

Memomics and meme-longevity interactions

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Amsterdam May 2013

meme

**Sequence-data –
longevity
interactions**

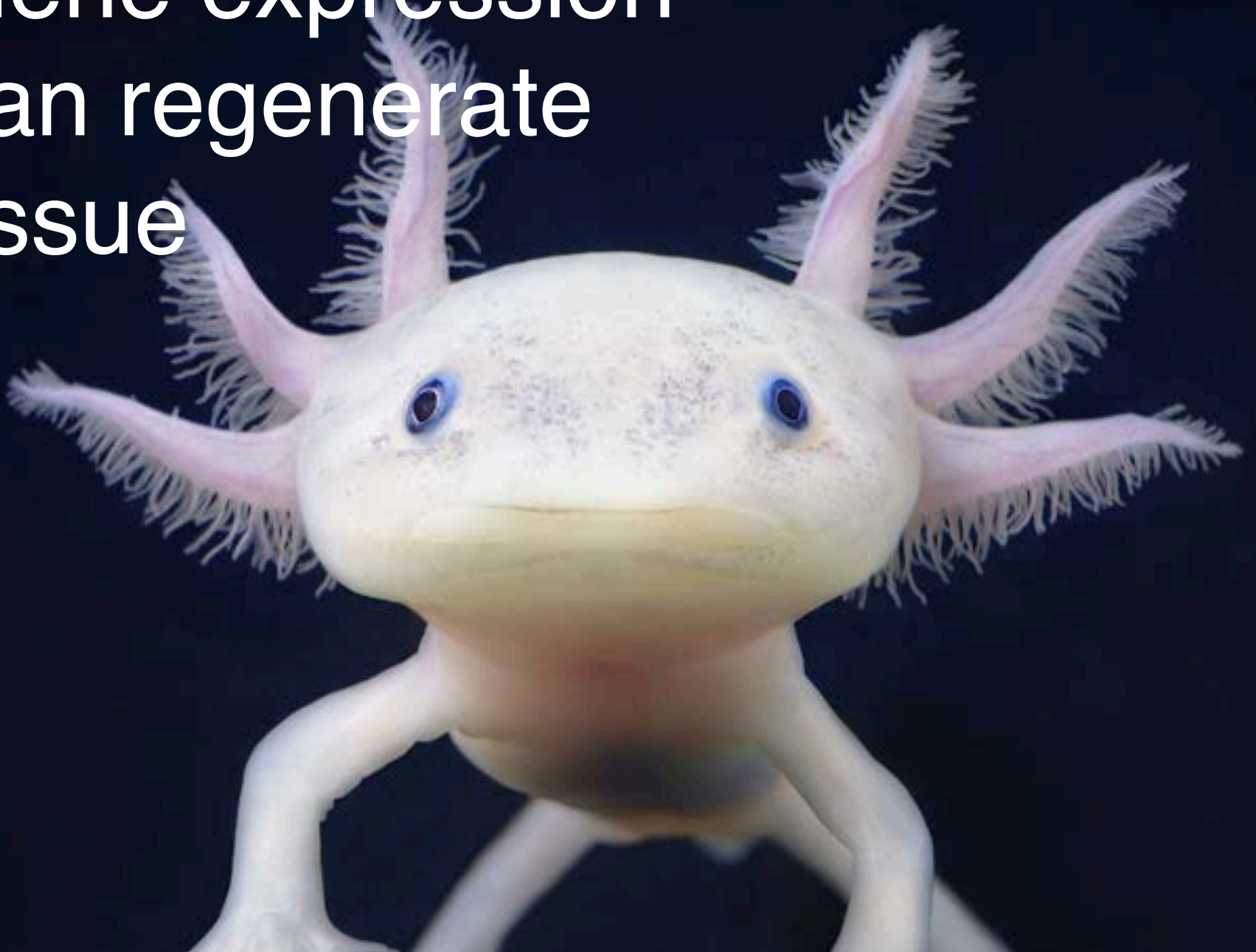
**Genes are
sequence data**

**Language is
sequence data**

Genes exist that
allow organisms
to be biologically
immortal



Gene expression
can regenerate
tissue



Virality

Rapid evolution

Rapid spread

Incorporation into host

We should be spreading memes that increase mutual health, wellbeing and longevity

