

**“Novel Ways to Non-invasively Visualize/Characterize/Decipher**

**the Sonic Communication of Marine Mammals”**

AGENDA as of 4/24/19

**Sunday, April 28, 2019**

***Nubar Restaurant, Sheraton Commander (***[***16 Garden Street, Cambridge***](https://goo.gl/maps/YmutUoVGoKr)***)***

6:30 PM Welcome Dinner

Reservation under “Whales”

Guiding questions:

* If we had the opportunity to create an empathetic “Manhattan Project” to better understand the communication of whales, how would we go about it?
* What would it take to capture all of the communication of a sperm whale pod for a season? What might you do with this data?
* What do you see as a step-by-step roadmap if we had unlimited resources? Note: this project sits at intersection of biology, linguistics, robotics, machine learning, signal processing, and more.
* How might your expertise relate to specific aspects of these goals/visions?

**DAY 1**

**Monday April 29, 2019**

***Coolidge Room (***[***18 Mason Street, Cambridge***](https://goo.gl/maps/sT5jcwaqzBE2)***), Radcliffe Institute***

8:30 AM

Continental Breakfast

9:00-9:15 AM

Intro and Welcome

- Robert Wood and David Gruber

9:15-9:30 AM

Roundtable self-introduction of Seminar participants

9:30-10:15 AM

- Roger Payne: Whales and whale research

*15 min discussion and Q/A*

10:30-11:00 AM

**Sperm whale research: Individual, unit and vocal clan level identity**

- Shane Gero

*15 min discussion and Q/A*

11:15 AM - 12:15 PM

**Computer Science/Machine Learning/Cryptography Applied to Whales**

- Michael Bronstein

- Shafi Goldwasser

*15 min discussion and Q/A*

12:30 pm-1:30 PM

Lunch (catered by the Radcliffe Institute on site)

Viewing: Whale interaction footage: Roger Payne

1:30-2:30 PM

**Engineering Approaches To Data Collection**

- Radhika Nagpal

- Rob Wood

*(moderated by Chris Clark)*

*15 min discussion and Q/A*

*15 min break*

3:00-3:30 PM

**AI & Data Scale**

- Britt Selvitelle

- Aza Raskin

*15 min discussion and Q/A*

3:45-4:05 AM

**Research on mother/calf interactions**

- Dan Tchernov

*15 min discussion and Q/A*

4:20-5:20 PM

**Transdisciplinarity approaches to whales**

- James Nestor

- Markus Reymann

- Jana Winderen

6:30 PM

**Dinner at Harvard Faculty Club (20 Quincy Street, Cambridge)**

**DAY 2**

**Tuesday April 30, 2019**

***Coolidge Room (***[***18 Mason Street, Cambridge***](https://goo.gl/maps/sT5jcwaqzBE2)***), Radcliffe Institute***

8:30 AM Continental Breakfast

9:00-9:15 AM

**Overview of Day 1**

– David Gruber/Rob Wood

9:15-9:45 AM

Daniela Rus

Drones and what they might do to learn about animal communication

9:45-10:00 AM

Discussion

10:00-10:45 AM

**Linguistics/ topological approaches**

- Kevin Ryan

- Giovanni Petri

*15 min discussion and Q/A*

11:00 AM-12:00 PM

**Next Steps - Whiteboarding/Grant Planning/Strategy/Voting**

*15 min break*

12:15 pm – 1:30 PM

Lunch (catered by the Radcliffe Institute on site)

(while enjoying Jana Winderen’s underwater field recordings)

1:30-2:00 PM

David Gruber concluding remarks and plans forward

2:00 PM

Optional visit to Rob Wood’s Microrobotics Laboratory ([60 Oxford Street, Cambridge](https://goo.gl/maps/hMMYMcrgrNG2))