

Jan 4 2021

Re: Activity Report 2019/2020.

I understand that I am due to submit an activity report for Years 2019/2020.

Please find enclosed a Summary of my Activity report.

I am submitting a preliminary report now, for the record, with the understanding that additional details may be provided at a future date.

Encl: Text

Sincerely,
Richard Mann
Associate Professor, Computer Science
Faculty of Mathematics
University of Waterloo

TEACHING

CS489 / 698 -- Advanced Topics in CS. "Computer Audio"

This course serves mostly third and fourth year CS students, however during the last five years I have had several students from different units including Mathematics, Engineering (System Design, Computer Engineering and Physics).

The course is multidisciplinary in nature, considering all areas of sound, including music, analog and digital signal processing, acoustics, measurements, perception and machine learning. Students choose their own project topic, and may choose whether to work alone or in groups. Students present their work at the end of term. Grading is a weighting of term work (assignments) and the project. There is no final exam.

The course is also offered to graduate students (CS 698). Graduate students work alone and choose a research oriented project. Interaction between graduate and undergraduate students is encouraged.

The course enrollment is listed below UGRAD(GRAD)

W16. 37 (1)

W17. 19 (7)

W18. 11 (4)

W19. 26 (4)

W20. 31 (0)

W21. 38 (8) (as of Jan 5, 2021).

Students Supervised

Student #1. PhD CS (2018). Full time. Joint supervision with []. External examiner [] (York University).

Student #2. PhD CS (2018). Full time. Sole supervision. External examiner [] (Toronto).

Student #3. MMath (2018). Full time. Joint supervision with [] (Math).

RESEARCH

My research focus is on infra sound. This is ongoing work funded by a one time grant from Office of Research to construct an infra sound chamber. A prototype infra sound chamber was on campus continuously during 2018--2020 (DWE building). The chamber was decommissioned on December 18, 2020 and left to staff (Civil Engineering) for removal.

Report "Generation of infra sound to replicate a wind turbine", Richard Mann and William Mann. Feb 25, 2018. Initial report to Office of Research

Mar 2, 2018. Revised and publicly released

Mar 3, 2018. Published as Tech Report (2018-01) in Computer Science.

Mar 27, 2018. Revised.

April 5, 2018. Submitted to BiorXiv (Physiology). Rejected April 6, 2018.

May 2, 2018. Submitted to arXiv. <https://arxiv.org/abs/1805.01297>

Dec 28, 2018. Submitted to Journal of Acoustical Society of America (JASA). Rejected

Research on Infra Sound Continued during 2019.

Sept 4 to 14, 2019

Visiting researcher, Mariana Alves-Pereira.

Invited and hosted Infra sound researcher, Mariana Alves-Pereira, from Lisbon Portugal. During this time we traveled to meet residents of Huron County, Ontario. Mariana gave a presentation at University of Waterloo on Sept 12, 2019.

Talk announcement,

<https://cs.uwaterloo.ca/events/seminar-infrasound-and-low-frequency-noise-physics-cells>

Livestream link,

<https://livestream.com/itmsstudio/events/8781285>

(#8,103 views as of Jan 3 2020).

Oct 3, 2019. Manuscript (19 pages, in process), "Infra sound measurement". Richard Mann.

<https://cs.uwaterloo.ca/~mannr/Measurements.pdf>

Aug 1, 2020. Manuscript (8 pages, in process). "Measurements with SAM Scribe Infrasound System". Richard Mann.

<https://cs.uwaterloo.ca/~mannr/Measurements-SAMScribe.pdf>

Oct 8, 2020. Manuscript (28 pages, in progress) "Important Time-varying Features in Acoustical Environments Rich in Infrasound and Low-frequency Components". H. H. C. Bakker, M. Alves-Pereira, S. R. Summers, R. Mann, B. I. Rapley.

