Redefining Brain-Chip Interface Technology

Project proposed by: Intelligent Sensory Microsystems Laboratory, ECE, U of T

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Project description:

Are you ready to be at the forefront of a revolutionary field that bridges the human brain with computational technology? Imagine being a part of a pioneering team that's pushing the boundaries of what's possible in medical science and engineering.

For decades, ground-breaking work has been accomplished globally in the realm of brain activity monitoring, revolutionizing diagnostic processes, therapeutic approaches, and even the control of robotic assistive devices. The horizon of this field is ever-expanding, and right now, brain-computer interface (BCI) technology stands as a beacon of hope and innovation, offering life-altering potential for individuals with neurological disorders.

Our dedicated team at the Intelligent Sensory Microsystems Lab is at the vanguard of crafting next-generation technologies that promise to redefine long-term BCI. These sophisticated devices, recording the intrinsic electrical activities of the brain, are the stepping stones toward seamless neurological signal translation into actionable, life-enhancing data.

Here's where you come in:

We're searching for a passionate and committed researcher to collaborate with us in developing a state-of-the-art graphical user interface. This interface will be integral in the testing and characterization of a novel biological implant ASIC, a cornerstone of our real-time BCI endeavors.

Your role will be critical:

You will play a pivotal role in bridging the gap between a test PCB harboring our innovative chip and an FPGA board, crafting a conduit for real-time data through Ethernet. Your hands will weave the very fabric of digital signal processing algorithms, extracting and analyzing the BCI signals to distill performance characteristics that could change the face of medical diagnostics and therapeutics.

What you'll gain:

Under the mentorship of our seasoned Ph.D. students, you'll not only contribute to a project with global impact but also hone your skills and expand your knowledge in a vibrant, collaborative research environment.

What we're looking for:

- Proficiency in Ethernet communication protocols.

- Fluent in Python programming.

- A strong foundation in embedded systems.

- Familiarity with FPGA technology.

If you're poised to challenge yourself, eager to learn, and driven to make a difference in a domain that's reshaping our understanding of the human mind and body interface, we want to hear from you.

Join us in our quest to turn the tides in healthcare and quality of life through technology. Take the first step into a future where your work has the power to heal and transform lives. Apply now to embark on a journey of innovation, discovery, and ground-breaking research.

Send your **resume, transcript and a brief cover letter** explaining why you are the perfect fit for this role to **Mr. Jianxiong Xu (jianxiong.xu@mail.utoronto.ca) and copy to Prof. Roman Genov (roman@eecg.utoronto.ca).** Let's innovate together for a better tomorrow.