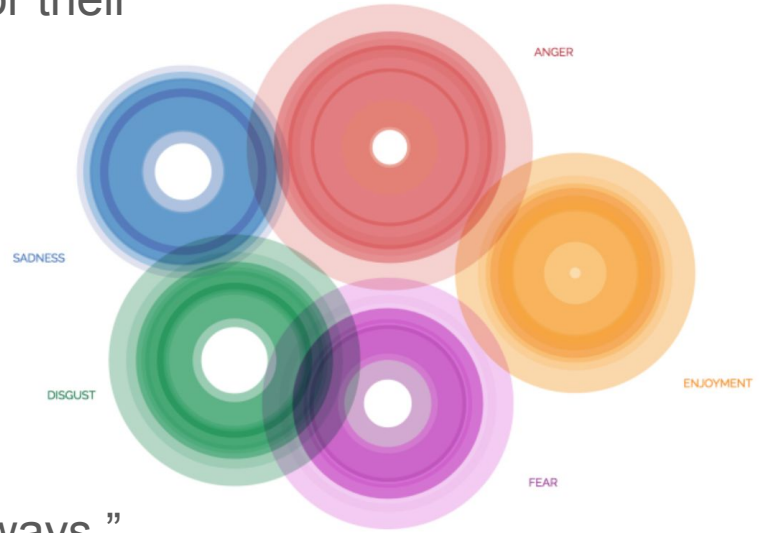
Inside Out

Clustering Daily Emotions Tracking Data

Machine Learning Model
By: Monica Oyarzun

Exploring Emotions in Relation to Burnout

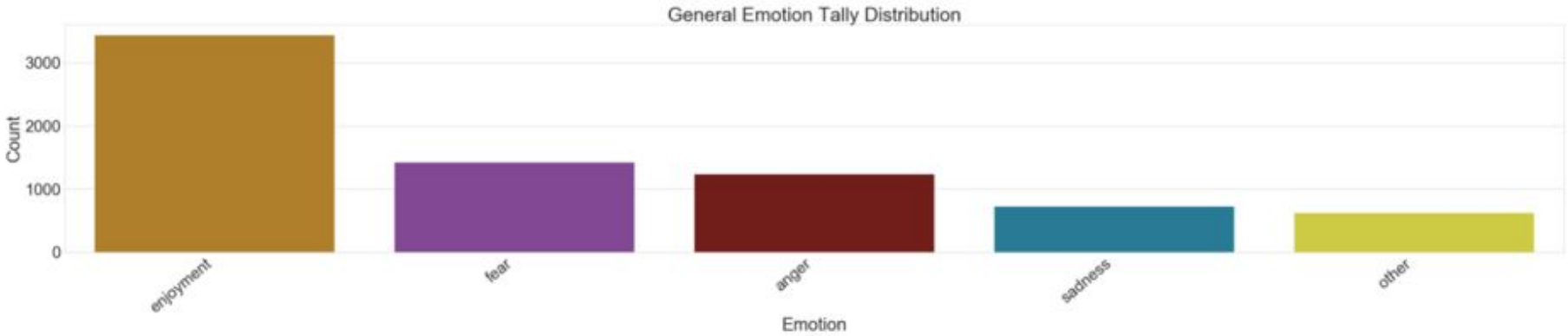
Eve Ekman, PhD and emotions researcher, developed EmoTrak so working professionals can monitor their day-to-day emotions, triggers and responses.



"Mapping our emotions and understanding how we are triggered can help us respond in helpful, constructive ways."

