From: ███████ ██████ <████████████████████████>
To: Ben Goertzel <██████████████████>
Cc: jeffrey epstein <jeevacation@gmail.com>
Subject: Re: Hello from Jeffrey Epstein's Foundation
Date: Fri, 15 Aug 2014 14:11:31 +0000

Hi Ben,

This is great. Thank you so much. I'll read through everything and get a draft back to you for review. Thank you also for clarifying the funding.

Until soon! And best regards,

███████

███████████

On Aug 15, 2014, at 5:17 AM, Ben Goertzel ███████████████ > wrote:

Hi ████████ (and Jeffrey)

I took some time on the flight from DC to Addis Ababa today to write down a few thoughts about iCog Labs (see below). Of course this is more than you will need for your article but you can pick and choose as you wish ;) …

By the way, technically, Epstein Foundation hasn't actually funded iCog Labs or the OpenCog researchers working there. Epstein Foundation has funded the OpenCog Hong Kong effort, which has been **very very very** much appreciated; but the $$ provided all went to the Hong Kong effort, to help with the 10% "matching funding" required as part of our government research grant there. iCog Labs was seed-funded by Maryland investor Sander Olsen, and currently is self-supporting based on consulting revenues. If Jeffrey would like to support OpenCog R&D at iCog Labs, that would be awesome. NOW, since Jeffrey has been so generous to me over the years, and has also helped with OpenCog HK, I don't mind there being a press release associating Epstein Foundation with iCog Labs. I'm just describing the situation for you in detail so that you can be sure the wording in your article accurately reflects reality.

Thanks
Ben Goertzel

here goes:

SOFTWARE DEVELOPMENT IN AFRICA AND ETHIOPIA

Marc Andreesen observed some time ago that "software is eating the world"; it is now beginning the process of ingesting sub-Saharan Africa. As well as South Africa, other African nations such as Kenya and Nigeria have had flourishing software startup ecosystems for many years now. IBM has put Watson supercomputers in

Nairobi, Lagos and Capetown. Ethiopia's software industry is less mature than those of Kenya or Nigeria, but is rapidly expanding.

There are currently perhaps one to two dozen small software outsourcing firms in Addis Ababa, serving customers from across Africa and the world. Doing software development in Ethiopia involves many typical "frontier economy" challenges, such a rickety electrical power infrastructure and a complex and costly system of import tariffs on electronic equipment. But in the last few years these problems have decreased to the point that they are more nuisances than prohibitive obstacles; they are not standing in the way of hungry entrepreneurs and young computer geeks wanting to get in on the international software business.

A BRIEF HISTORY OF iCOG LABS

The vast majority of African software development focuses on everyday issues like Web development, database administration, systems integration and so forth. iCog labs is a rare exception, and constitutes the only firm in Ethiopia focusing on artificial intelligence, robotics, bioinformatics and other advanced scientific software work.

How did such an enterprise come about? The spark that set iCog Labs in motion occurred when Amara Angelica, the ringleader of KurzweilAI.net and various other Ray Kurzweil initiatives, had the inspiration to introduce two of her friends: Hong Kong based AGI researcher Ben Goertzel, and Ethiopian roboticist and Singularity evangelist Getnet Aseffa Gezaw. Amara knew Ben from various futurist conferences in the US, as well as due to Goertzel's ongoing relationship with her employer Kurzweil; she knew Getnet due to corresponding with him via email and video-chat about a variety of futurist topics. Getnet had been giving a series of lectures on Singularity-related topics in Addis Ababa, educating audiences in the hundreds regarding robotics, AGI, self-driving cars, nanotechnology and other future-tech ideas. Amara had been a frequent correspondent, supplying Getnet with suggestions regarding videos and topics for his lectures.

As Goertzel says,

"

After Amara introduced us, Getnet and I established a friendship online, due to our mutual interest in AGI and the Singularity and other related ideas. I gave a lecture via Skype to an audience of researchers, businesspeople and government officials that Getnet had assembled, and I was impressed by their intelligent questions. Eventually
I decided to stop by Addis Ababa on one of my flights between Hong Kong and the US. I was impressed by what I saw, and after some in-depth conversations with Getnet, the idea of founding an AI software outsourcing firm in Addis Ababa emerged.

Getnet introduced me to a lot of smart young programmers in Addis, but none of them knew that much about AI, and they also didn't have a lot of experience with the modern, agile software development process, or use of open source collaboration tools like Github. So I realized that if we wanted to get an AI project started in Ethiopia, a lot of training would be required. This was potentially problematic -- I was confident that I could introduce Getnet to Western software entrepreneurs who'd be interested in outsourcing work to his company, simply because the cost of development in Ethiopia was much lower than in most of the popular outsourcing locations like India, China, Eastern Europe and so forth. But I didn't know how I would get Getnet funding for an initial period of training programmers in AI. Of course he could have just started a plain vanilla software outsourcing firm instead but this didn't really match his goals -- his aim wasn't just to start a company, it was to bring the Singularity to Ethiopia…

Fortunately, when I was visiting Washington DC, I mentioned Getnet and his army of Ethiopian Singularity enthusiast and software engineer friends to one of my friends there -- Sander Olson, a blogger at the futurist blog "Next Big Future" and a tech angel investor (Sander is one of the forces behind the recent 3D printing Kickstarter success XX, for example). Sander saw the value in low-cost AI outsourcing and was intrigued by the idea of being the first to bring AI software development to a country of 90 million people; and he

volunteered to invest some seed funding to enable the training of an initial programming team. And so iCog was born.

