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Nanorobot Technology: What to Expect from Science

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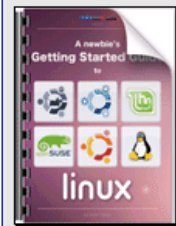
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Posted 06-15-2010 at 06:56 AM by [adrianocavalcanti](#)
Tags [cmos](#), [hardware manufacturing](#), [nanoelectronics](#), [nanorobot invention](#), [open technology](#)

The development of nanorobots is something that has been on spot most recently - e.g. Check [here](#) or [there](#) and [there](#).

A letter has been released in answer to US Navy interests on molecular machines, describing the developed technology as an open resource.

The letter also provides an overview on ethics and legal aspects regarding new and emerging technologies, serving as a guidance to small companies, engineers and the scientist community.

The content of the letter is available [here](#), while the description of the [TTCP](#) workshop to happen in August 2010, is available [there](#).

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Nanorobot Technology: What to Expect from Science

- A Personal Letter in Answer to United States Navy

By Adriano Cavalcanti, PhD - CEO Chairman, Research Scientist, Inventor

To:

Linda Chrisey, Ph. D., Office of Naval Research, Team Bio Lead

Trevor Douglas, Ph.D., Professor and Director, Center for Bio-Inspired Nanomaterials

Walter Kozumbo, Ph.D., Air Force Office of Scientific Research, Bioenergy Program

C./C.: To Honorable Mr Barack Obama

The 44th President of the United States of America

The White House, 1600 Pennsylvania Avenue, Washington DC, 20500, FAX 202-456-2461

Keywords: open technology, nanorobot invention, medical nanodevice manufacturing, nanoelectronics, CMOS, ASIC, RFID.

11/June/2010 sent by email and fax

14/June/2010 online press release

Ref. Biotechnology for the 21st Century workshop, The Technical Cooperation Program (TTCP), Alexandria, VA, USA, August 2010

Dear Dr Linda Chrisey,

Thanks for your kind words of sincere recognition in the first message.

Maybe can you tell me what would you do... if you were in my place -- if you:

- 1.- Have spent 10 years of your life dedicated full time with research on molecular machines (including weekends, holidays, vacations, nights), developing a useful tool that can be useful for medicine, national defense and security
- 2.- Have been put down several times from receiving a PhD, that was in fact well deserved since October/2002, getting prejudiced in different ways by all means --- just because you decided to make an advanced research in a topic not developed before through engineering based methods, to then only have granted your PhD degree on March/2010
- 3.- Have open a company and a foundation, which is indeed a truly non-profit international institution, to serve as a shelter, host and headquarter to boost the development of nanorobots, leading an international network towards the practical development of molecular machines for medicine

- 4.- Have burnt all your financial resources in the pursuit of your research to become technically approachable, and to prove that it is feasible
- 5.- Have lost your car and house, investing and betting that inventiveness, honesty, decency, and sincerely good research would be reward at some stage if you keep the faith and determination
- 6.- Have invented the first nanorobot hardware prototype based on nanoelectronics/cmos according to ISI Web of Science (Thomson Reuters), Scopus, Engineering Village, and PubMed (NIH National Institute of Health, U.S. National Library of Medicine)
- 7.- Have so far not received any sort of official recognition, funding, or award from the international scientific community for your milestone contribution to the field
- 8.- Have detected a lot of fraudulent backdating in indexing of many digital libraries, in the intent to misinform people
- 9.- Have detected dozens of patent trolls, including US and WIPO patents
- 10.- Instead of prosecuting fraudulent patent bogus, which would delay the development and commercialization of nanorobots to benefit patients with cronical illness like cancer, diabetes, aneurysm, and cardiovascular problems, decided to donate the whole body of your work to the mankind and UN, turning it into an open technology to foster the fast development of this leading edge medical tool, authorizing all industry and companies members of UN countries to manufacture and commercialize it, with your invention being free of royalties payment as a form to facilitate the further development of nanorobots at lower and accessible prices
- 11.- Have made a work that attracted and motivated large corporations (HP, Siemens, Nokia, Nec, Microsoft, GE, IBM, Yamaha, just to name a few) to seriously start thinking about molecular machines as a real emerging technology, which is a feasible product, financially and commercially very attractive
- 12.- Have call the international community attention for the importance about the use of nanorobots for peaceful purposes through ethical means
- 13.- Have detected that your work is being widely read, partially or entirely reproduced, and became the most downloaded article in your subject for the last 3 years according to IOP UK
- 14.- Have detected that many articles published are being inspired and sometimes simply entirely copied from your work, but many of those works show unethical misconduct by not making a single fair reference citation to the source in parts that is based on your work
- 15.- Since received your PhD in a topic that you become a world pioneer and widely leading expert on that specific subject, is still unemployed
- 16.- Is living on credit already for one year, and receiving with your spouse shelter and food based on charity from church, friends and relatives
- 17.- All assets that you still have remaining is your brain and a laptop