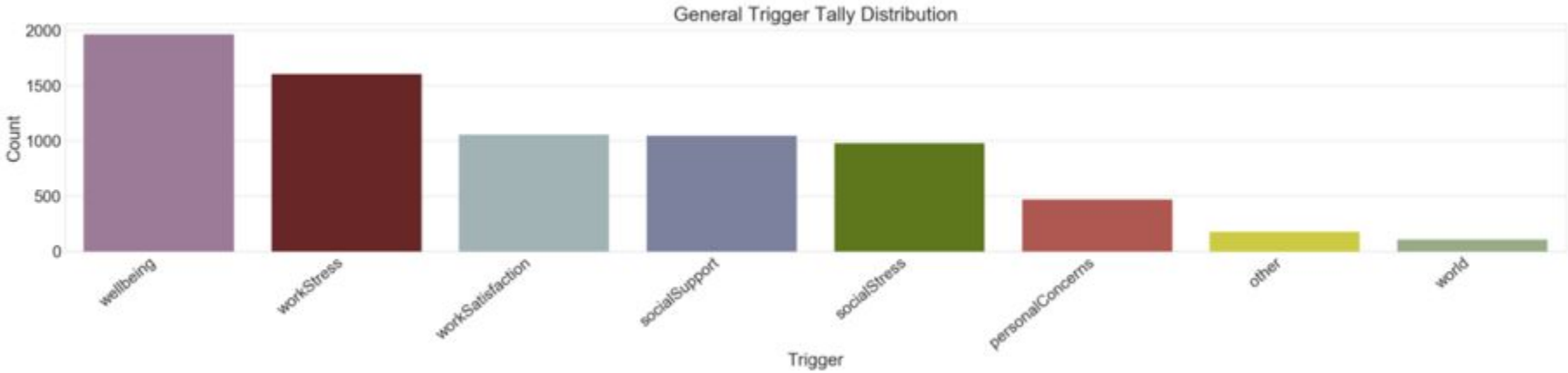
The Data

- ★ 347 people who are reporting high levels of stress and burnout
- ★ 7426 individually tracked emotions
- ★ 1.3 emotions on average tracked daily per person
- ★ Over 50% of these are happy, despite stress and burnout



What are our Emotional Triggers?

★ Enjoyment is spurred by wellbeing, work satisfaction, and social support
★ Work Stress is our number 2 trigger, leading to anger and fear



Clustering to find similarities

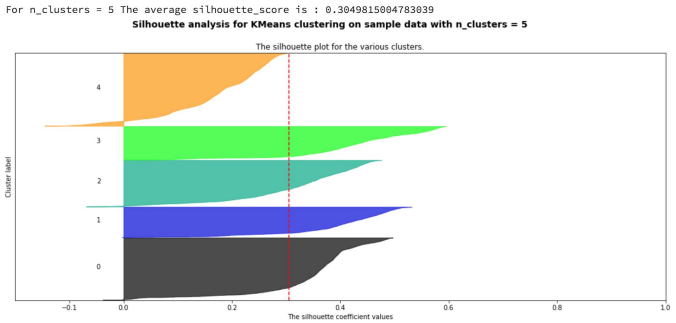
Best Silhouette Score = .381, after using PCA to reduce to 8 components

Silhouette Score measures cluster performance:

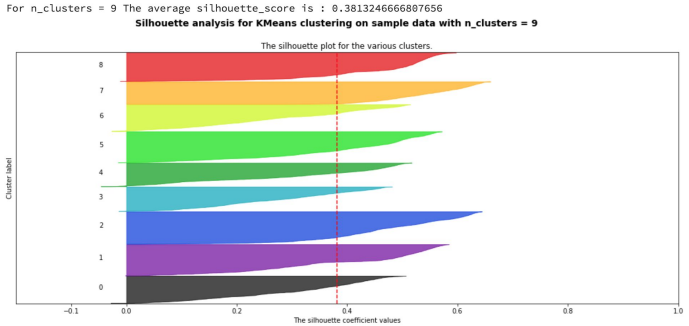
- ★ Score → 1 indicates well defined clusters
- ★ Score ~0 indicates points that are along a boundary of a neighboring cluster
- ★ Score < 0 = 😱

Ideally all clusters should extend beyond the silhouette score average (dotted red line →)

