

# Max Czapanskiy

PHD CANDIDATE, ECOLOGICAL DATA SCIENTIST

Hopkins Marine Station, Stanford University

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## Education

### Stanford University

PHD IN BIOLOGY

- Advised by Jeremy Goldbogen
- Dissertation: Baleen whale physiology revealed through the integration of bio-logging and ecoinformatics

Pacific Grove, CA

2022

### San Francisco State University

MS IN GEOGRAPHIC INFORMATION SYSTEMS

- Advised by Ellen Hines
- Thesis: Using energy landscapes to understand seabird movement and spatial ecology
- Graduate hood, College of Science & Engineering

San Francisco, CA

2018

### Columbia University

BS IN COMPUTER SCIENCE

New York, NY

2014

## Publications

### Blue whales increase feeding rates at fine-scale ocean features

FAHLBUSCH, J.A., **CZAPANSKIY, M.F.**, CALAMBOKIDIS, J., CADE, D.E., ABRAHMS, B., ..., GOLDBOGEN, J.A.

*Proceedings of the Royal Society B*

2022

### Baleen whale inhalation variability revealed using animal-borne video tags

NAZARIO, E.C., CADE, D.E., BIERLICH, K., **CZAPANSKIY, M.F.**, GOLDBOGEN, J.A., ..., FRIEDLAENDER, A.S.

*PeerJ*

2022

### How reproducibility will accelerate discovery through collaboration in physio-logging

**CZAPANSKIY, M.F.**, BELTRAN, R.S.

*Frontiers in Physiology*

2022

### An accelerometer-derived ballistocardiogram method for detecting heart rates in free-ranging marine mammals

**CZAPANSKIY, M.F.**, PONGANIS, P.J., FAHLBUSCH, J.A., SCHMITT, T.L., GOLDBOGEN, J.A.

*Journal of Exp. Bio.*

2022

### Elephant seals time their long-distance migrations using a map sense

BELTRAN, R.S., YUEN, A.L., CONDIT, R., ROBINSON, P.W., **CZAPANSKIY, M.F.**, ..., COSTA, D.P.

*Current Biology*

2022

### Scaling of maneuvering performance in baleen whales: larger whales outperform expectations

SEGRE, P.S., GOUGH, W.T., ROUALDES, E.A., CADE, D.E., **CZAPANSKIY, M.F.**, ..., GOLDBOGEN, J.A.

*Journal of Exp. Bio.*

2022

### Tools for integrating inertial sensor data with video bio-loggers, including estimation of animal orientation, motion, and position

CADE, D.E., GOUGH, W.T., **CZAPANSKIY, M.F.**, FAHLBUSCH, J.A., KAHANE-RAPPORT, S.R., ..., GOLDBOGEN, J.A.

*Animal Biotelemetry*

2021

### Baleen whale prey consumption based on high-resolution foraging measurements

SAVOCA, M.S., **CZAPANSKIY, M.F.**, KAHANE-RAPPORT, S.R., GOUGH, W.T., FAHLBUSCH, J.A., ..., GOLDBOGEN, J.A.

*Nature*

2021

### Modelling short-term energetic costs of sonar disturbance to cetaceans using high-resolution foraging data

**CZAPANSKIY, M.F.**, SAVOCA, M.S., GOUGH, W.T., SEGRE, P.S., WISNIEWSKA, D.M., ..., GOLDBOGEN, J.A.

*Journal of Applied Ecology*

2021

### Scaling of oscillatory kinematics and Froude efficiency in baleen whales

GOUGH, W.T., SMITH, H.J., SAVOCA, M.S., **CZAPANSKIY, M.F.**, FISH, F.E., ..., GOLDBOGEN, J.A.

*Journal of Exp. Bio.*

2021

### Cervical air sac oxygen profiles in diving emperor penguins: parabronchial ventilation and the respiratory oxygen store

WILLIAMS, C.L., **CZAPANSKIY, M.F.**, JOHN, J.S., ST LEGER, J., SCADENG, M., PONGANIS, P.J.

*Journal of Exp. Bio.*

2021

### Why whales are big but not bigger: Physiological drivers and ecological limits in the age of ocean giants

GOLDBOGEN, J.A., CADE, D.E., WISNIEWSKA, D.M., POTVIN, J., ..., **CZAPANSKIY, M.F.**, ..., PYENSON, N.D.

*Science*

2019

## Extreme bradycardia and tachycardia in the world's largest animal

GOLDBOGEN, J.A., CADE, D.E., CALAMBOKIDIS, J., CZAPANSKIY, M.F., FAHLBUSCH, J., ..., PONGANIS, P.J.

PNAS

2019

## Diving behavior of Pink-footed Shearwaters *Ardenna creatopus* rearing chicks on Isla Mocha, Chile

ADAMS, J., FELIS, J.J., CZAPANSKIY, M.F., CARLE, R., HODUM, P.

Marine Ornithology

2019

## Collision and displacement vulnerability to offshore wind energy infrastructure among marine birds of the Pacific Outer Continental Shelf

KELSEY, E.C., FELIS, J.J., CZAPANSKIY, M.F., PEREKSTA, D.M., ADAMS, J.

Journal of Env. Mgmt.

2018

## IN REVIEW

## Field measurements reveal the risk of microplastic ingestion by filter-feeding megafauna

KAHANE-RAPPORT, S.R., CZAPANSKIY, M.F., FAHLBUSCH, J.A., FRIEDLAENDER, A.S., CALAMBOKIDIS, J., ..., SAVOCA, M.S.

