Poster: Use of Wearable-Generated Real-World Data to Objectively Identify Occupational Stressors (MSR198)

Table S1: List of smartwatches and fitness trackers tested (manufacturer, model, comments)

Manufacturer	Model	Comments
Apple	Series 6 and 7	Pulse-to-pulse interval (PPI) could not be extracted; PPI measurement: sporadic, unclear timing and only for 1 min at a time.
Samsung	Gear sport (SM-R600)	PPI could not be extracted
Samsung	Gear Fit2 (SM-R630)	PPI could not be extracted
Samsung	Gear Fit2 Pro (SM-R365)	PPI could not be extracted
Garmin	vívosmart 5	PPI could not be extracted
fitbit	charge 3	PPI could not be extracted
Xiaomi	Mi Smart Band 5	PPI could not be extracted
Polar	Pacer Pro	data quality and reliability comparable to OH1, Verity Sense and 360; good battery life; no access to software development kit (SDK)
Polar	Vantage M	
Polar	Ignite 2, Ignite 3, Unite	
Polar	OH1	4 MB memory, no offline recording of PPI possible, for upper arm, short range (75m)
Polar	Verity Sense	16 MB memory, better range than OH1 (150m), for upper arm
Polar	360	new, not commercially available, under test, good sensor technology, for wrist

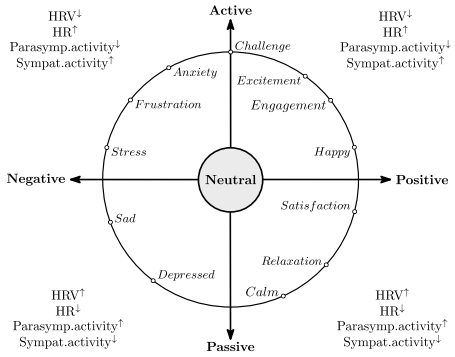

Figure S1: Valence and arousal model and assessment, adapted from Russel (1980)[1]

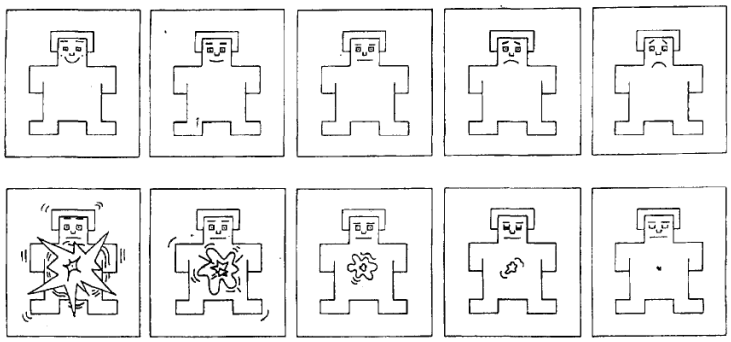

Figure S2: Self-Assessment Manikins (SAM), adapted from Bradley and Lang (1994)[2]

