

Max Czapanskiy, PhD

DATA SCIENTIST

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Data scientist with 13 years experience in analyzing heterogeneous data, designing machine learning pipelines, and general software development. Developed packages in R and Python, published 15+ peer-reviewed articles, and designed data science courses using novel pedagogies. I value collaboration above all else, which is why I enjoy building tools and teaching skills that empower teams to access and understand their data.

Education

Stanford University

PHD IN BIOLOGY

Pacific Grove, CA

2022

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

San Francisco State University

MS IN GEOGRAPHIC INFORMATION SYSTEMS

San Francisco, CA

2018

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

Columbia University

BS IN COMPUTER SCIENCE

New York, NY

2014

Publications

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

Nature Communications

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

2022

Fast and furious: energetic tradeoffs and scaling of high-speed foraging in rorqual whales

Integrative Organismal Biology

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

2022

Blue whales increase feeding rates at fine-scale ocean features

Proceedings of the Royal Society B

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

2022

Baleen whale inhalation variability revealed using animal-borne video tags

PeerJ

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

2022

How reproducibility will accelerate discovery through collaboration in physio-logging

Frontiers in Physiology

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

2022

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

Journal of Exp. Bio.

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

2022

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

Current Biology

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

2022

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

Journal of Exp. Bio.

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

2022

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

Animal Biotelemetry

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

2021

Baleen whale prey consumption based on high-resolution foraging measurements

Nature

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

2021

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

Journal of Applied Ecology

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

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

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

Undergraduate researcher mentor

REEFS MENTOR

- Mentored Lilah McCormick in quantitative ecophysiology.
- Lilah learned reproducible research techniques in R and is writing a paper about measuring cardiac function in narwhals.

Stanford University

2022

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 Int. and Comp. Bio. 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)

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

R

beats (github.com/FlukeAndFeather/beats)

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

R

Conference presentations

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 Windscapes 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

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 - 2012

Awards and scholarships

- 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)