

Janni Yuval

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[Personal website](#)

Education

- **Massachusetts Institute of Technology**
Houghton-Lorenz distinguished postdoctoral fellow 2019-current
- **Weizmann Institute of Science**
Ph.D under the supervision of Prof. Yohai Kaspi 2013 - 2017
- **Weizmann Institute of Science**
M.Sc. Physics under the supervision of Prof. Samuel Safran 2010 - 2013
- **Tel-Aviv University**
Bachelor of Science in Physics (magna cum laude) 2007 - 2010

Publications

- Janni Yuval** and Paul A. O’Gorman ([submitted](#)). “Neural-network parameterization of subgrid momentum transport in the atmosphere”.
- Janni Yuval**, Paul A. O’Gorman and Chris N. Hill ([2021](#)). “Use of neural networks for stable, accurate and physically consistent parameterization of subgrid atmospheric processes with good performance at reduced precision”, *Geophysical Research Letters*.
- Paul A. O’Gorman, Ziwei Li, William R. Boos and **Janni Yuval** ([2021](#)). “Response of extreme precipitation to climate warming in quasi-global aquaplanet simulations at high resolution”, *Philosophical Transactions of the Royal Society A*.
- Janni Yuval** and Paul A. O’Gorman ([2020](#)). “Stable machine-learning parameterization of subgrid processes for climate modeling at a range of resolutions”, *Nature communications*.
- Janni Yuval**, Mor Nitzan, Neta Ravid Tannenbaum and Boaz Barak (submitted; all authors contributed equally). “Optimizing testing policies for detecting COVID-19 outbreaks”, [arXiv preprint](#).
- Noam Barda, Eldad Elnekave, Noa Dagan, Eitan Bachmat, **Janni Yuval** and Ran Balicer (submitted). “Improving cardiovascular disease prediction using automated coronary artery calcium scoring from existing chest CTs”.
- Janni Yuval** and Yohai Kaspi ([2020](#)). “Eddy activity response to global warming-like temperature changes”, *Journal of Climate*.
- Janni Yuval**, Hilla Afargan and Yohai Kaspi ([2018](#)). “The relation between the seasonal changes in jet characteristics and the Pacific midwinter minimum in eddy activity”, *Geophysical Research Letters*.
- Janni Yuval** and Yohai Kaspi ([2018](#)). “Eddy sensitivity to jet characteristics”, *Journal of the Atmospheric Sciences*.
- Janni Yuval** and Yohai Kaspi ([2017](#)). “The effect of vertical baroclinicity concentration on atmospheric macroturbulence scaling relations”, *Journal of the Atmospheric Sciences*.
- Janni Yuval** and Yohai Kaspi ([2016](#)). “Eddy activity sensitivity to changes in the vertical structure of baroclinicity”, *Journal of the Atmospheric Sciences*.

Janni Yuval and Samuel Safran (2013). “Dynamics of elastic interactions in soft and biological matter”, *Physical Review E*.

Editorial work

Lead guest editor in Journal of Advances in Modeling Earth Systems (invited)

Organizing a special collection on machine learning for Earth sciences

2021-current

Published an Editor’s Vox in Eos

2021

Teaching Experience

- **Massachusetts Institute of Technology**
Teaching 2020
 - Hands-on python machine learning ([Github link](#))
- **Weizmann Institute of Science**
Teaching assistant 2014 -2016
 - Atmospheric and Oceanic Fluid Dynamics.
 - Great papers in Earth Sciences.
- **Davidson Center of Science Education**
Science educator 2013-2016
 - Teacher in science educational program for high school children.