Sequencing

Digitalisation

Discovery

Personalised therapies

Phenotyping

Comparative omics

Deep sequencing

Evolution

Multiplex

High-throughput

Selection

Survival

Optimisation

Sequence-based therapeutics

Rapid prototyping

Personalisation

Validation

Epigenetic modulators
Nucleotide based biologics
Behavioural therapies
Books

RNA interference
Psychological therapies
Protein therapies and biologics
Advice



HOW FAR WILL
YOUR MEMES
TAKE YOU?

**Can we track, quantify
and direct memomic
evolution to increase
health, wellbeing and
lifespan?**

What did I set out to do?

- i. Sequence a human memome
- ii. Find memes associated with longevity biomarkers
- iii. Find factors that affect memetic evolution
- iv. Optimise rate of memetic evolution to improve longevity biomarkers

What did I do?

Recorded

- i. Memes (categorised by predicted effect on lifespan)
- ii. Changes in memome
- iii. Rate of addition to memome
- iv. Size of memome over time
- v. Behaviours
- vi. Personal metrics
- vii. Longevity markers

Software:



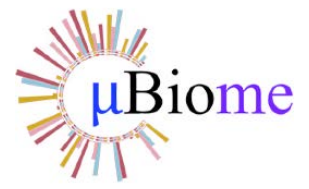
Hardware:



Tests:



On the way:



Memomic Data

2 years, 25,000+ memes

5435 memes predicted

to increase longevity

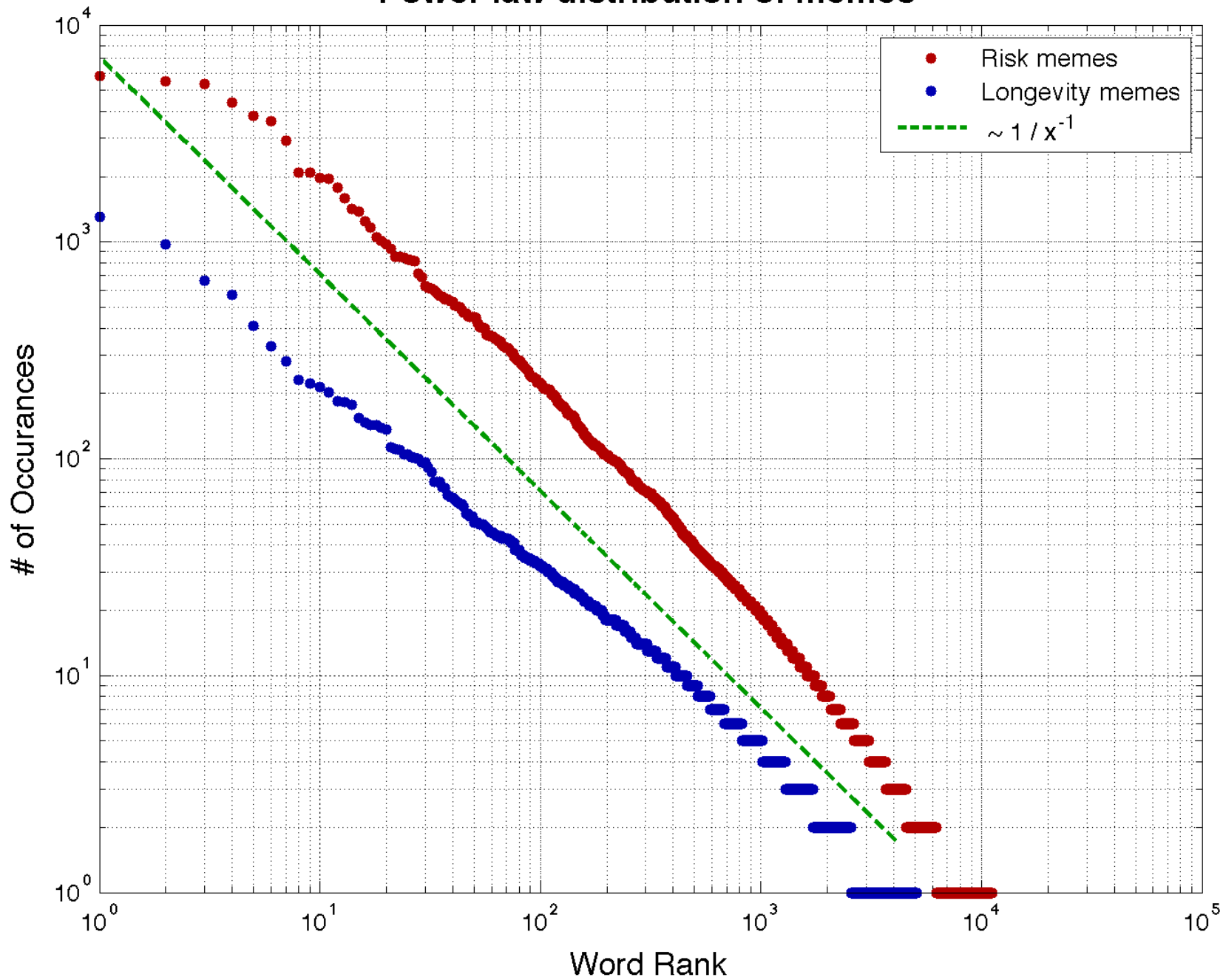
19,847 predicted

risks to longevity

Download memome data here:

<http://www-958.ibm.com/software/analytics/manyeyes/datasets/memes-predicted-optimal-or-sub-opt-9/versions/1>

Power law distribution of memes



Corpus word frequency comparison

Top 12 words in Oxford English corpus:

'the' 'be' 'to' 'of' 'and' 'a' 'in' 'that' 'have' 'I' 'it' 'for'

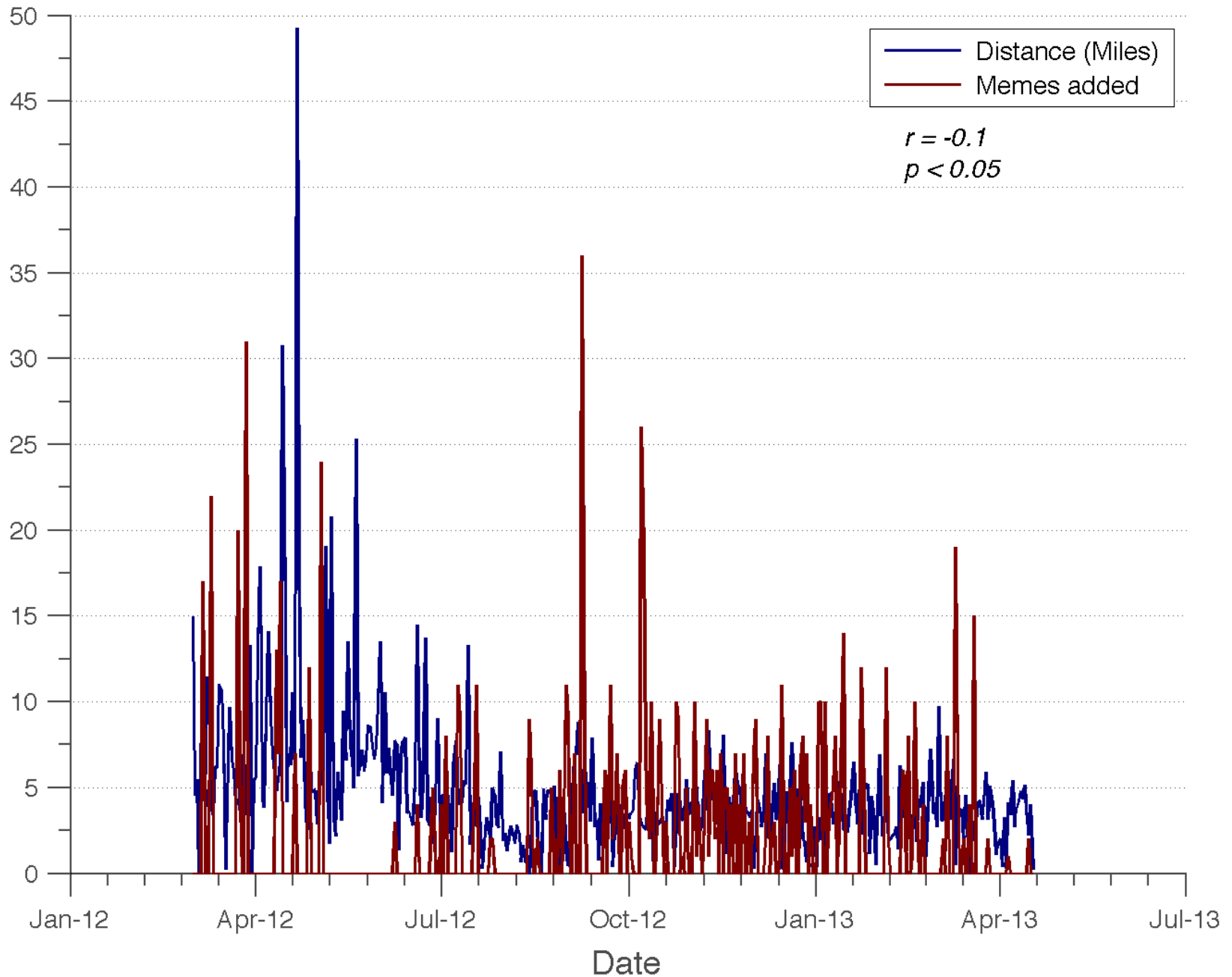
Top 12 words in memome of memes predicted to increase lifespan:

