2018 - Present — *Tübingen, Germany*

Details

- I combine XR devices with EEG and machine learning to create effective BCIs aimed at predicting behavior and motor intentions in real time in order to deliver precision stimuli and tailored neurorehabilitation. To do so, I collaborate with four institutions across Europe.

Grant: Bundesministerium für Bildung und Forschung (1.4M, 3 years funding)

Technical and Business Liaison
Medical Innovation Incubator
09/2018 - Present — *Tübingen, Germany*

Details

- I am the Swiss army knife of the incubator. My role is to help make projects successful. Sometimes I program, sometimes I network, sometimes I build. In the end, I communicate effectively and use a robust skill toolbox to complete the job as efficiently as possible.

Co-Founder
Prometheus Science
06/2017 - 04/2018 — *Tübingen, Germany*

Details

- We developed a low-cost 3D-printed biology lab capable of basic microscopy, optogenetics, and behavioral tracking for a fraction of the cost of the competitors. We released it open-source, positively impacting regions across the world.

Fulbright Research Scholar
US Fulbright - Nehru Program
08/2011 - 10/2012 — *Bangalore, India*

Details

- A novel approach of using Neurofeedback Training for alleviation of motor symptoms of Huntington's Disease. Unpublished work, but the case study was successful.

Grant: US-Nehru Fulbright Research Scholar (11 month funding)

EDUCATION

PhD: Neural and Behavioral Science
Max Planck Institute / University of Tübingen
03/2017 - Present — *Tübingen, Germany*

Focus

- Machine Learning Approaches to VR-EEG Neurorehabilitation

MSc: Neural & Behavioral Science
University of Tübingen
10/2014 - 10/2016 — *Tübingen, Germany*

Focus

- Investigation of Vision Restoration through Optogenetics

Bachelor's: Psychology (Summa Cum Laude)
San Diego State University
08/2007 - 05/2011 — *San Diego, CA*

Focus

- Motor Assessment of Neurodegenerative Disease

SKILL SET

VR / AR / XR Development	Research Methods and Design
MATLAB / Python / C#	Unity3D
EEG / BCI / TMS	Statistical Analysis
Machine Learning / AI	Psychological Assessment
Game Design	Open Source Hacking
Business Development	Public Speaking & Outreach

RECENTLY PUBLISHED WORK

Characterizing movement: BCI approaches to VR-EEG
1st author (in preparation)

Predicting motor behavior: an EEG processing pipeline to detect relevant brain-states (accepted)
1st author

Alpha-Synchronized Stimulation ... Using Real-Time EEG-Triggered TMS (2019)

The Effects of Weight & Height on Hand Selection: A Low-cost Virtual Reality Paradigm (2018)
1st author

Building and Hacking Open Source Hardware (2018)

Vision Restoration through Optogenetics (2017)
Masters Thesis

PERSONAL PROJECTS

NFL Impact Challenge (2021)
- Computer vision AI model to track helmet impacts in NFL game

Modeling the Baseball Swing (2018)
- Simulink model and vicon motion tracking to create a realistic 3D model

Orthoptera Acoustic Communication (2017)
- Acoustic and digital signal analysis & behavioral modeling

Eric James McDermott Photography (www.ejm.photography)

AWARDS

1st Place: Hackathon "VR4Rehab" (AR memory game)

2nd Place: MedTech Demo Day Pitch (Rehality)

1st Place: MedTech Demo Day Pitch (Prometheus Science)

ADDITIONAL ACTIVITIES

Deutsch-Amerikanisches Institute (2016 - 2020)
Instructor

Stained Glass Design // Wood Working (2016 - Present)

Tübingen Hawks Baseball Club (1st Bundesliga)

Institute of Reading Development (04/2013 - 08/2014)
Instructor

Study Abroad: Scotland (2011)
Research Project: The Power and Influence of Facial Expression