Selected talks

- Scaling cascades in complex systems (conference).
Invited talk: Physics-guided machine-learning parameterizations of subgrid processes for climate modeling *Mar. 2021*
- University of Washington, Seminar in Atmospheric & Climate Dynamics.
Invited talk: Physics-guided machine-learning parameterizations of subgrid processes for climate modeling *Jan. 2021*
- Hebrew University, Climate, Atmosphere and Oceanography Seminar.
Invited talk: Stable and accurate machine-learning parameterization of subgrid processes for climate modelling at a range of resolutions *Dec. 2020*
- AGU Fall meeting 2020.
Stable and accurate machine-learning parameterization of subgrid processes for climate modelling at a range of resolutions *Dec. 2020*
- 2nd NOAA Workshop on Leveraging AI in Environmental Sciences.
Stable and accurate machine-learning parameterization of subgrid processes for climate modelling at a range of resolutions *Nov. 2020*
- Tel Aviv University, Geophysics Colloquium.
Invited talk: Stable and accurate machine-learning parameterization of subgrid processes for climate modelling at a range of resolutions *Oct. 2020*
- National Oceanic and Atmospheric Administration, STAR seminar.
Stable machine-learning parameterization of subgrid processes for climate modeling at a range of resolutions *June 2020*

- Massachusetts Institute of Technology, EAPS Active Talk Series.
Machine learning for parameterization of moist processes in the atmosphere *Apr. 2020*
- American Meteorological Society annual meeting.
Machine learning for parameterization of moist processes in the atmosphere, Boston, USA *Jan. 2020*
- Columbia University, SEAS Colloquium in Climate Science.
Invited talk: Machine learning for parameterization of moist processes in the atmosphere *Nov. 2019*
- New York University, Atmosphere Ocean Science Colloquium.
Invited talk: Machine learning for parameterization of moist processes in the atmosphere *Nov. 2019*
- Stony Brook University, Topics in Atmospheric and Oceanic Sciences seminar series.
Invited talk: Machine learning for parameterization of moist processes in the atmosphere *Oct. 2019*
- 22nd Conference on Atmospheric and Oceanic Fluid Dynamics.
Eddy activity response to global warming-like temperature changes *June. 2019*
- Harvard Crimson Climate Workshop.
Eddy activity response to projected temperature changes *Apr. 2019*
- Columbia University, SEAS Colloquium in Climate Science.
Invited talk: Eddy activity response to projected temperature changes and the Pacific seasonal cycle *Apr. 2019*
- Massachusetts Institute of Technology, Atmosphere, Ocean and Climate SLS.
Eddy activity response to projected temperature changes and the Pacific seasonal cycle *Apr. 2019*
- Stormtracks 2018: alternative perspectives on storm tracks in a changing climate.
Invited talk: The relation between the seasonal changes in jet characteristics and the Pacific midwinter minimum in eddy activity, Stockholm, Sweden *Aug. 2018*
- Max Planck Institute for Meteorology, workshop on machine learning in climate,
Invited talk: Using k-means to understand the relation between the 2D structure of the Pacific jet and eddy kinetic energy, Hamburg, Germany *Jul. 2018*
- The Hebrew University of Jerusalem, Atmosphere and Oceanography Seminar.
Invited talk: Sensitivity of atmospheric turbulence to the spatial structure of baroclinicity: implications for storm tracks and climate change *May. 2018*
- Max Planck Institute for Meteorology, Departmental seminar
Invited talk: Sensitivity of eddies to the vertical structure of baroclinicity, Hamburg, Germany *Apr. 2017*
- Geophysical fluid dynamics days 2017
The effect of vertical baroclinicity concentration on the scaling of eddy kinetic energy with mean available potential energy *Jan. 2017*
- Geophysical fluid dynamics days 2016
Does eddy activity is more sensitive to the upper or lower temperature gradient?, Sde boker *Jan. 2016*
- Storm tracks workshop
Storm track sensitivity to changes in the vertical structure of baroclinicity, Grindelwald, Switzerland *Jul. 2015*

- Geophysical fluid dynamics days

Circulation and eddy activity sensitivity to changes in the vertical structure of baroclinicity, Sde boker *Jan. 2015*

Fellowships

- [Recipient](#) of the Houghton-Lorenz fellowship *2018-2019*
- Alexander von Humboldt Research Fellowship (declined) *2018*
- Recipient of the Rieger Fellowship *2014*

Work Experience

- **Clalit Research Institute**
 - *Data Scientist* *2017 -2019*
 - Using causal inference and machine learning to improve medical practice
- **Mobileye (Computer vision for autonomous car)**
 - *Algorithm Developer* *2017*