



# **Current Cutting-Edge Estonian Science: Biobank, Satellites and Other Big Ideas from a Small Country**

Lecture 2 of course 'The  
innovative Estonia'

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# Estonian Science in general

- 6 universities + a few independent research institutions
- 29th position in the world (citations per paper)
- Fields above world average:  
environment/ecology, plant & animal science, clinical medicine, molecular biology & genetics, physics, pharmacology & toxicology, psychiatry/psychology



# Estonian Biobank

- 50 000 donors (5% of adult population)
- Genetic research
- Personalized medicine

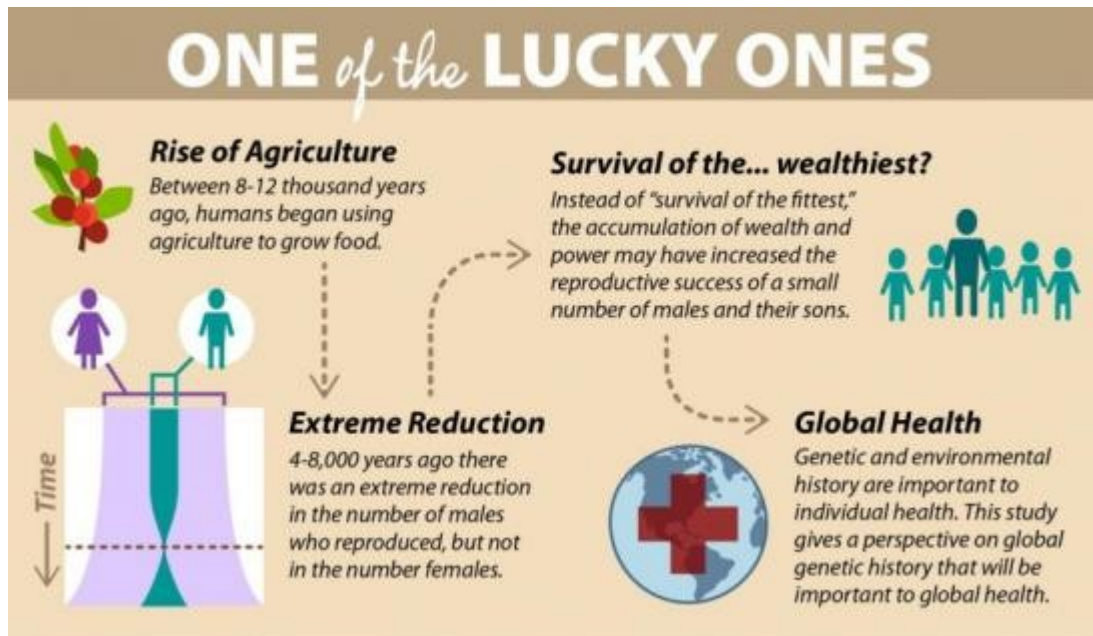


estonian genome center  
university of tartu



# Archaeogenetics

- Ancient human migration





# EstCube-1

- Cubesat standard
- Launched in 2013
- Experiment with electric solar sail



# Space research

- Galactic filaments
- Remote sensing



# Ecology

- Biodiversity patterns (plants and fungae)
  - Dark biodiversity
- Biotic interactions



