

# QUONDAM: Quantitative analysis of naturally produced speech and language to improve diagnosis and monitoring of dementia

<https://neurodegenerationresearch.eu/survey/quondam-quantitative-analysis-of-naturally-produced-speech-and-language-to-improve-diagnosis-and-monitoring-of-dementia/>

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Norway

## Title of project or programme

QUONDAM: Quantitative analysis of naturally produced speech and language to improve diagnosis and monitoring of dementia

## Source of funding information

RCN

## Total sum awarded (Euro)

€ 5,203

## Start date of award

01/01/2015

## Total duration of award in years

2

## Keywords

### Research Abstract

A common early symptom of Alzheimer's disease and other neurodegenerative dementias is impairment of day-to-day memory; however, language use appears to be disrupted at still earlier disease stages. Language production engages many cognitive domains and can be evaluated across multiple dimensions, such as acoustic, semantic and textual characteristics, emotional content, and gestural

accompaniments. That language is produced naturally and apparently without effort belies its cognitive demands and increases its diagnostic potential. This project aims to develop an in silico system to detect subtle effects of cognitive decline on language. The proposed system will exploit early changes in language by automatically extracting information relevant to each dimension from recordings of naturally produced discourse samples. Machine learning algorithms will be used to assign them to diagnostic categories. The global increase in dementia and its profound impacts on healthcare system sustainability adds urgency to the need for early and accurate detection and treatment. Currently, dementia diagnosis relies on detailed assessment of cognition, brain imaging, and cerebrospinal fluid biomarkers. These are complex, costly, invasive and time consuming. Consequently, diagnostic rates remain low, while detection in the pre-clinical stages – the optimal period for treatment – is lower still. This proposal brings together a consortium of language and computer scientists with expertise that spans all analytical dimensions, aiming to create and validate the diagnostic properties of an automated system leading from speech sampling to clinical classification. Such a diagnostic platform would be rapid (mimicking the decision making of a human expert) and adaptable to different healthcare delivery models. Sensitivity to disease progression will make the system suitable for simple unbiased assessment of response in trials of novel disease modifying treatments.

**Further information available at:**

**Types:**

Investments < €500k

**Member States:**

Norway

**Diseases:**

N/A

**Years:**

2016

**Database Categories:**

N/A

**Database Tags:**

N/A