



Alex Borowicz

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Skills and Competencies

Spatial Analysis (QGIS/ArcGIS) | Satellite & Remote Sensing Analysis | Bayesian Analysis and Computation
| Decision Support | Programming in R & Python | Data Visualization | Computer Vision | Field Team
Leadership | High-Performance Computing | Public Speaking | Spanish Language | Science Communication

Education

Stony Brook University, Stony Brook, NY
Ph.D. Ecology & Evolution (Quantitative Ecology) Expected May 2021
Thesis: *Eco-Social and Remote Sensing: Applications Across a New Era of Ecological Data*
College of the Atlantic, Bar Harbor, ME
B.A. Human Ecology March 2014

Research & Work Experience

Freelance Data Scientist – SPACEWHALE Project, BioConsult SH – Germany 2018-Present
- Developed a platform to detect whales in satellite imagery using AI and aerial imagery.
- Worked with industry, non-profit, and government stakeholders to discuss needs for environmental compliance and management.

NSF Graduate Research Fellow – Stony Brook University, Stony Brook, NY 2016-Present
- Developed methods for extracting spatial ecological data from social media and community science sources, broadening existing field efforts.
- Led projects on spatial and population dynamics of coastal Antarctic species, using remote sensing, field data, and computer vision methods.

Field Party Leader – Elephant Island Expedition – Antarctica 2019-20
- Collaboration between academic researchers, Greenpeace, and Pew.
- Led field teams and camps, managed data, gave media interviews about findings.
- Prepared daily remote-sensing data products for field team.

Stony Brook University – Stony Brook, NY 2015-20
- *Instructor* – Statistics and Data Analysis
- *Teaching Assistant* – Graduate Statistics; Fundamentals of Biology

Researcher – Danger Islands Expedition – Antarctica 2015-16
- Conducted UAV and manual field research on Antarctic penguin populations in an unexplored island chain, including automated penguin detections.
- Authored manuscript of findings, supporting the inclusion of the region in an MPA proposal.

Co-Investigator, Outreach Leader – Soundwatch Program, The Whale Museum – Friday Harbor, WA 2015
- Collected data on interactions between boats and endangered whales.
- Provided information about federal and state guidelines to mariners.

Oceanographic Technician – California Cooperative Oceanic Fisheries Investigations, San Diego, CA 2014

Publications

13. **Borowicz A**, Thorne L, Lynch HJ. *In Prep.* Spatial and temporal patterns of Antarctic fur seals (*Arctocephalus gazella*) on the Antarctic Peninsula.
12. Vu J, Kling K, Hudson D, **Borowicz A**, Anderson J, Norford A, et al. *In Prep.* Field science and the

acknowledgement of local labor, knowledge, and knowledge-making.

11. **Borowicz A**, Lynch HJ, Estro T, Foley C, Gonçalves B, Herman K, Adamczak SK, Stirling I, Thorne L. *In Review*. Passive citizen sensors: Ecological opportunities in the era of connectivity.
10. Höschle C, Cubaynes HC, Clarke PJ, Humphries G, **Borowicz A**. 2021. The potential of satellite imagery for surveying whales. *Sensors* **21**: 963.
9. Strycker N, **Borowicz A**, Wethington M, Forrest S, Shah V, Liu Y, Singh H, Lynch HJ. 2021. Fifty-year change in penguin abundance on Elephant Island, South Shetland Islands, Antarctica: results of the 2019-20 census. *Polar Biology* **44**: 45-56.
8. Liu Y, Shah V, **Borowicz A**, Wethington M, Strycker N, Forrest S, Lynch H, Singh H. 2020. Towards efficient machine learning methods for penguin counting in unmanned aerial system imagery. *Proceedings of the 2020 IEEE/OES Autonomous Underwater Vehicles Symposium (AUV)* 1-7.
7. Strycker N, Wethington M, **Borowicz A**, Forrest S, Witharana C, Hart T, Lynch HJ. 2020. A global population assessment of the Chinstrap Penguin (*Pygoscelis antarctica*). *Scientific Reports* **10**: 19474.
6. Herman R, **Borowicz A**, Lynch M, Trathan P, Hart T, Lynch HJ. 2020. Update on the global abundance and distribution of breeding Gentoo penguins (*Pygoscelis papua*). *Polar Biology* **43**: 1947-1956.
5. **Borowicz A**, Forrest S, Wethington M, Strycker N, Lynch HJ. 2020. Presence of king penguins (*Aptenodytes patagonicus*) on Elephant Island provides further evidence of range expansion. *Polar Biology* **43**: 2117-2120.
4. **Borowicz A**, Le H, Humphries G, Nehls G, Höschle C, Kosarev V, Lynch H. 2019. Aerial-trained deep learning networks for cetacean surveys from satellite imagery. *PLoS ONE* **14**(10): e0212532.
3. **Borowicz A**, Schrimpf M, Talis E. 2019. Effects of fine-scale sea-ice dynamics on near-coastal foraging. White Paper – NASA Biological Diversity and Ecological Forecasting Programs.
2. Hernández MM, Copello S, **Borowicz A**, Seco Pon JP. 2019. Distribution extension of the Spectacled Petrel (*Procellaria conspicillata*) off the Argentine Continental Shelf and oceanic adjacent waters. *Brazilian Journal of Ornithology*. **27**(2): 135-139.
1. **Borowicz A**, McDowall P, Youngflesh C, Sayre-McCord T, Clucas G, Herman R, et al. 2018. “Multi-modal survey of Adélie penguin mega-colonies reveals the Danger Islands as a seabird hotspot.” *Scientific Reports* **8**: 3926.

Awards, Grants, and Distinctions

Ad Hoc Award, SBU Dept. Ecology & Evolution, 2021 | Best Children’s Film – Wild & Scenic Film Festival, 2021 | AAAS/Science Program for Excellence in Science, 2019 | WMMC Student Travel Grant, 2019 | PhD Works Award for Career Exploration, 2019 | Digital Globe Foundation Imagery Grant, 2018 | Elected Member of The Explorers Club, 2018 | IACS Young Writer’s Award, 2018 | NSF Graduate Research Fellowship, 2016 | IACS New Recruit Fellowship, 2015

Service

- Diversity, Equity, Inclusion, and Anti-Racism Task Force, Stony Brook Dept. of Ecology & Evolution, July 2020-Present.
- Lynch Lab for Quantitative Ecology – Lab Ombudsman , 2020-Present.
- Poll Worker, New York City Board of Elections, 2020-Present.
- The Apollo Project – Documentary Theater – Moderator, panelist, contributor, 2020-Present
- Preliminary Exam Committee, Stony Brook Dept. of Ecology & Evolution, 2020-21.
- Graduate Curriculum Review Group, Stony Brook Dept. of Ecology & Evolution, 2020.
- Association for Polar Early Career Scientists Online Conference – Presentation Judge, 2020.
- Scientific Committee on Antarctic Research 9th Open Science Conference – Session co-convenor “Remote sensing for ecology of Southern Ocean predators.” July-Aug 2020, Hobart, Tasmania. Cancelled.
- Association for Polar Early Career Scientists – Council Member, 2019-Present.
- World Marine Mammal Conference – Workshop co-organizer, Dec 2019, Barcelona.
- Ask Me, I’m a Scientist – LI Maker Faire, 2016, Port Jefferson, NY.