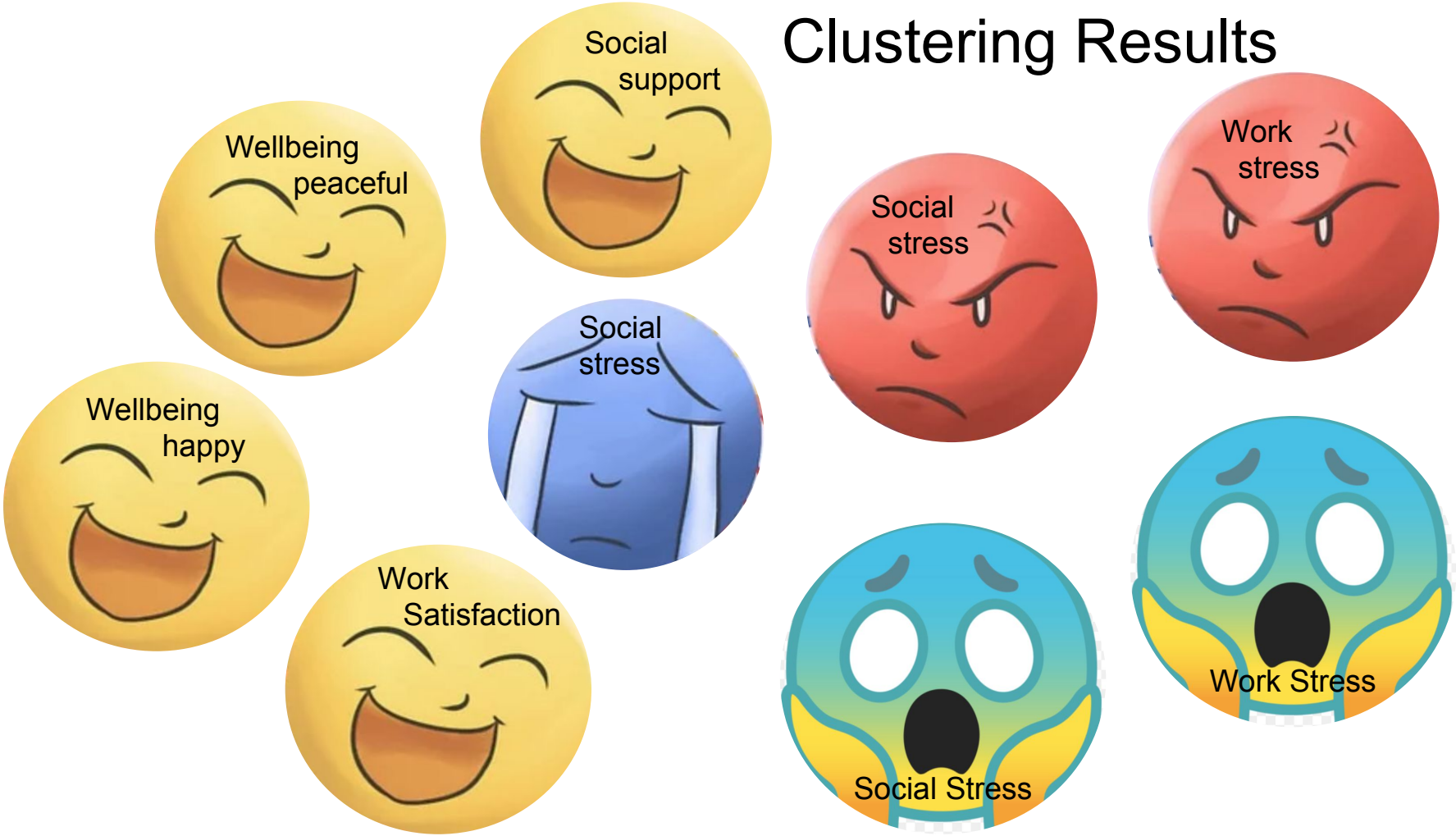
PCA Components = 10



PCA Components = 8



Clustering Results

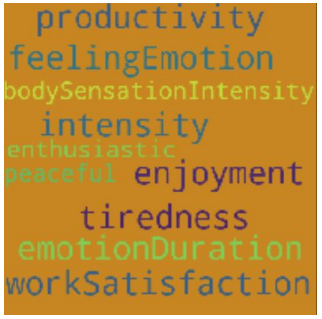


Cluster Counts and Features

936

928

974



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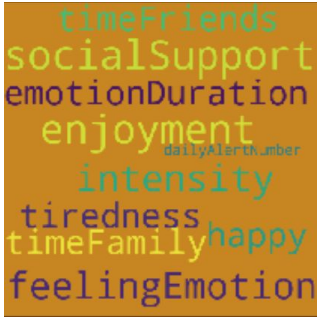