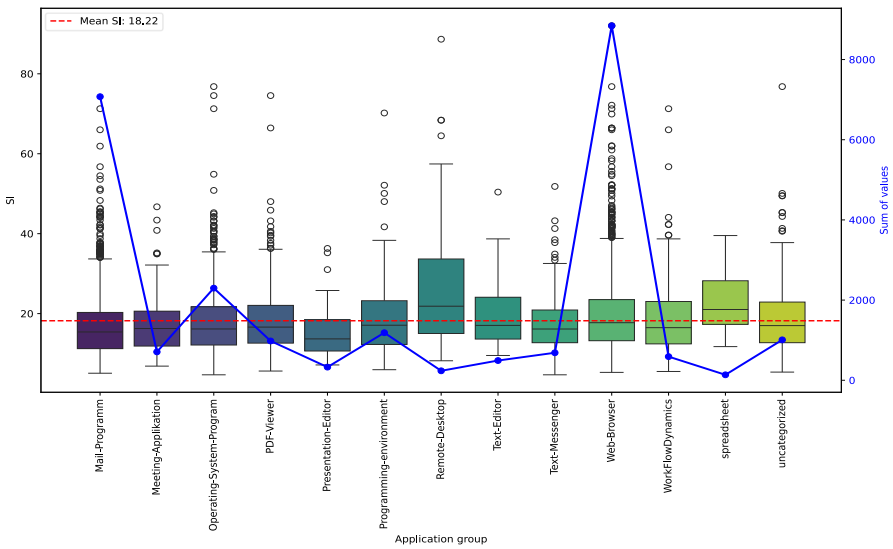

Figure S3: Distribution of SI values during working time depending on the use of different software. Identification of the software that has a negative impact on well-being with relatively higher stress index values compared to the mean value over the entire HCI time which can be linked to an activation of the sympathetic nervous system responsible for stress and excitement. (n=1)

Contact Information
Corresponding author: Ekaterina Mut, Institute for Applied Informatics (InfAI e.V.), Leipzig, Germany (mut@infai.org), project website

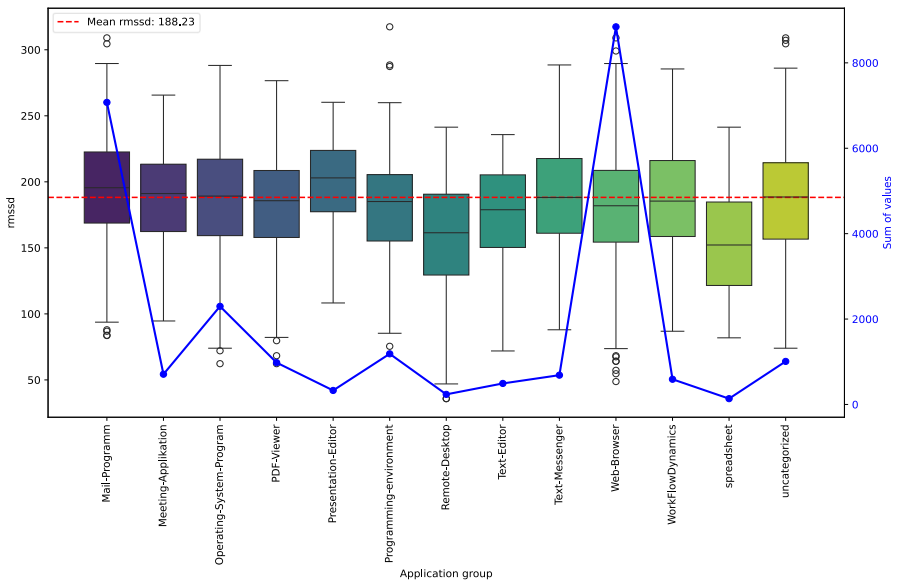

Figure S4: Distribution of RMSSD values during working time depending on the use of different software. Identification of the software that has a positive influence on well-being with relatively higher RMSSD values compared to the mean value over the entire HCI time which can be linked to an activation of the parasympathetic nervous system responsible for rest and recovery. (n=1)

