RWCF Projects

2023

Dr. Friederike Landau-Donnelly, Dr. Kirsty Robertson & Dr. Sarah Smith - Hearing Conflicts (HEARCON): Unpacking Decolonization in Canadian and Dutch Museum Initiatives via a Research Podcast

This research brings together an interdisciplinary team of scholars (Cultural Geography, Information & Media Studies, and Museum & Curatorial Studies) employing creative methodologies to explore museological strategies for contending with colonial histories and "difficult knowledge." Examining museum practice in Canada and the Netherlands, the team will explore curatorial approaches at a range of institutions and engage with museum practitioners, with research outputs including a podcast and scholarly publication.

Dr. Rosemary Yu & Dr. Nica Borradaile - Balancing act: EEF1A1 and the regulation of cellular energy source use

How does a cell balance between using sugars or fats for energy? In this project, Dr. Borradaile and Dr. Yu will tackle this question using an innovative combination of big data experiments and computer simulations.

Dr. Ir. Dennis Janssen & Dr. Ryan Willing - Dynamic medical imaging and experimental evaluation of patellofemoral biomechanics

The project between the Biomechanical Engineering Research Lab of Western University and the Orthopaedic Research Lab of Radboudumc focuses on the biomechanical evaluation of patellar instability. The collaboration unites advanced physical testing with dynamic medical imaging to gain more insight into the underlying pathology to improve care for patients with patellofemoral instability.

Prof. Dr. Vivian Weerdesteyn & Dr. Sue Peters - Enabling prediction of fall risk from a light-based neuroimaging tool during balance correcting responses

Poor reactive stepping (the kind needed to avoid a fall) is a significant risk factor for experiencing a fall and is typically impaired following neurological injury. To enable

development of interventions and prediction algorithms, our project will determine which mobile neuroimaging measures are associated with the stepping responses needed to avoid a fall.

Prof. Dr. Marcel van Gerven & Prof. Dr. Roy Eagleson - Investigation on Artificial Intelligence using Transformer Networks to Implement Algorithmic Models of Computation

One over-arching question that will be examined in this project is whether a classical "von Neumann" architecture can be implemented within a GPT-like Transformer Network. Computational models will be developed to explore whether a classical computational architecture can be implemented within a neural network. Drawing the neural networks and classical computers together under a single information-processing framework is what is at the heart of this research project.

2022

Dr Joukje Oosterman/Dr Iris Wiegand & Dr Stefan Köhler - Curiosity as a Cognitive Reserve in Healthy Aging

Cognitive reserve (CR) refers to protective factors in brain functioning that have accumulated over a lifetime and that can mitigate against cognitive decline in the face of age-related brain changes. In this project, we will study the role of curiosity in CR, based on the assumption that a curious person may be more inclined to reach out to an environment and to activities they find stimulating—and thereby boost their CR. We will develop an innovative research agenda to systematically investigate personality and motivational factors that link curiosity to CR and cognitive performance in aging, with the ultimate goal to lay the foundation for designing new individualized intervention programs to counteract cognitive decline.

Dr Laura Speed & Dr Ken McRae - Understanding Aphantasia; Exploring Language in Minds without Imagery

Recent research has discovered a unique group of individuals who do not consciously experience visual imagery: people with “aphantasia”. With this project we aim to increase understanding of aphantasia and explore how people without visual imagery understand language.

Dr Bernd Figner & Dr J. Bruce Morton - The Lasting Impact of Early-Life Experiences on Reward-Based Learning and Decision-Making

In this collaborative project, we are using a unique and large data set from Radboud University's "Healthy Brain Study" to answer the question in which ways differences in early life circumstances—such as growing up in relative poverty or experiencing traumatic events during childhood—are related to more optimal versus more problematic decision-making tendencies in adulthood. The longer-term goal of this research is to create the foundations for interventions aimed at improving individuals' life and health outcomes.

Prof Daniela A. Wilson & Prof Elizabeth Gillies - Dynamic, Bioinspired Polymeric Supramolecular Assemblies

The Wilson and Gillies research groups are collaborating to develop new approaches to change the shape and power the movement of tiny nanometer-sized polymer particles under biologically relevant conditions. Ultimately, the aim is to exploit these new systems to more effectively deliver drugs into tissues and cells.

Prof Jos Oomens & Prof Jan Cami - Decoding Carbon's Cosmic Fingerprints: driving Research Excellence by bridging Laboratory Astrochemistry and Observational Astrophysics

Western astronomers and Radboud chemists will set up a research collaboration and graduate training program that will leverage Radboud's unique access to advanced experimental facilities (e.g. FELIX) with Western's expertise in astrophysical studies of carbonaceous materials in space using observations with the James Webb Space Telescope. This powerful synergy will help to elucidate the nature of carbon in space, and recognize the groups' leadership role in one of the biggest adventures in astronomy (JWST).

2021

Dr. Wilco Verberk and Prof. Brent Sinclair - Oxygen at High and Low Thermal Limits of Ectothermic Animals

Dr. Friederike Landau and Assoc. Prof. Kirsty Robertson - Curating Waste - Exploring Future-Oriented and Sustainable Museum Practices in the Netherlands and Canada

Prof. Dr. Evelyn Kroesbergen, Dr. Anne van Hoogmoed and Prof. Daniel Ansari - From a Dichotomous Towards a Dimensional Approach of Learning Disabilities: Scientific and Societal Implications

Prof. Dr. Francesco Battaglia and Dr. Lyle Muller - Dynamics of Traveling Waves in the Sleeping Mouse Neocortex: Experiments, Analysis, and Theory

Prof. Dr. Frederik Zuiderveen Borgesius and Assoc. Prof. Charles Luke Stark - Automatic (In)justice: Exploring Real-World Impacts of Artificial Intelligence Governance in Europe, Canada, and around the World

Dr. Jorrit van den Berk and Prof. William Turkel - The Transatlantic Virtual International Classroom: Building Intercultural Competences through Global Research Dialogues