- 18.- Is watching many people in major Universities and research organizations being indicated to become project leader or to assume research senior position to work on molecular machines, and large, huge amount of funding, to people and organizations that has absolute no knowledge, experience, or any understanding what so ever about nanorobots for medicine
- 19.- Have sent endless of copies of your resume to US Companies, Universities and research institutions, that invites you several times each month for a talk, journal article publication, conference plenary, or interview on your subject, but those same institutions simply say no about giving you a decent permanent research position for you to work as a professor or senior researcher in US
- 20.- See also, reference: Adriano Cavalcanti, Nanorobot Invention and Linux: The Open Technology Factor, An Open Letter to UNO General Secretary, CANNXS, October 2009; For additional and more references, see: The Pursuit of Happyness (2006), with Will Smith, Thandie Newton, Jaden Smith, and Brian Howe, Columbia, (DVD - October 2007); Tucker - The Man and His Dream (1988), with Jeff Bridges, Joan Allen, Martin Landau, and Frederic Forrest, Paramount, (DVD - October 2000); Flash of Genius (2008), with Greg Kinnear, Lauren Graham, Dermot Mulroney, and Alan Alda, Universal, (DVD - February 2009)

Would you keep doing your good work as a scientist and inventor, giving further counseling, delivering speeches, publishing articles, making reviews, giving interviews and guiding the international nanotechnology society to push further the fast development and implementation of molecular machines? If so . . . how?

For the coming generations, what should they expect from science, if they decide to become a true inventor, leading scientist and engineer?

Thus, I guess you may be able to say or suggest what would you do if you were in my place?

I heard that the US mentality is all about: "the land of opportunities" and "no man is left behind". Is that right?

With kindest regards, deep and respectful admiration.

Sincerely yours,

Adriano

--

Adriano Cavalcanti, PhD Biomedical, Mechanical & Aerospace Engineer

CEO Research Scientist

CAN Center for Automation in Nanobiotech

www.canbiotechnems.com

www.cannxs.org

Biotechnology for the 21st Century workshop

Dear Dr. Cavalcanti,

It is with great pleasure that we invite you to participate in a unique workshop to be held August 10-12, 2010 in Alexandria, VA, USA, at the request of The Technical Cooperation Program (TTCP). TTCP is an international organization that collaborates in defense, scientific and technical information exchange; program harmonization and alignment; and shared research activities for five member nations (US, UK, Canada, Australia and New Zealand). TTCP promotes sharing of information amongst member countries in 11 traditionally "defense" S&T thematic working groups, (e.g., Aerospace Systems; Command, Control, Communications and Information Systems; Chemical, Biological and Radiological Defense, etc).

This workshop, "Biotechnology for the 21st Century", reflects a push by TTCP to look outside its conventional working group boundaries to explore areas of S&T that are not traditional defense department research topics, but hold the promise of both new opportunities, and, possibly, identification of new defense threats.

After discussion with your international colleagues, the end result of this meeting will be a report for TTCP that articulates the current state of science in the topical areas selected, delivers prioritized near- and long-term opportunity areas as well as potential defense threat areas for possible defense science and technology consideration.