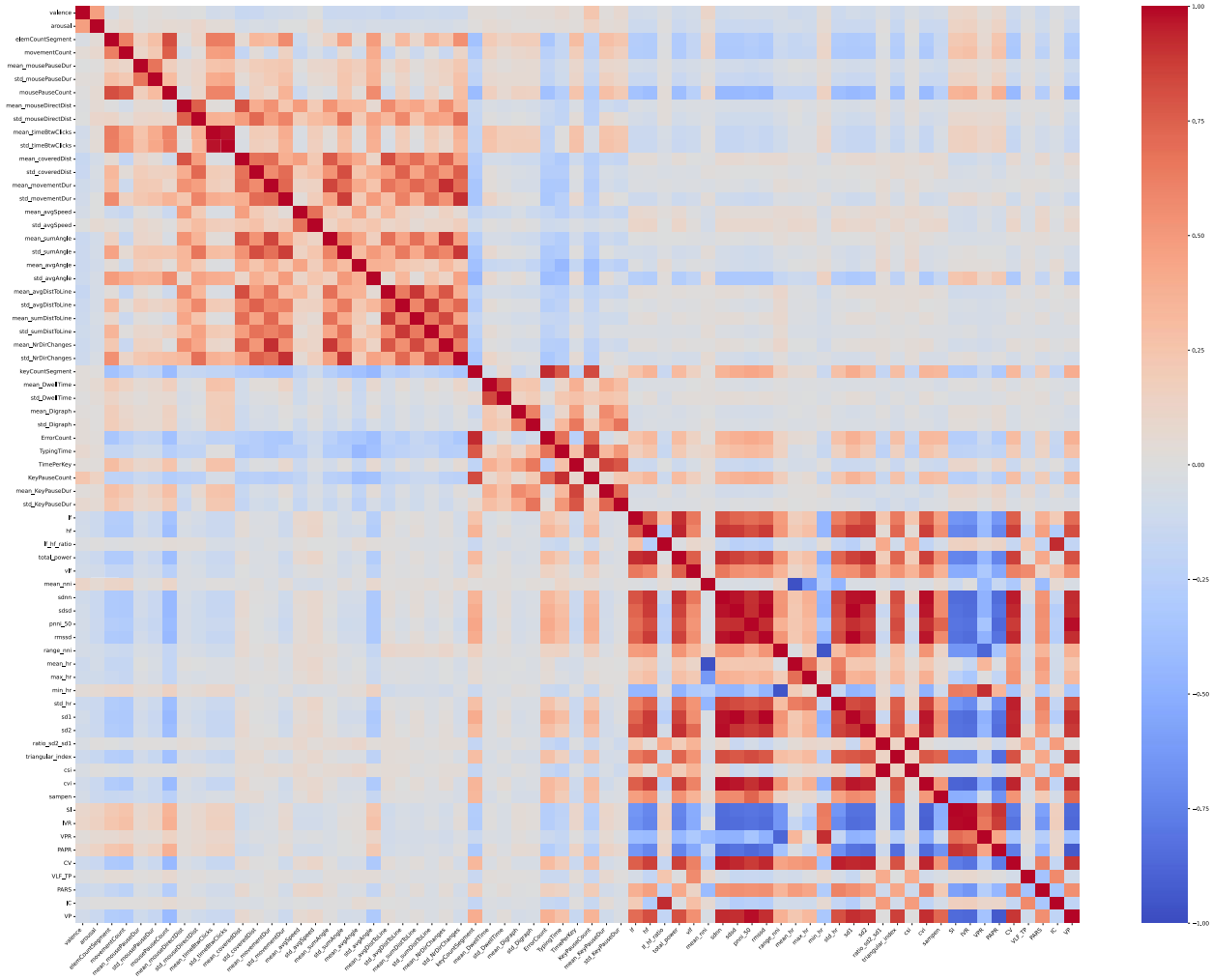

Figure S5: Correlation matrix for valence and arousal, HRV indices and HCI data. Each variable is represented by a row and a column, and the cells show the correlation between them. The colour of each cell represents the strength and direction of the correlation, with darker colours indicating stronger correlations. Blue colours indicate a negative, red colours a positive and light transition colours no correlation between HCI and HRVI.

Contact Information
Corresponding author: Ekaterina Mut, Institute for Applied Informatics (InfAI e.V.), Leipzig, Germany (mut@infai.org), project website

References

[1] Russel, J.A., “A Circumplex Model of Affect“, Journal of Personality and Social Psychology, vol. 39, no. 6, 1161-1178, 1980, 10.1037/h0077714
[2] Bradley, M. M., Lang, J., “Measuring emotion: the Self-Assessment Manikin and the Semantic Differential,” Journal of behavior therapy and experimental psychiatry, vol. 25, no. 1, pp. 49–59, 1994, 10.1016/0005-7916(94)90063-9
[3] Baevsky, R. M., Chernikova, A. G., “Heart rate variability analysis: physiological foundations and main methods,” Cardiometry, no. 10, pp. 66–76, 2017, 10.12710/cardiometry.2017.10.6676

Contact Information
Corresponding author: Ekaterina Mut, Institute for Applied Informatics (InfAI e.V.), Leipzig, Germany (mut@infai.org), project website