Our idea was to have iCog do a mix of AI R&D on the OpenCog project, and commercial outsourcing for AI projects based around the world. The commercial projects would fund the AI R&D, and might also lead to exciting new developments on their own. We would also develop AI software aimed at computational understanding of African languages (a largely uncharted territory), and explore uses of AI software for helping Africa advance in any ways that presented themselves.

Initially we paired each programmer in our iCog lab in Addis with a member of the OpenCog AI software development team -- mainly but not exclusively in our Hong Kong OpenCog lab. We also relied heavily on Coursera courses. After the first batch of hires, subsequent hires had an easier time, as the existing employees could train them. In early 2014 we decided it would be good to increase the collaboration between the Hong Kong and Addis OpenCog teams if we moved some of the Addis staff to Hong Kong; two of our early iCog programmers were shifted to the OpenCog team at Hong Kong Poly U.

The team is now growing steadily -- actually it could grow much faster, but we want to be sure each new programmer gets a solid foundation in AI and agile software development, to make sure we keep the same high quality we have now. Overall, Ethiopia has a surplus of smart young graduates in computer science, engineering and other technical fields -- but not that many interesting, advanced-technology-related jobs for them to work on. Recruiting people with high IQs and good programming, engineering and math knowledge isn't a problem at all -- the issues Getnet wrestles with are more in the areas of infrastructure and training.

…

Looking at what's happening in the world of AI today, I'm sometimes tempted to take a more political, strategic view of what Getnet and his colleagues are doing at iCog.

Artificial intelligence is suddenly becoming big business -- all the tech giants are getting into the picture. Google, Facebook, Baidu, Microsoft and so forth are hiring more and more of the academic leaders in the AI field. When I recruited Yoshua Bengio to give a keynote speech at the AGI-14 conference this August in Quebec City, I realized that he was the last of the big-shot researchers in the field of deep learning for computer vision, who hadn't been gobbled up by some big company.

Of course, these tech biz giants are doing some great work, and it's very understandable that researchers would choose to pursue their research in such a context. The level of hardware, software and human resources inside a major tech company has no comparison elsewhere. On the other hand, there's also something to be said for the broader, more open sort of sharing and collaboration that can only exist outside the confines of any particular organization.

Linux provides a model for the development of awesome, world-changing software in the open source domain, leveraging the efforts of globally distributed volunteers, academics, and corporations large and small. The OpenCog project, to which iCog is a core contributor, is aiming to become the "Linux of AGI", corralling diverse research and development resources around the world to pose a serious alternative to the AI efforts of the major tech firms. One aspect of the open-ness of an open-source effort like OpenCog, is its openness to contributions from every location on the planet. While IBM has put a supercomputing facility in Kenya, none of the major tech firms has moved into Ethiopia yet -- but OpenCog is there, gaining benefit from the large volume of tech graduates produced by Ethiopian universities, and at the same time producing a population of Ethiopians who understand advanced AI technology. Alongside their core contributions to AI R&D, this new generation of Ethiopian AI researchers has the capability to think adeptly about the potential applications of AI to help Ethiopia and other developing nations.

Technology is transforming the world in amazing ways, but economic inequality remains a huge issue -- and as Thomas Piketty's recent tome has famously demonstrated, the degree of inequality is generally increasing

around the world, for reasons basic to the structure of capitalism. Counterbalancing the tendency of capitalism to help the rich get richer, one has the power of the Internet and associated decentralized networks to spread knowledge, information and influence more widely. Developments like OpenCog and iCog are part of this latter trend, spreading knowledge and capability widely across the world, and counteracting the tendency of wealth, knowledge and influence to concentrate in particular subpopulations. As such they seem to play a critical role in the ongoing development of the human ecosystem.

…

From the point of view of AGI development, I look at it this way. I think the OpenCog design for Artificial General Intelligence is actually capable of leading to a human-level AGI, which is a pretty amazing thing. I've put decades of my life into shaping this design and the associated software codebase, and a lot of other people have put their lives into it also. But even with a workable design, it still requires a lot of effort to build something like a human-level thinking machine. It may require hundreds of man-years of additional effort beyond where we are now. This would not be surprising -- it's been estimated that more than 70,000 man-years of software development have gone into Linux, for example (and probably a lot more into Microsoft Windows).

