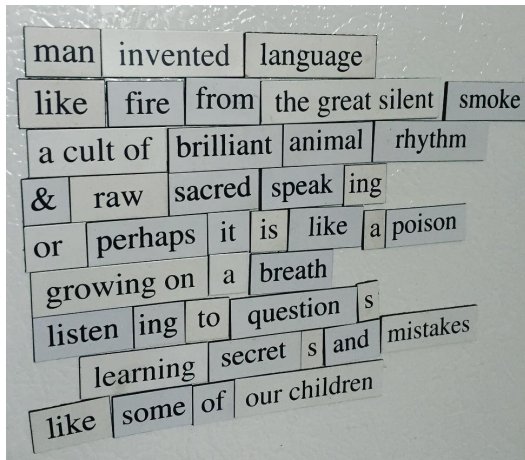


virus crescit in spiritum
poison growing on a breath



Ross Goodwin, 2014 to 2344

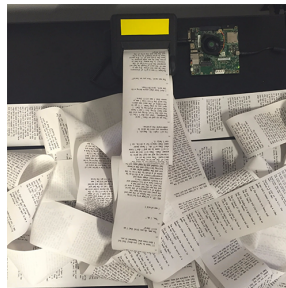
A set of mannequins, dressed in the artist's clothes, that will use long short term memory (LSTM) recurrent neural network (RNN) machine intelligence to whisper to one another forever in the artist's voice.



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In 3 words: immortal, conversation, machine

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The Project

virus crescit in spiritum is a long-term project that will grow over time, eventually requiring permanent installation.

From November 2016 to January 2017, the artist (Ross Goodwin) recorded himself at all times using a lavalier microphone pinned to his coat and a Zoom H1 audio recorder. He plans to transcribe the audio with speech-to-text software and train a long short term memory (LSTM) recurrent neural network (RNN) on the complete transcript in order to make an artificially intelligent robot of himself. Once this robot is complete, the artist will erase all digital audio (approximately 250 GB) that he collected over two months.

The resulting LSTM RNN machine intelligence will be able to generate unique text forever in the style of the artist's speaking voice, and can generate text in real time in response to external stimuli, such as ambient conversation in a gallery. For this project, the artist will also create a digital text-to-speech model of his own voice so the finished robot will sound like him as well.

The finished robot will consist of a GPU-equipped computer attached to a microphone and a speaker, which will be installed respectively in the ear and mouth of a mannequin that is wearing the artist's clothes. The robot will speak forever, and will respond to ambient conversation in the room, which will be transcribed in real time automatically.

For the second phase of this project, the artist plans to repeat this process every two to nine years in order to create a group of robot mannequins in permanent conversation -- they will whisper to one another forever in the artist's voice, and the voice of those with whom he spoke during these (approximately) two-month periods of recording.

The Artist

Ross Goodwin is an artist, creative technologist, hacker, data scientist, and former White House ghostwriter. He employs machine learning, natural language processing, and other computational tools to realize new forms and interfaces for written language.

His projects -- from ***word.camera***, a camera that expressively narrates photographs in real time using artificial neural networks, to ***Sunspring*** (with Oscar Sharp, starring Thomas Middleditch), the world's first film created from an AI-written screenplay -- have earned international acclaim.

Goodwin's work has been discussed in the New York Times, the Chicago Tribune, CBS News, the Financial Times, the Irish Times, the Guardian, the Globe and Mail, Ars Technica, VICE Motherboard, Gizmoto, Engadget, TechCrunch, CNET, Forbes, Slate, FiveThirtyEight, Fast Company, the Huffington Post, Mashable, Fusion, Quartz, PetaPixel, and other publications. He has exhibited or spoken at Science Gallery Dublin, the International Documentary Film Festival (IDFA) DocLab in Amsterdam, the TriBeCa Film Festival Interactive Showcase in New York, the International Center of Photography (ICP) in New York, the Phi Center in Montreal, Gray Area in San Francisco, the MIT Media Lab, Maker Faire, GitHub Universe, the NIPS machine learning conference, Molasses Books in Bushwick, and other venues.

Goodwin earned his undergraduate degree in Economics from MIT in 2009, and his graduate degree from NYU ITP in May 2016.

Please describe the artist or creative merit of the proposed project (250 word maximum):

I am going to create a set of copies (albeit crude ones) of my brain sans corpora. (It's the opposite of the beautiful piece described in the short animated film *World of Tomorrow*, which you can watch on Netflix.) I believe the artistic, creative, and technological merits of this endeavor should be readily apparent.

Why do you consider this project to be a meaningful exploration of emerging technology? (250 word maximum):

Because this project will (in a way) allow me and anyone with whom I spoke to live forever, and the entire process is enabled by deep learning technology that did not exist as recently as two years ago.

In what ways does your project inspire dialogue about the issues at hand, including the relationship between technology and culture? (250 word maximum):

The project does not merely inspire a conversation -- it literally creates one. I hope it will force important questions about which tasks machine intelligence should and should not be used for.

Please describe your proposed plan for public engagement. What opportunities do you foresee to share prototypes, demonstrations and process with the public? (100 word maximum):

I am a full-time artist currently living in the NYC area. I have an ambitious travel schedule, and would use all the publicity outlets and journalists at my disposal to document, share, and publicize the project to the greatest possible extent at every phase.

What data will your project produce that may be of interest to other artists, technologists, or arts organizations? (250 word maximum):

Detailed audio recordings of my personal life must (sadly) be deleted. However, I may allow researchers to study the transcripts produced from the audio (depending on accuracy), and would certainly allow anyone to study or interact with the artificial neural network that will be created from these data. All code written for this project will be licensed as an open source contribution.

Please list any other sources of funding for this project, including in-kind support, and, if applicable, any conditions related to that funding or support:

I have shared details of this project with several individuals, but have not yet formally sought any funding or location for its installation.

Total amount requested:

\$49,999 USD

Budget Items

Item	Cost
Transcription fees for audio	Up to \$8,640 USD
GPU server fees to train LSTM RNNs (artificial neural networks)	Up to \$2,000 USD
Mannequin for robot case	\$200 / each
Electronics for robot guts (computer + microphone + speaker + display + keyboard interface)	\$1000 / each
Electronics for subsequent recordings (microphone + Zoom H1 recorder + AA batteries)	\$200
Artist fee (time & labor)	\$33,000

KEY MILESTONES	START DATE	FUNDS NEEDED
Record 2 months of audio	November 2016	\$0 (done)
Transcribe audio using CMU Pocket Sphinx (free) or Google Speech-To-Text (\$0.0006 / 15 min)	March 2017	\$270
If machine transcript is no good, transcribe using human transcribers (hopefully unnecessary)	May 2017	\$8,640 (estimated -- hopefully unnecessary)
Train long short term memory (LSTM) recurrent neural network (RNN) on transcript	Early June 2017	\$0 to \$2,000 for GPU server fees, depending on resources available
Finish installation-specific software	Late June 2017 to Early July 2017	\$0 (mostly done)
Build computer for mannequin bot	July 2017	\$1000
Install mannequin bot	July or August 2017	\$200 (for mannequin)
Repeat process	Two to nine years later	???

Proof of concept for automatic transcription

Audio: http://rossgoodwin.com/on_mania_01.mp3

Transcript: http://rossgoodwin.com/on_mania_01.mp3.transcription.txt