Social and Mental Therapy with Artificial Animals

FETOPEN-01-2018-2019-2020 - Challenging Current Thinking

What is the proposition?

- A response to an innovative call in the Horizon 2020 framework.
- Goal is to challenge current thinking in human psychological treatment for both inherent and acquired traumas as an activity that can be conducted exclusively by humans.
- The use of autonomous technologies for emotional well-being of patients in long-term care scenarios is only in its infancy, that is distinguished by the way the human-machine interface is defined.
- This project will explore the use of robotics for medical therapy, psychiatric treatment, children with social problems, and psycho-emotional comfort.
- The end-game of the project is to create a novel robotics platform.

What activities fall inside the scope of the proposal?

- Research and development of novel human-machine interactive interface, revolving around a patent we have filed for the technology.
- Research and development of novel hardware is not like it is now, rather, flexible and adaptive to changing conditions in the robot where it is resident, manufactured by sustainable and low-polluting techniques.
- Research and development of novel manufacturing technology to meet the goals set forth.
- Collaboration with healthcare providers, including physicians, to educate them as to the benefits of short and long-term care of their patients using this technology.
- Development of emotional detection software.
- Development of voicing techniques, including the tone, pitch, and appeal of the voice itself.
- Research and development of facial presentation.
- Delivery of a proof-of-concept “artificial animal”.

What activities are expected to continue beyond the grant period?

- Improvement of the accuracy of the identification of moods and emotions of the participant human.
- Improvement of manufacturing techniques for scalable hardware.
- Optimization of the interaction paradigm beyond the state-of-the-art.
- Extended collaboration with healthcare providers to continue support of robots in the field.
- Extended improvements of the robot, its appearance, its look-and-feel, and introduction of alternate forms.
- Movement of marketization of the technology on increasing scales.
- Other activities to be determined as they arise.

What kind of intellectual talent are we looking for?

- Scientists and engineers experienced in artificial intelligence and machine learning in human-machine interaction.
- Artists and engineers with ideas of novel human-machine interfaces including reactivity to events and adaptive routines.
- Engineers and developers with deep knowledge of manufacturing computers, 3D printing, and novel materials to meet the challenges in the project.
- Clinicians versed in psychiatric and psychological techniques, especially those proffering new theories of treatment regimen for persons who have experienced trauma, or with disorders from birth.
- Materials scientists and researchers in the area of flexible hardware especially in connectivity that would be utilized in a soft robot; those needing support for carbon nanotube structures.
- Software developers: C#, Forth, Sphinx, Assembly, Linux Kernel, and I/O.
- Misfits, tech-heads, and weirdos: You've your own ideas and maybe they ridicule you for them. Not in this project! Let's aspire to create something truly interesting.

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Persons in the following who would ideally suit the purposes the grant is attempting to demonstrate

- **Artificial intelligence**: Machine learning, data science, computational modeling, and robotics.
- **Cognitive sciences**: Behavioral linguistics, learning and development, neurobiology, and psychology.
- **Psychiatry**: Physicians, clinicians, and practitioners; diagnostic and analytic capability; maladaptation, mood, and perception.
- **Vocal aesthetics**: Natural speaking, synthetic voices, mood conveyance by utterances, chirps, whirrs, and other novelties.
- **Language analytics**: Natural language processing, cues and gestures, causal reasoning.
- **Privacy and security**: GDPR, legal and implications of shared data, application security and embedded technologies.
- **Software development**: Forth and Assembly; sans-cloud to ensure data privacy.
- **Electronic design**: Computer and hardware design-to-manufacture; robotics, coordination and orchestration; radical ideas.
- **Sustainable manufacturing**: Process engineering, materials science, renewable materials and innovations in the 3D space.
- **Safety and CE**: Legal and compliance, standardization, tolerance and slippage domains.
- **Project management**: Agile and Scrum process, Kanban, team coordination.
- **Open**: Looking for radical ideas and hugely innovative designs—What is your suggestion?

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What can this grant offer me?

- A chance to work with a high-risk, incredibly novel project.
- Get paid for the ideas you have been wanting to try out.
- Publication potential of new techniques in robotic therapy, emotional detection and emotive support, robotic production, and unheard-of use-cases.
- Publicity of participant activities and introduction to market verticals.
- Continued employment in the commercial sector on the technology.
- A unique opportunity to help the human race become less afraid of robots and what they provide.

Some basic rules and guidelines

- Must be in the European Union--preference given to the newer EU-Member States.
- Must be able to comply with the rules the EU has set for grant participants. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/how-to-participate/1/1
- Involve your University or company in the project.
- Ignite your imagination to create something spectacular!

How can I contribute?

- Contact the coordinator by email: cartheur@pm.me
- Contact via LinkedIn: https://www.linkedin.com/in/cartheur/
- Become a registrant on the European Commission portal.
- Bring some good ideas.
- Feel inspired how to help people by using robots.
- Ignite your imagination to create something spectacular!

Learn more and support!

Slide deck created by Dr. Christopher A. Tucker
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