

December 5, 2016

Erica Clark, PhD

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Dear Erica Clark,

Thank you for taking the time to talk with me on Nov 29th.

I wanted to follow up with a summary of how I became involved in this issue, the direction and current status of my research, and my position on the issue of study of, and response to, the human health effects caused by exposure to Industrial wind turbines.

1: How I became involved.

I first became aware of this issue in May of 2013 after reading a paper by Carmen Krogh dealing with adverse health effects caused by Industrial Wind Turbines ([link](#)).

I came to believe that what was needed was a way to actually test consenting humans by exposing them to infrasound in a lab setting and to scientifically document the effects of this exposure.

2: Direction and current status of my research.

I started my research by working to develop the best infrasound recording method possible.

In partnership with Professor John Vanderkooy, we developed a method of measuring infrasound from a single turbine, thereby isolating our results from the “clutter” of other turbines, wind noise, and other “pollutants”.

We published our work and our paper was accepted for presentation at Wind Turbine Noise 2015, INCE/EUROPE, in Glasgow, Scotland in April 2015 ([link](#)).

The next step was to design and build a method of producing infrasound in a lab setting. To be a useful research tool this infrasound needed to be identical to that produced by IWT's.

This required the mathematical and computational research necessary to generate Sound Wave output to an exact duplicate of input data, namely actual turbine recordings previously captured.

This would finally allow others at the university, with appropriate medical training and ethics approval, to scientifically test and document the effects of infrasound produced by IWT's on consenting humans.

I received university funding for this research from both the Department of Computer Science and the Office of Research in October 2015 which has allowed me to proceed.

My research over the next six months led to the building of prototype #1, a proof of concept device which was able to produce infrasound in a lab setting in the range produced by IWT's, within a small test chamber.

The system consists of 3 main components: a controllable pressure source, a modulation device that is responsive to input commands, and measurement, analysis, and recording technology.

Prototype #2 is a fourfold scaled up chamber version of the proof of concept device and successfully produces infrasound in response to input commands. Prototype #2 is currently being used to refine design, data collection, and analysis.

Work is currently well along on version #3, a full scale chamber, capable of accommodating a human subject. This will finally allow others at the university with appropriate ethics approval and medical training to test the effect of infrasound on consenting human subjects.

3: My current position

I have kept up to date on the most recent scientific evidence on harm in humans and animals relative to IWT's

There have also been many surveys and studies regarding human health effects related to Industrial Wind Turbine exposure. Sadly many of them have actually increased suffering by concluding that the subjects were imagining their symptoms, and by varying degrees, labeling them with the "It's all in your head" designation.

It is also of note that while many people did agree to participate in these surveys and studies in the hope that their concerns would be heard, they were certainly captive participants by being forced to live in proximity to the turbines.

This leads me to my use of the word "ethics" and my beliefs regarding the study and information gathering of a captive group of humans who are currently living in proximity to potential health effects.

I remember during my first year of engineering we were told about an oath and ring ceremony that professional engineers take prior to receiving their accreditation.

These practices vary within different disciplines but two examples come readily to mind:

The National Society of Professional Engineers (USA) states “Engineers, in the fulfillment of their professional duties, shall: Hold paramount the safety, health, and welfare of the public”.

Professional Engineers Ontario states: “A practitioner shall, regard the practitioner’s duty to the public welfare as paramount”

I believe as scientists and researchers, while we were not actually required to pledge to such an oath, we certainly have a basic moral obligation when we choose to interact with people who are suffering.

At a minimum, this should be to clearly point out both the risks and benefits of interacting with us and to provide referrals to resources and other help related to their suffering. This should be the core principle of any such undertaking and certainly a legally mandated one by any board of health.

Thank you again for taking the time to talk with me and if I can be of any help going forward please don’t hesitate to contact me.

Sincerely,

Richard Mann

Associate Professor

School of Computer Science

Faculty of Mathematics

University of Waterloo