Digital Immortality: Reconstruction Based on Traces

(Plan C from the Immortality Roadmap)

Theory

Main premises

Immortality problem
- Indefinite lifespans should be developed
- Dead people should be returned to life
- Death should be prevented

Digital immortality is reconstruction of the exact model of the person based on his information traces
Sometimes "Digital immortality" term also applied to uploading of living brain, but here we discuss reconstruction only.

Identity problem will be solved in future
- The identity problem is outside the scope of this map, see more in the (planned) Identity Map.
- For the purposes of this map it is assumed that only information identity matters.
- "Non-informational identity" will be transfered by a separate mechanism or or is not required (including continuity, qualia and so on).

Information identity criteria for exact model
- Behavior similarity
- Indistinguishable inner thought process
- But not including underlying mechanism
- So neurons could be replaced by a computer

Information identity elements
- Memory
- Inner representations (thought patterns)
- Recognition by others and self-recognition
- Indexical identity
- Name (Emblem of identity)
- Unique useful information (personal style, DNA)
- Goal equivalence
- Large semi-random information pool (child memories)
- Complex unique skills
- Valuable features
- Personal style
- Memory of the final moment (short term memory)

Renormalization of predictive facts
- Facts about a person have differing predictive powers, and we need to preserve the most predictive ones in order to produce an exact model of the individual.
- We need to preserve the most unique facts first.

To what degree may the exact model differ from the original?
- A "one-night" difference is OK, which means that around 0.0001 of information loss is acceptable.
- Older people change slowly, so even a "1 year equivalent" of memory loss may be OK.

DI will be made by AI
- Only AI could create an exact model of a person based on disseminated information traces.
- Only AI could collect all required facts.
- Model of personality is AI.

DI is the cheapest way of making immortality available to everyone
A simple form of self-description could be created on any computer, requiring zero cash investment and around one month of time investment

DI integrates well with cryonics
DI will help restore memories killed by Alzheimer's and freezing process.

DI integrates well with many worlds immortality
DI increases the share of worlds where I find myself alive in 2100.
One of the problems with digital immortality is that some information will be lost and must be replaced during the reconstruction of the person using certain assumptions. One possible solution of this is creation of multiple personalities, in each if which lost information will be replaced by different combinations of possible entries, like
(00,01,10,11) for two unknown binary facts. As a result, one of these personalities will match the original exactly. Of course, this is not a very good way forward from an ethical point of view. However, in the multiverse, which includes many branches of reality, different branches could help each other in solving this problem. Specifically, each of the branches would create a reconstruction of (almost) the same person, in which the lost information is replaced by a random signal. As a result, each of the copies is a reconstruction of some original, but from another branch of the multi- verse. Thus, each original will be restored exactly, but in a different branch of the multiverse. And in our branch this semi-exact copy will exist with some random differences which will be indistinguishable to the outside observer.

Information retrieval approaches

1: Brain as black box
We can reconstruct the brain by analyzing it as a black box, based on its inputs and outputs. Through analysis of how inputs map to outputs and vice versa, it should be possible to elucidate most if not all of its internal features.

2: Self-description
- A person consciously describes himself and can determine his important properties from within
- Black box is tasked to describe itself

3: Invasive scanning and testing
- Use invasive tech to learn the workings of the brain
- Conduct experiments to learn about the brain's behavior and inner structure and the relationship between the two.

4: Avatar
- Avatar (virtual self) trained on a living brain, such as a neural network, by collecting everyday information dialog-like interactions and by conducting comparative tests of avatar behavior and a real person's behavior.
- Social network profile may become such an avatar.

5: Regrow person in the same initial conditions
- DNA
- Family and social history
- Use human model

6: Create new technology (social)
- Invest in scanning tech
- Become an extrovert – change your personality in a way that will make it more easy to describe
- Leave more traces in life

7: Rely on Strong Friendly AI
- Invest in creating Friendly AI.
- Publicly declare that you want to be resurrected, and that DI is a good instrument for it, so that future AI will know your intentions.