So, one is led to ask, where will the funding for these hundreds of expert man-years come from? One possibility is that they will come very slowly, over many decades, from generations of grad students at universities. Another possibility is a coordinated effort within one of the giant tech companies. Low-cost development in somewhere like Ethiopia is another option -- it makes the cash cost of a few hundred man-years of software development much less, thus making it more feasible to do via private funding, or via bootstrapping based on revenue from software consulting work.

"

CURRENT iCOG PROJECTS

Currently iCog is doing basic OpenCog R&D in various areas including computational linguistics, computer vision and data visualization; and is also serving customers in areas including natural language user interfacing for Web apps, humanoid robotics (for David Hanson's firm Hanson Robotics, makers of the Robot Einstein and many other famously realistic humanoid robots), the genomics of longevity, the automation of accounting processes, and educational gaming. Customers span multiple locations including Hong Kong, the US, Taiwan and Australia.

Work on African languages has also begun, little by little, beginning with Amharic (the most prominent among the dozens of Ethiopian languages). One iCog developer has begun porting some of OpenCog's language processing tools from English to Amharic. The first Amharic text-to-speech tools were created at iCog over Summer 2014, by a student intern.

FUTURE PROSPECTS

Where will iCog go in the future? The team will gradually expand, taking on more and more consulting projects, and doing more and more OpenCog R&D.

Further, conversations around the lab have often centered on how to use advanced technology to help Ethiopia and Africa advance more quickly. Ideas are never in short supply when Getnet and his friends are around; but one concept in this direction has progressed beyond the brainstorm phase into a definite project plan: the YaNetu handheld reader/teacher. The YaNetu is conceived as a novel hardware device, with associated software, aimed at using AI tutors together with appropriately designed curriculum to accelerate and enhance the education of rural African children. The aspiration is similar to the "One Laptop Per Child" project, but the iCog effort is distinguished by many key aspects -- the novel hardware design, the strong local involvement in

curriculum development, and the use of animated AI characters as tutors. Discussions have begun with the Ethiopian school system and the local offices of various aid agencies. Right now few rural African children have Internet connectivity, so the device would initially s. Discussions have begun with the Ethiopian school system and the local offices of various aid agencies. Right now few rural African children have Internet connectivity, so the device would initially be designed to operate stand-alone (though able to get updates via the Internet when feasible). But multiple plans are underway to provide Net connectivity to the African countryside, including Google's Project Loon and many more conventional initiatives. These would enable the YaNetu to connect rural African kids to the Net, providing vastly broader educational opportunities along with more avenues to deploy advanced AI within the teaching software.

There has also been discussion of branching out beyond Addis Ababa, and launching an additional iCog facility in Hawassa, a smaller Ethiopian city a few hours drive from Addis. Addis is the hub of the Ethiopian economy, but like many other fast-growing African cities, is troubled with pollution and traffic and other "growing pains" type issues. Hawassa provides even lower costs, clean air and relatively quiet roads. It might prove appropriate for a facility focused mainly on R&D, with a mix of professional software engineers, university researchers and graduate students, and visiting international researchers and entrepreneurs. It might prove the right site for a sort of "MIT Media Lab of Ethiopia" -- but focused more on open-source AI and solutions for developing countries, than on the particular preoccupations of the tech wizards in Massachusetts.

On Sun, Jul 27, 2014 at 1:10 PM, ██████ ██████ <████████████████████> wrote:

Hi Ben,

Thanks so much for your note. Of course, let's wait until you get back. In the meantime, I'm reading everything I can about iCog Labs and look forward to collaborating with you.

until soon and best regards,

██████

██████ ██████

cell: ██████
email: ██████████████

From: Ben Goertzel ████████████████████
To: ██████ ██████ <████████████████████>
Sent: Sunday, July 27, 2014 9:24 AM
Subject: Re: Hello from Jeffrey Epstein's Foundation

Hi ██████,

It would be great for you guys to publish an article on the OpenCog guys in Addis Ababa (their lab is now called iCog Labs, by the way).

However, I'm on a family vacation this week, and will then be at the AGI conference in Quebec City from Aug 1-4....   I wonder if you could wait on this for a couple weeks, until I get done with traveling and am in a better place to send you some information?   I'd love to see you publish this

article, but I'd also like to send you enough information to make the article a good one, and I'm short on "computer time" just now...

Thanks
Ben

On Wed, Jul 23, 2014 at 4:35 PM, ███████ ████████ <████████████████████████████> wrote:

Dear Mr. Goertzel,

I hope this finds you well. We would love to publish a feature article on Open Cog's AI team in Ethiopia, notably at the Addis AI Lab. Would this be possible? Could we speak over the phone? Or could you send me any links or pdfs of their current projects that you would like to highlight?

I can be reached at this email or on my cell phone at: ████████████

Thank you so much!
Best regards,

████████

cell: ████████████
email: ████████████████

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Ben Goertzel, PhD
http://goertzel.org/

"In an insane world, the sane man must appear to be insane". -- Capt. James T. Kirk

"Emancipate yourself from mental slavery / None but ourselves can free our minds" -- Robert Nesta Marley

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