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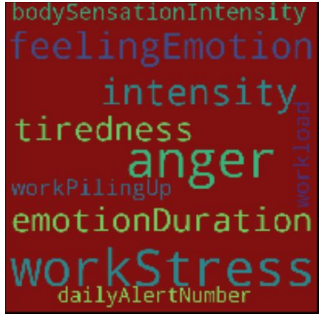

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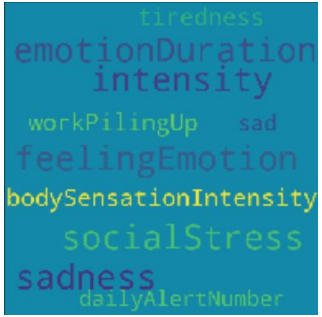

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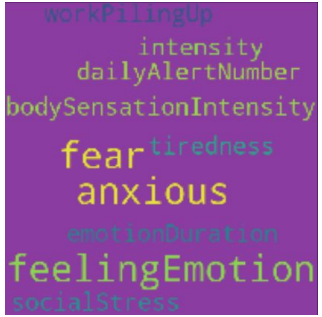

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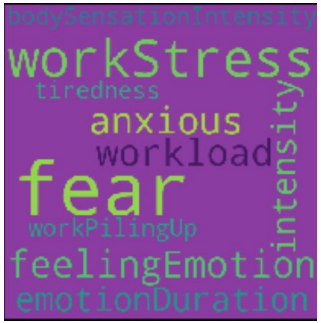
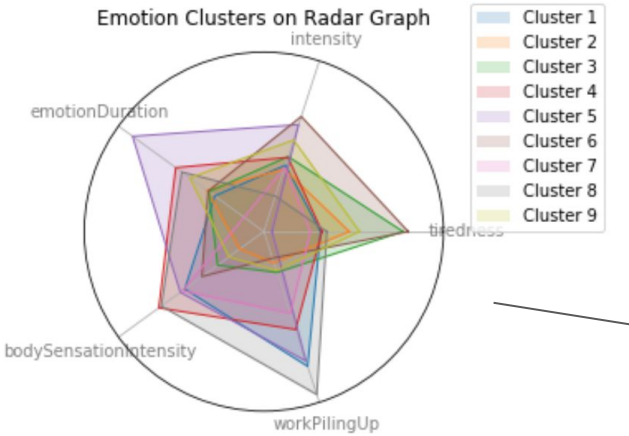
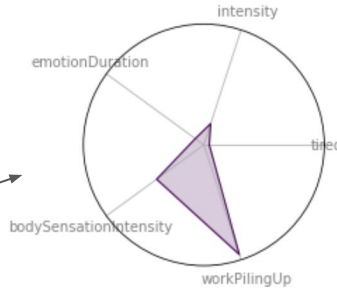