Use all approaches simultaneously
Choose right proportion of the depending of available technologies and personal resources

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Practical steps

Step 1 — Information collection

Life-logging (mostly 1st approach)

Video
- Evocam – constant video recording on your main computer
- Wearable camera – Gopro, Google Glass
- Record important communications
- Record an interview with you

Photo
- Photos of important places and situations, of yourself, home, friends, "one of my days"
- Take many photos during the day on your phone

Audio
- Wearable voice recorder
- Record conversations
- Record phone calls
- Record personal life story and dreams

Archive scanning
Photos, child drawings, papers

EEG
- Use polymer electrodes.
- Record as many points as possible.
- Record reactions to movies or other known stimuli, or to random words (while speaking association to them, as in "Transcendence").

Screen capture
- On main computer
- Spy program
- Geo-tracking
- Archive chats from social networks

Environment recording
Fix information about other people, places, events, personal things, body parts.

Tests (mostly third approach)

Psychological tests
- Rorschach
- Personality
- IQ
- Special questionnaire for DI

Other peoples opinions about me
Ask and record (this could be done even after the death of the DI-subject)

Association scanning
- Words to words
- Words to EEG
- Video to EEG
- Images
- Retell stories

Reaction to complex stimuli
New extraordinary situations (love, fear)

DNA (mostly third approach)

23andMe
- Just do it
- Decode your DNA and keep this information on a remote server
- Decode other omics, when it becomes possible

Tissue preservation
- Dry blood
- Hair
- Skin parts from different parts of the body
- Stem cell preservation

Medical information
- Blood work
- Body scan, PET, brain scans
- Keep all medical records

Self-description (mostly second approach)

Personal item encyclopedia
- Individual lexicon
- Visual representations of important objects
- Images of friends

Declaring personal qualities
- Describe your most important properties as you see them
- Draw images of visual representations
- Create lists (books you read, friends, memories) and explain items in them with text and drawings

Memoirs
- Diaries
- 1000 facts about me
- Memories by topics
- Automatic writing
- Write down history of your life
- Write childhood memories

Drawings
- Drawings of important things, places and people.
- Drawings of inner representations of abstract ideas.
- Art-therapy and automatic drawings
- Real world drawings.
- Dreams drawings.

Express yourself in the most complex and unique way
- Dance
- Songs
- Public talks
- Eating and sex
- Verses
- Sport
- Novel – describe the best possible world in your opinion, or your ideal self, or your life story
- Automatic writing

Social (mostly sixth approach)

Creation of standard protocol
Invent the best information gathering protocol

Creation of digital immortality company
- Find like-minded people
- Help each other with DI

Hire biographer
- Use professional help in personal uploading
- Ask a friend to interview you

Digital footprint in social networks

Be famous
Increase your value to future generations

Regular updating of DI
Background updating and intense updating (once a year and once every 10 years)

Help other people
Help them upload information about themselves

Planning DI
- Make a decision about starting DI
- Time and resource allocation
- Choose available resources
- Plan your actions for DI
- Choose the most informative methods first, but also try several methods to get different viewpoints on your personality
- Quickly upload first version of your DI information

Step 2 — Preserving

Clouds
Upload your DI to multiple free Internet clouds
mail.ru
Dropbox
Youtube
Web archive
Google Drive

Durable media
M-disc (Blue ray with glass coating which lasts 1000 years)

Hoards
- Steel time-capsules
- Glass, concrete, pans
- Deep in dry places

Relatives
Ask your relatives to keep your archive and invest in DI.

Step 3 — Future progress

Promote
Popularization of the idea of DI.

Virtual helper, avatar
Exoself gradually replicating my mental functions and habits through deep learning and direct programming

Use newest methods
Search and study new approaches to information gathering and brain scanning.

Study brain and uploading

Get brain implant
or even an array of electrodes under scull

Create multichannel EEG system to upload visual images from the brain
Record your dreams and thought process

Step 4 — Personality resurrection

AI creates model of the personality based on DI

Criteria of informational identity solved

Identity of observer problem solved in experiment

Model of past world created

Creation of different copies based on DI

Integration with cryonics: helping revival of cryopatients

Creation of universal tweak-able human being matrix

Uploading DI data to cloned biological body

DI copies dominate many-world immortality landscape

Any AI will create multiple simulations with DI-copies

Unsolved issues

1. Observer identity problem, consciousness inside computer, information identity problem
2. Complex skills fixation problem
3. How much information about original is required?
4. How to promote the usefulness of DI?
5. How to record brain activity non-invasively?
6. How to record maximum useful information with minimum budget and effort?
7. How to determine your connectome and neural state in a living brain?
8. Is AI capable of DI-reconstruction, and if so, how to create it safely?