

# Eric James McDermott

- PhD Candidate: Neuroscience
- Project Lead: Rehality

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



Eric.James.McDermott@gmail.com ✉

+491626312227 📞

Tübingen, Germany 📍

ericjamesmcdermott.com 🌐

linkedin.com/in/ejmcdermott in

## EXPERIENCE

### Project Lead 'Rehality'

05/2018 - Present

Tübingen, Germany

#### Details

- I combine XR devices with EEG / EMG 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, and work hands-on with stroke patients to better understand their needs.

*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 Biofeedback Training for alleviation of motor symptoms of Huntington's Disease.

*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

Research Methods and Design

Data Analysis

EMG / EEG / Motion Tracking

VR / AR / XR Development

Machine Learning / AI / BCI

MATLAB / Python / C#

User Design & Assessment

Arduino / Raspberry Pi

Business Development

Public Speaking / Outreach

## RECENTLY PUBLISHED WORK

Characterizing movement: EMG and EEG in VR

*1st author (in preparation)*

Real-time EMG based machine learning pipeline designed for user interaction in Mixed Reality

*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](http://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 - Present)

*Instructor*

Stained Glass Design // Wood Working

Tübingen Hawks Baseball Club (1st Bundesliga)

Study Abroad: Scotland

*Research Project: The Power and Influence of Facial Expression*