

KAUSHAL GIANCHANDANI

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EDUCATION

Ph.D. in Oceanography [GPA: 89/100] Oct 2017 – present
Hebrew University of Jerusalem, Israel (HUJI)

Integrated B.Sc. - M.Sc. in Physics [GPA: 7.4/10] Aug 2012 – May 2017
National Institute of Science Education and Research (NISER), Bhubaneswar, India

SKILLS

Analytical: Climate modeling, Renewable Energy, Oceanography, Time Series Analysis, Statistics, ML
Computational: Python, C++, Bash, Fortran, Parallel Programming, MITgcm, MATLAB, Linux, MS Azure

WORK EXPERIENCE

Graduate Research Assistant, Hebrew University of Jerusalem, Israel (HUJI) Oct 2017 – present
Project title: Statistical analysis of global data on winds and ocean currents

1. **Extracted and transformed the global data** on surface winds and ocean currents **using wget and netCDF operators** and successfully loaded the **10 billion data** points available into a single **netCDF** file.
2. **Developed classification algorithm** to identify grid-points where data followed the user-specified distribution.
3. **Recommended using a particular distribution** to estimate renewable electric power available from winds and ocean currents, **which reduced the error in the estimates from ~10% to >1%.**

Project title: Modeling wind-driven ocean currents

1. Derived how the dimensions of an ocean basin affect the volume of water transported by strong ocean currents like the Gulf Stream.
2. Benchmarked the analytical results by programing a **numerical model in MATLAB.**

Project title: Examining physical and bio-geo-chemical properties of oceans in extremely cold climate

1. **Programmed a state-of-the-art climate model (MITgcm)** to simulate extremely cold 'snowball' Earth climate.
2. Investigated the physical and bio-geo-chemical properties of the ocean during extreme climate conditions.

Summer Intern, École Normale Supérieure de Lyon (ENS de Lyon) May – Jul 2016
Project Title: Transition to turbulence in baroclinic flows (cont. as Master's thesis)

1. **Programmed a python package** (pyqg) to model baroclinic flows.
2. Determined how coupled effect of rotation and friction leads to reorganization of turbulent flows.

Summer Intern, Institute of Mathematical Sciences (IMSc), Chennai Jun – Jul 2015
Project Title: Binary logic (unconventional computing) using chemical oscillators

1. **Numerically modeled** an array of 20 coupled chemical oscillators **in MATLAB.**
2. Constructed logic gates (parity checker, OR, NOT, NOR) by applying chemical perturbations on the array.

Summer Intern, Indian Institute of Science Education & Research (IISER), Kolkata May – Jul 2014
Project Title: Time series analysis of bouncing ball experiment using Wavelets and EMD

1. Designed and carried out experiment to obtain several sets of **non-stationary time series.**
2. Analysed the multi-scale time series using **Wavelet transformation** and **Empirical Mode Decomposition** to identify **self-similarity, complex scaling behavior, and quasi-periodicity.**

PUBLICATIONS

[2] Gianchandani, Kaushal, Hezi Gildor, and Nathan Paldor. "[On the role of domain aspect ratio in the westward intensification of wind-driven surface ocean circulation.](#)" *Ocean Science* 17, no. 1 (2021): 351-363.

[1] Campisi-Pinto, Salvatore, **Kaushal Gianchandani**, and Yosef Ashkenazy. "[Statistical tests for the distribution of surface wind and current speeds across the globe.](#)" *Renewable Energy* 149 (2020): 861-876.

FELLOWSHIPS and AWARDS

- **Innovation in Science Pursuit for Inspired Research (INSPIRE) Fellowship** Aug 2012 – May 2017
Sponsor: Department of Science & Technology (DST), Govt. of India
- **Physics Summer Research Fellowship** Jun – Jul 2015

Sponsor: Institute of Mathematical Sciences (IMSc), Chennai

- **Best Student award**, St. Gregorios Senior Secondary School, Udaipur

2012

SELECT PRESENTATIONS

- **Atmospheres and Oceans seminar**

Johns Hopkins University, Baltimore, MD, USA

Invited Talk

Jan 2021

- **Summer School on Fluid Dynamics of Sustainability & the Environment (FDSE)**

University of Cambridge, Cambridge, UK

*Poster
presentation*

Sep 2018