Ryunosuke (Ryu) Akiba

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Education

2018/08 – 2022/05 **Applied Mathematics Major**
University of California, Berkeley
Applied mathematics with fluid mechanics concentration. Marine Science minor.
Cumulative GPA 3.861

Professional Experience

2022/05 – present **Research student**
Space Science Laboratory at University of California, Berkeley
Summer research student working under Dr. Anton Ermakov on constructing internal structure models of Jupiter's moon Ganymede based on new data obtained from NASA's Juno mission, specifically focusing on creating a consistent model with water equation of state and comparing gravity data. Exploring possible internal structures with a Markov Chain Monte Carlo method.
Programming in Python, using existing packages and implementing methods from scientific papers.
Accepted poster presentation at AGU 2022

2021/05 – 2021/08 **Summer Research Intern**
Virtual *National Oceanic and Atmospheric Administration, Center for Operational Oceanographic Products and Services*
Reserach internship through the NOAA Hollings Undergraduate Scholarship Program.

Conducted performance evaluation of a new mooring configuration, SEABY (subsurface ellipsoid ADCP buoy) for use in the National Current Observation Program, under Robert Heitsenrether and Dr. Laura Fiorentino of the Ocean System Test and Evaluation Program.

Processed and analyzed ADCP and CTD data from a SEABY field test using Matlab. Read wind, wave, and water level datasets from nearby stations and buoys to characterize field test environment. Communicated results and recommendations to stakeholders. Oral presentation at the Ocean Science Meeting in February 2022.

2020/05 – 2022/01 **Research Intern**
Virtual *University of California, Berkeley*
Conducted research under postdoctoral researcher Dr. Anton Ermakov on constraining properties of the icy shells of Jupiter's moon Europa and Saturn's moon Enceladus using gravity-topography admittance. The goal of the research was to understand how future missions to these moons can determine the thickness and tidal heating of their icy shells using measurements of gravity and shape.

Implemented and merged several models from research papers in Python using Numpy and Scipy packages. Simulated tidal heating of Europa and Enceladus, and viscous flow of their ice shells over time by solving systems of differential equations. Extensive use of Matplotlib visualization package to generate publication ready figures and animations.

Initial internship was paid full time May 2020 to August 2020. Unpaid extension of project and preparation of conference presentation and scientific research paper was done over the school year

Presented results at the American Geophysical Union Fall Meeting 2020. Published paper described below in Publications section.

2019/06 – 2022/05
Santa Monica / Remote

Business Intern
Dr. Evidence
Worked in business operations and analytics to support client engagement department by analyzing large amounts of data and providing graphics or reports. Part time in person at Santa Monica office summer 2019, remote over the school year (~30 hour/month).

Used Microsoft Power BI and Excel to visualize user training and usage of company platform from Google Analytics and Salesforce. Generated graphics for use in company and client meetings. Maintained client and contact profiles within Salesforce.

Developed and deployed automated objects and fields within Salesforce to provide easily viewable summaries of product usage data and sales deals for each client.

Skills

Problem solving

Quick to learn and adapt

Programming languages
Python, Matlab, Mathematica, Julia, C++

Experienced in Microsoft Excel, Word, Powerpoint, PowerBI

Publications

2022/03/02

Probing the icy shell structure of ocean worlds with gravity-topography admittance
Planetary Science Journal
Ryunosuke Akiba, Anton I. Ermakov, Burkhard Militzer

The structure of the icy shells of ocean worlds is important for understanding the stability of their underlying oceans as it controls the rate at which heat can be transported outward and radiated to space. Future spacecraft exploration of the ocean worlds (e.g., by NASA's Europa Clipper mission) will allow for higher-resolution measurements of gravity and shape than currently available. In this paper, we study the sensitivity of gravity-topography admittance to the structure of icy shells in preparation for future data analysis.

Virtual poster from American Geophysical Union Fall Meeting 2020
https://agu2020fallmeeting-agu.ipostersessions.com/default.aspx?s=AD-15-2B-83-04-D0-39-FD-86-A2-E9-11-17-57-E6-66#

Awards

NOAA Hollings Scholar 2020 – Ernest F. Hollings Undergraduate Scholarship
Scholarship for two years of full-time study and a 10-week, full-time paid summer internship at a NOAA facility.

Outstanding Student Presentation Award
American Geophysical Union
Awarded to the top 2-5% of presenters in each Section at American Geophysical Union December Meeting 2020

Reviewer for scientific journal
Planetary Science Journal