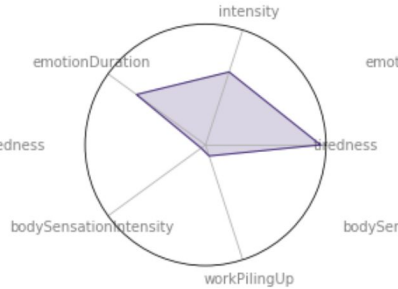
Cluster Variation



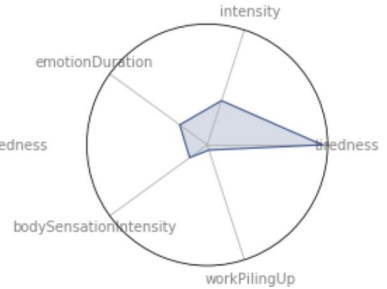
Anger/Work



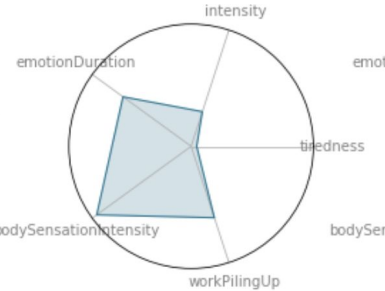
Enjoyment/Wellbeing



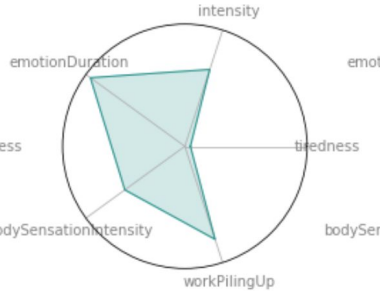
Enjoyment/Work



Fear/Social

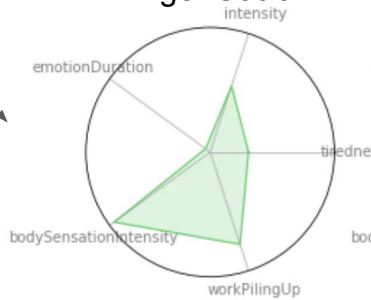


Sadness/Social

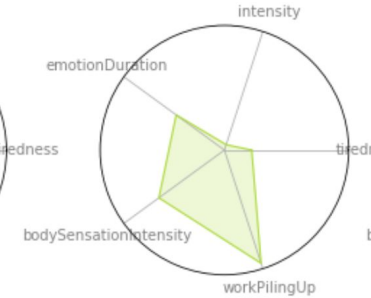


Enjoyment/Wellbeing

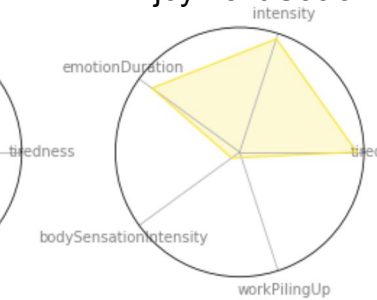
Anger/Social



Fear/Work

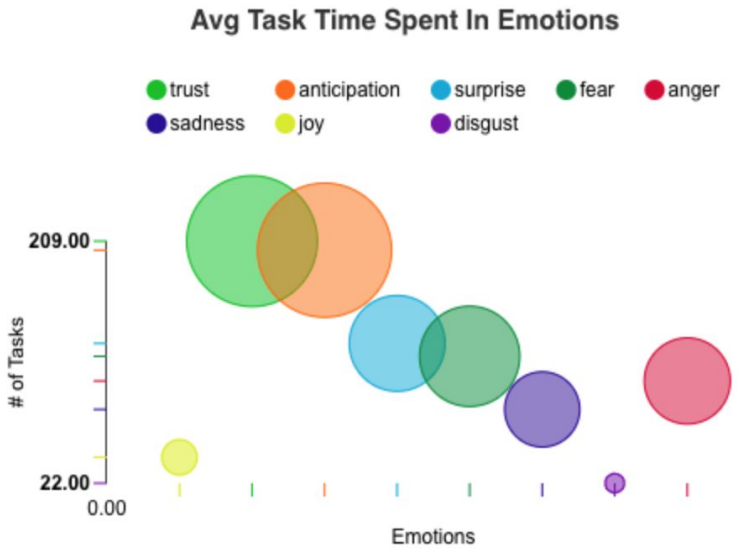


Enjoyment/Social



Business Use Case

- ★ Happy teams get more done 🙂
- ★ This app and the clustering model can be used to identify benefits tools to effectively address employee wellness and aid productivity



- ★ Study by Atlassian on sentiment and productivity analysis

Thank you!

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