Dec 31, 2020. Manuscript (25 pages, to be submitted). "Harmonic prominences as a measure of wind turbine acoustic signature". Huub Bakker, Mariana Alves-Pereira, Richard Mann, Bruce Rapley, Rachel Summers, Philip Dickinson

CONSULTING

Aug 26, 2020

Joined IARO

International Acoustics Research Organization IARO Is an international group of researchers with a mission to investigate acoustical environments, especially with respect to features that affect humans and animals, and to publish the results. IARO holds the ethics approval for the CSI-ACHE, the Citizen Science Initiative into Acoustical Characterisation of Human Environments, the results of which are publicly disseminated.

Contacts:

IARO, 37 Ferguson St, Palmerston North, 4412, New Zealand

Tel: +64 21 270 7575

Email: HuubBakker@smart-technologies.co.nz

Weekly meetings (Zoom) beginning Aug 31 2020.

Oct 31, 2020. IARO Report. "Brief Review and Commentary on the Study conducted by Landesanstalt für Umwelt Baden-Württemberg: "Low-frequency noises including infrasound from wind turbines and other sources", published in February 2020 using data collected in 2013-2015."

Authors of this Report

Mariana Alves-Pereira, Ph.D. , Universidade Lusófona, Lisbon, Portugal

Huub Bakker, Ph.D. , Massey University, Palmerston North, New Zealand

Bruce Rapley, Ph.D. , Atkinson & Rapley Consulting, Palmerston North, New Zealand

Rachel Summers, BSc. , Massey University, Palmerston North, New Zealand

Richard Mann, Ph.D. , University of Waterloo, Waterloo, Ontario, Canada

Philip Dickinson, Ph.D. (ret.) , Massey University, Palmerston North, New Zealand

Link, Our commentary,

<https://cs.uwaterloo.ca/~mannr/30OCT20--Landesanstalt%20Review.pdf>

Source document,

<https://cs.uwaterloo.ca/~mannr/30OCT20--Landesanstalt%20Review--Annex%201-1.pdf>

N.B. This document has been submitted for court proceedings.

SERVICE

External Service.

I continue my work on Industrial Wind Turbines in Canada and now, worldwide, by virtue of full membership in IARO, New Zealand.

An account of my correspondence on this issue is provided at:

https://cs.uwaterloo.ca/~mannr/Wind_Turbines.html

PANDEMIC

March 12, 2020.

On this date I arrived early to lecture. The first question from my students was, "what precautions are you taking against the Pandemic". I had already decided to suspend lectures that day and announced this in class. I explained my concerns about Pandemic.

Student(s) reported this on Reddit (r/Uwaterloo)

<https://cs.uwaterloo.ca/~mannr/Reddit.pdf>

After a one week recess I continued to give lectures online (via Google Groups) and course presentations were also given by students.

Mar 24, Mar 26. Online lectures.

Mar 31, Apr 2. Student project presentations (to the class).

Apr 4, 2020. Student project presentations (to me only).

Discussion on Pandemic continued, both in classes, in private chats with students.

Due to my concern, and due to the lack of reliable information, I began my own investigation, both in the scientific literature and the media.

Beginning on May 2, 2020 I reported my findings on the Piazza web page. My intent was to correspond with students, and I made it clear that this discussion had nothing to do with their grades (which were soon awarded). I continued posting until Dec 31, 2020 as new information became available.

<https://cs.uwaterloo.ca/~mannr/Coronavirus.pdf>

OTHER

During Pandemic I provided "Continuing lectures" to my completed W20 class via Piazza. A series of Zoom videos resulted.

The first describes my presentation setup. This was also posted to "cs-cooler".

<https://cs.uwaterloo.ca/~mannr/2020-07-11-ZoomTeachingSetup.mp4>

The following videos describe, Electro Acoustical measurement,

<https://cs.uwaterloo.ca/~mannr/2020-07-11-ZoomVideo2.mp4>

The SAM Scribe infra sound measurement system,

<https://cs.uwaterloo.ca/~mannr/2020-07-25-ZoomVideo3.mp4>

Analysis of low frequency noise,

<https://cs.uwaterloo.ca/~mannr/2020-07-25-ZoomVideo4.mp4>

<https://cs.uwaterloo.ca/~mannr/2020-07-25-ZoomVideo5.mp4>