'optimal' 'and' 'of' 'to' 'for' 'objects' 'in'
'the' 'with' 'as' 'survival'

Top 12 words in memome of predicted longevity risks:

'and' 'to' 'that' 'people' 'not' 'of' 'the'
'or' 'you' 'sub-optimal' 'are' 'in'

Memos logged that were predicted to increase longevity vs. distance travelled (Fitbit)



What did I learn?

Activities that increase the probability of reaching average lifespan may interfere with taking on ideas and acting on them to increase maximum lifespan

Differentiate between markers/metrics for average longevity and those for increasing maximum lifespan

Additional lessons:

Experiment

Iterate

Diversify

Co-optimize variables

Spread costs and benefits

Hedge risk



THE HUMAN MEMOME PROJECT

Citizen science project to correlate memes to longevity biomarkers and attitudes towards long lifespans

- Participants from 25+ countries, 6 continents
- 18-70 age-range and equal gender demographic
- 150+ participants
- 1000s of words/phrases + 25 longevity metrics used
- Longevity marker survey (qualitative and quantitative)
- Dataset available as part of an open science commons (anonymised) for researchers on request

www.thehumanmemomeproject.com

What did I learn?

People are interested in how their ideas and attitudes affect health and lifespan

There are differences in word and phrase usage between those in different health states.

Example:

Frequency of word 'exercise' is 19th in those who consider themselves to be healthy and 33rd in those that did not consider themselves healthy

**Should sequence-data –
longevity research for
lifespan extension be an
explicit and core and
human pursuit?**

Where next?

Big open data analytics to find words and phrases correlated to longevity and health risk (twitter and hashtags)

Machine learning and extreme value theory to model mememes that are optimal for longevity and increasing maximum lifespan

App to find, encourage and empower use of memes that are correlated with mutual health, wellbeing and increasing maximum lifespan

Ambient voice monitoring (Mindmeld, Expect Labs), visual logging (Google Glass) and real-time health monitoring (mybasis) to correlate words and phrases to longevity markers/metrics in real time

Real-time analysis of words and phrases to predict and relay local and personal health, real-time risks, future risks and longevity information

Thank you!

Any questions?

Requests:

- Collaboration and team members: app/software developers, data scientists, academics
- Participants
- Funding

Acknowledgements: Featured in:

Barry Bentley
HMP Team
Participants!

SOLVE FOR <X>

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Funding:



scistarter^{beta}
Science we can do together.



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