The workshop will be organized around three broad topics in biomedicine/biotechnology which will break into smaller groups with specific foci (see attached topic list and draft agenda). Presentations will provide "state of the science" background information for participants. Breakout groups will be lead by creative leaders in the field. Speakers and invited participants will be asked to consider both potential opportunities and threats for defense science and technology establishments to consider.

You have been identified and recommended as a uniquely creative and innovative scientist who has the ability to see the big picture. Your expertise will help inform and guide the defense science and technology establishments of the member countries, with the possibility of future funding programs to address these priorities. We invite you to be a speaker for an overview of Molecular Machines. Your expertise in this area, as well as your proven ability to think 'outside the box', recommend you highly for this role. What is required is preparation of a 30-40 minute 'state of the science' talk. The organizers would be grateful if you accept our invitation to participate. If you are unable to accept this invitation, we welcome your recommendations for other 'big thinkers' in this topical area whom you would recommend to fill this spot. In addition, if there are specific individuals you think we should invite to participate in this workshop, we welcome those suggestions as well.

A small stipend to offset your travel expenses will be available, funded by the Office of Naval Research. We look forward to a response no later than June 14, 2010.

Sincerely,

Linda Chrisey, Ph. D., Office of Naval Research, Team Bio Lead
Trevor Douglas, Ph.D., Professor and Director, Center for Bio-Inspired Nanomaterials
Walter Kozumbo, Ph.D., Air Force Office of Scientific Research, Bioenergy Program

[attached topic list and draft agenda]

Workshop format: 2.5 days

Day One, 8/10/10:

Morning :

Brief overviews by TTCP and/or OXR reps (15 mins)

- Explanation of the workshop – why are we here, what do we hope to accomplish
- Meeting logistics (facilities, discussion group assignments, writing assignments)

Session I Systems Biology

- Overview of Systems Biology talk (30 mins)
- Systems Biology : for medicine (30 Mins)
- Systems Biology for non-medical areas, such as environmental or biofuels (30 mins)
- Nano-/micro robots in body/environment (30 mins)
- Methods for collecting and analyzing molecular signals at high resolution/high throughput, and information management (30 mns)

Afternoon:

Session 2 Molecular machines at the nano and micron scale (medical or non-biomedical)

- Overview of Molecular Machines talk (30 mins)

- Characterization of biological machines (30 mins)
 - o Imaging
 - o Structure
 - o Assembly
 - o Function
- Design and manufacture of molecular machines (to include biotic or synthetic routes) (30 mins)
- Navigation/targeting/locomotion/coordinated behaviors of molecular machines (e.g., within the human body) (30 mins)

Day Two, 8/11/10:

Morning:

Session 3 Biotic/Abiotic* Interfacial Interactions

- Overview of Biotic/Abiotic Interfacial Interactions (30 mins)
 - Multi-scale forces and structures controlling biotic/abiotic surface interactions and how to characterize them (30 mins)
 - Hybrid materials (that combine living or biomolecular elements with non-living materials) 30 mins)
 - Controlling/mitigating interactions in natural biotic/abiotic systems (e.g., immune response, in vivo biofouling; 30 mins)
 - Integrating biotic and abiotic components/systems (e.g., 'wiring' cells to silicon, nanobionics, inserting abiotic materials into cells; 30 mins).
- * "Biotic" can mean living, cellular, sub-cellular or biomolecular components

Afternoon:

- Parallel breakout sessions for Topics 1, 2 & 3 (3.5 hrs, includes short break)

Dinner? (No host, or possible to include in venue)

Evening

Joint Discussion Session – rapporteurs from individual breakout groups report out (15-20 mins each), to be followed by combined discussion of topics

Day Three, 8/12/10:

Morning

- Discussion wrap-up
- Overview talks by agency program managers interested in workshop subjects
- Final writing session for breakout session scribes

2nd evening for discussions /wrap-up

3rd day writing & program manager overviews?