Laelatu wooden meadow







# Plants and climate change

- Plant stress
- ‘smell of forest’
- Humidity manipulation





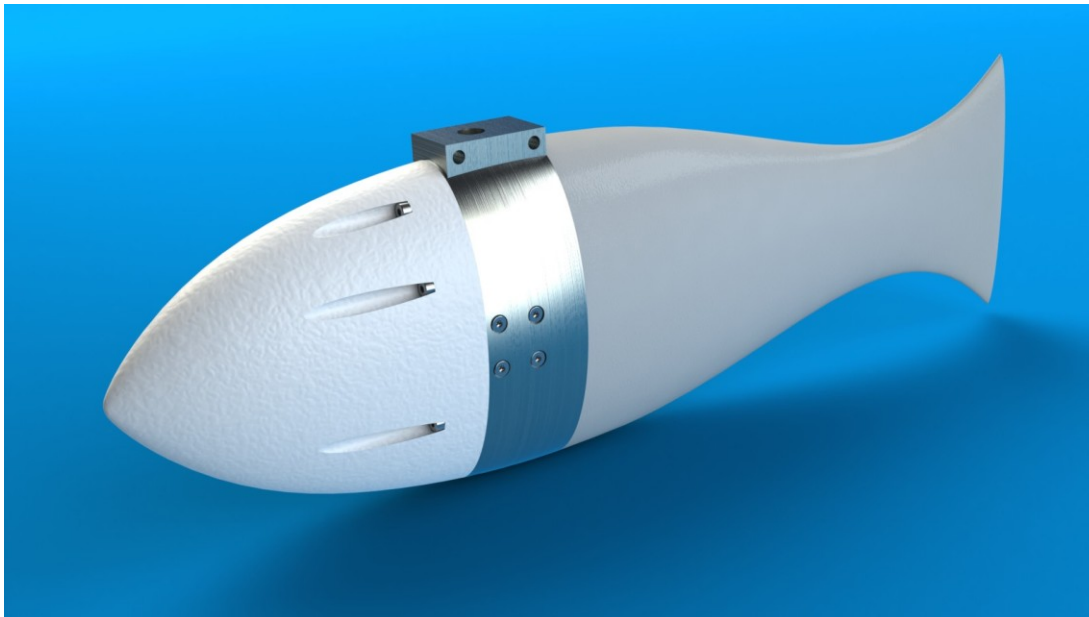
# Cloning for medicines

- Genetically modified cloned cows



# Underwater robots

- Archaeology turtle
- Fish with artificial lateral line



# Artificial muscles

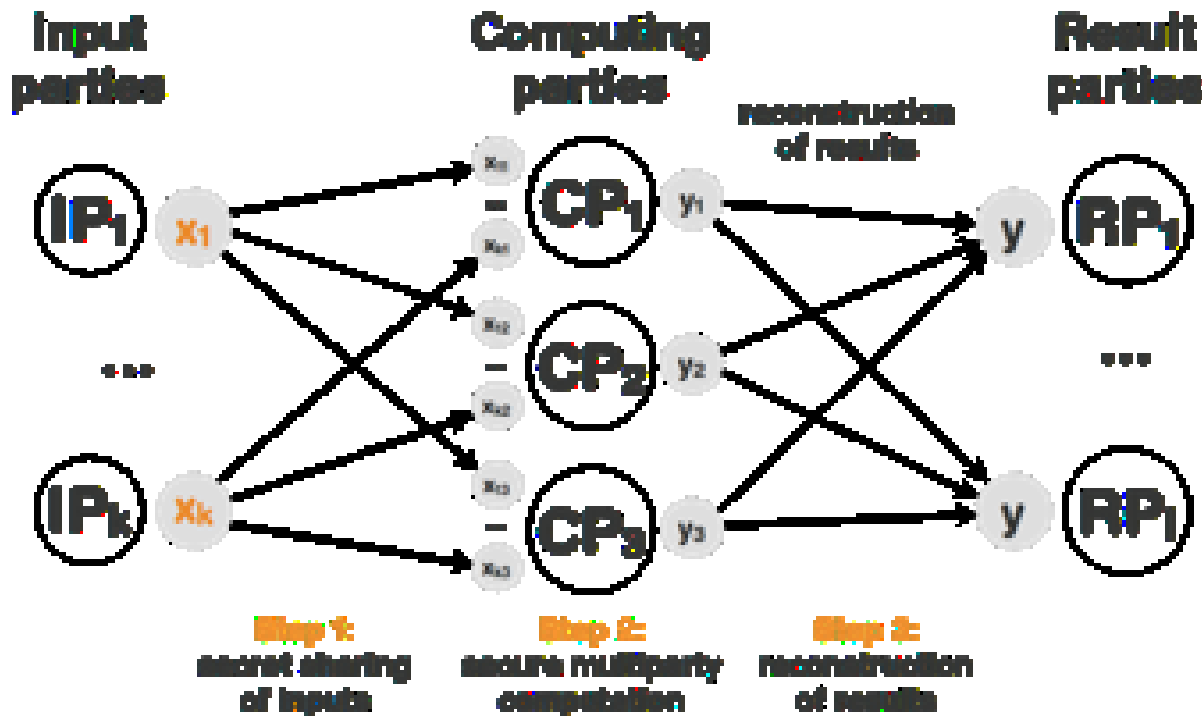
- electromechanically active polymer materials
- And a house that unpacks itself



# Sharemind

- Allows computing encrypted data

## the sharemind model





# Salme warrior ship

- 2 pre-viking (8th century) boats
- Battle and burial



# Spatial mobility of people

- travel, urban geography and segregation
- mobile positioning based methods

