

## Towards Short-term Detection of Job Strain in Knowledge Workers with a Minimal-invasive IS Service: Theoretical Foundation and Experimental Design

Tobias Kowatsch<sup>1</sup>, Fabian Wahle<sup>2</sup>, Andreas Filler<sup>1,3</sup>, Flavius Kehr<sup>1</sup>, Dirk Volland<sup>1</sup>, Severin Haug<sup>4</sup>, Gregor J. Jenny<sup>5</sup>, Georg Bauer<sup>5</sup> and Elgar Fleisch<sup>1,2</sup>

<sup>1</sup>Health-IS Lab, Institute of Technology Management, University of St. Gallen, St. Gallen, Switzerland

<sup>2</sup>Health-IS Lab, Department of Management, Technology and Economics, ETH Zurich, Zurich, Switzerland

<sup>3</sup>Energy Efficient Systems Group, University of Bamberg, Bamberg, Germany

<sup>4</sup>Swiss Research Institute for Public Health and Addiction, University of Zurich, Zurich, Switzerland

<sup>5</sup>Epidemiology, Biostatistics and Prevention Institute, University of Zurich, Zurich, Switzerland



### Problem

**Job Strain** is a serious problem because it **negatively affects** the **health condition** of employees, the **performance of organizations**, and the overall **costs** of the **health care system** likewise.

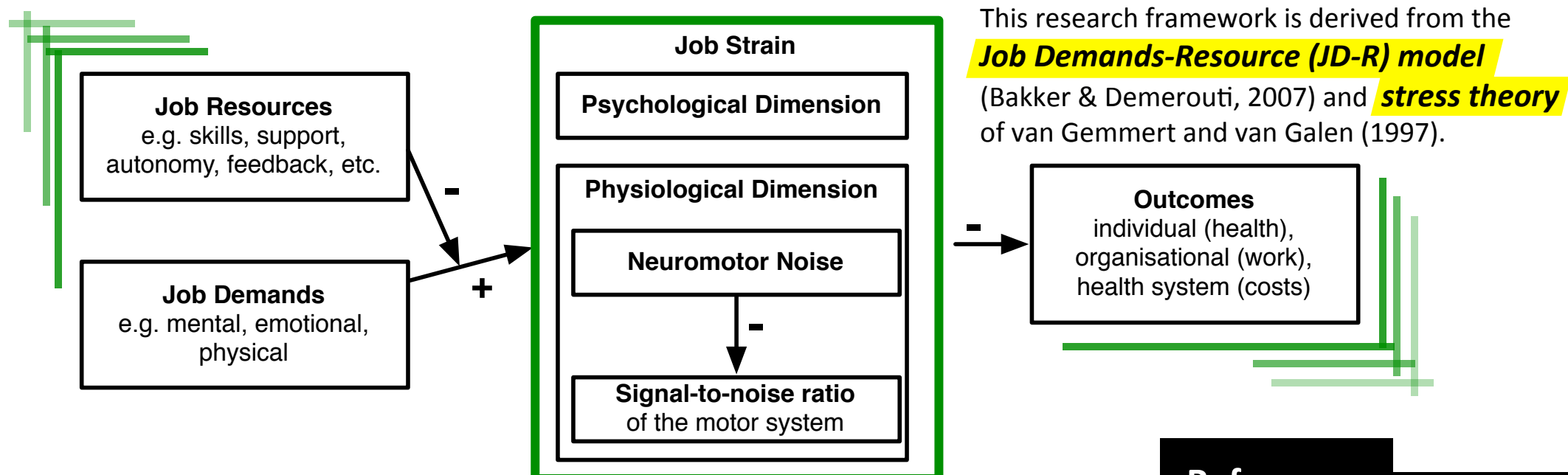
### Research Questions

A **Job Strain Information System Service** informed by **neuromotor noise** may help to detect and reduce job strain, **but:**

1. Which features of motor activity are related to physiological job strain?
2. Is physiological job strain related to psychological job strain?



### Research Framework



### Method

- **Mouse interactions** are used to detect the degree of neuromotor noise.
  - A **lab experiment** is planned to manipulate the level of job strain.
- Relevant features of mouse interactions are extracted by **machine learning**.

### Next Steps

- ✓ Identification of relevant features of mouse interactions in the lab and the field. *from July to December 2015*
- ✓ Integration of personalized job strain interventions. *2016+*

### References

- Bakker, A. B. & E. Demerouti (2007) The Job Demands-Resources Model: State of the Art, *Journal of Managerial Psychology* 22(3), 309-328.
- van Gemmert, A. W. A. and G. P. van Galen (1997) Stress, neuromotor noise, and human performance: A theoretical perspective, *Journal of Experimental Psychology: Human Perception and Performance* 23(5), 1299-1313.