Nature Communications

## Fast and Furious: Energetic Tradeoffs and Scaling of High-Speed Foraging in Rorqual Whales

GOUGH, W.T., CADE, D.E., CZAPANSKIY, M.F., POTVIN, J., FISH, F.E., ..., GOLDBOGEN, J.A.

Integrative Organismal Biology

## rstickleback: supervised behavior detection in bio-logging data

CZAPANSKIY, M.F., MANN, A.

Journal of Open Source Software

## TECHNICAL REPORTS

## Habitat Affinities and At-Sea Ranging Behaviors among Main Hawaiian Island Seabirds: Breeding Seabird Telemetry, 2013–2016.

ADAMS, J., FELIS, J.J., CZAPANSKIY, M.F.

OCS Study BOEM 2020-006.

2020

## Trends in mammalian predator control trapping events intended to protect ground-nesting, endangered birds at Haleakalā National Park, Hawai'i: 2000–14.

KELSEY, E.C., ADAMS, J., CZAPANSKIY, M.F., FELIS, J.J., YEE, J.L., KAHOLOAA R.L., AND BAILEY, C.N.

U.S. Geological Survey Open-File

Report 2019-1122.

2019

# Teaching and Mentoring

## Just Enough Software Engineering (For Scientists)

LEAD INSTRUCTOR AND COURSE DESIGNER

- Self-guided, mastery-based software engineering course for biosciences graduate students
- Two-week intensive short course

Stanford University

2021

## Introduction to Physiological Ecology

TEACHING ASSISTANT

Stanford University

2021

## Undergraduate researcher mentor

NSF REU MENTOR

- Mentored Hayden Smith in quantitative analysis
- Hayden presented his work at the 2020 Society for Integrative and Comparative Biology Meeting and published it in the *Journal of Exp. Bio.* (Gough et al., 2021).

CSU Monterey Bay REU

2019

## Data Carpentry

CERTIFIED INSTRUCTOR

The Carpentries

2018 - present

## Introduction to Ecology

TEACHING ASSISTANT

Stanford University

2018

## Introduction to GIS

TEACHING ASSISTANT

San Francisco State University

2016 - 2017

# Software

## stickleback (pypi.org/project/stickleback)

A MACHINE LEARNING PIPELINE FOR DETECTING FINE-SCALE BEHAVIORAL EVENTS IN BIO-LOGGING DATA

Python

## rstickleback (github.com/FlukeAndFeather/rstickleback)

AN R INTERFACE TO THE STICKLEBACK MACHINE LEARNING PIPELINE

R

## catsr ([doi.org/10.5281/zenodo.5140484](https://doi.org/10.5281/zenodo.5140484))

TOOLS FOR READING AND VISUALIZING 3D BIO-LOGGING DATA; ACCOMPANIES CADE ET AL. (2021)

R

## beats ([github.com/FlukeAndFeather/beats](https://github.com/FlukeAndFeather/beats))

INTERACTIVE TOOLS FOR IMPORTING, ANNOTATING, AND VALIDATING ECG BIO-LOGGER DATA

R

## Conference presentations

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### Stickleback: A machine learning pipeline for detecting behavioral events in bio-logging data

Online

7TH INTERNATIONAL BIO-LOGGING SYMPOSIUM

2021

### Quantifying the Influence of Energy Windscares on Seabird Distributions

Portland, OR

OCEAN SCIENCES MEETING

2018

### Modeling Seabird Habitat Accessibility

Pacific Grove, CA

SOCIETY FOR CONSERVATION GIS ANNUAL CONFERENCE

2017

### Taking the Plunge: Comparing Diving Behavior of Red-footed and Brown Boobies Breeding on Lehua Islet, Hawaii

Turtle Bay, HI

PACIFIC SEABIRD GROUP ANNUAL MEETING

2016

## Work experience

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### U.S. Geological Survey Western Ecological Research Center

BIOLOGICAL SCIENCES TECHNICIAN

2014 - 2017

### University of Montana Avian Science Center

AVIAN POINT COUNT TECHNICIAN

2014

### Friends of Cooper Island

FIELD ASSISTANT AND DATA ANALYST

2012 - 2013

### Point Blue Conservation Science

MARINE ECOLOGY INTERN

2013

### Microsoft

SOFTWARE DEVELOPER ENGINEER IN TEST

2009 - 2013

## Awards and scholarships

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### Stanford Data Science Scholar Fellowship

STANFORD DATA SCIENCE INITIATIVE

2020

### Stanford Graduate Fellowship

VICE PROVOST FOR GRADUATE EDUCATION

2018

### Graduate Hood

SAN FRANCISCO STATE UNIVERSITY, COLLEGE OF SCIENCE AND ENGINEERING

2018

### Esri Development Center Student of the Year

ESRI

2018

### COAST Research Award

CALIFORNIA STATE UNIVERSITY, COUNCIL ON OCEAN AFFAIRS

2018

### Maxwell Memorial Scholarship

SAN FRANCISCO STATE UNIVERSITY, COLLEGE OF SCIENCE AND ENGINEERING

2017

### Pease Award

SAN FRANCISCO STATE UNIVERSITY, DEPARTMENT OF GEOGRAPHY AND ENVIRONMENT

2017

### CWEP Award for Graduate Student Writing

SAN FRANCISCO STATE UNIVERSITY

2017