# Paula Navarrete

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## Education

University of Massachusetts Amherst. Ph.D. in Computer Science Advisor: Yair Zick. GPA: 4.0 Coursework: Advanced Algorithms, Advanced Natural Language Processing, Artificial Intelligen Game Theory and Fairness, Database Design and Implementation, Probabilistic Graphical Mod	Amherst, MA 2022 – nce, lels.
Pontifical Catholic University of Chile (PUC). M.S. in Engineering Advisor: Rodrigo Cienfuegos. GPA: 3.89 Thesis: Assessment of the tsunami forecast capacity using sea surface data assimilation [5]	Santiago, Chile 2016 –2019
<ul> <li>Pontifical Catholic University of Chile (PUC). B.S. in Mathematical Engineering GPA: 3.64</li> <li>Relevant Coursework: Linear Algebra, Stochastic Models, Probabilities Theory, Statistical Infer Regression Analysis, Discrete Mathematics, Multivariate Calculus, Simulations, Optimization uncertainty, Time series, Real Analysis.</li> <li>Research and Industry Experience</li> </ul>	Santiago, Chile 2012 –2016 ence, nder
<ul> <li>Graduate Research Assistant. University of Massachusetts Amherst</li> <li>Implementing and analyzing fair and efficient allocation algorithms</li> <li>Working on the course allocation [1,2] and chore division problems</li> <li>Analyzing theoretical guarantees and running simulations based on real data</li> </ul>	Feb 2024 – Present Amherst, MA
<ul> <li>Data Science Intern. Data Science for the Common Good program (DS4CG)</li> <li>Developed web based annotation tool to improve iNaturalist species range predictions</li> <li>Developed frontend and backend of web application</li> <li>Implemented feeatures to retrieve predictions from iNaturalist SINR Geomodel and display the</li> <li>Designed and implemented database to store and retrieve species predictions and expert annotation.</li> </ul>	May 2024 – Sept 2024 Amherst, MA nem in interactive map tations
<ul> <li>Data Scientist. PUC Energy and Complex Systems Lab</li> <li>Project lead on short and long term time series forecasting for solar energy and electric demand</li> <li>Developed and integrated forecasting tool to the backend of solar operation management soft</li> <li>Coauthored journal publication on MDP model for optimal solar farm cleaning scheduling [3]</li> </ul>	Jun 2021 – Jul 2022 I Santiago, Chile ware
<ul> <li>Project Engineer. Public Funding Research Project</li> <li>Developed new techniques for non-seismic data based Tsunami forecasting</li> <li>Formulated Bayesian inference approach for tsunami source reconstruction through an inverse</li> <li>Achieved state of the art tsunami forecasts by relying in sea surface observations rather than</li> </ul>	Dec 2019 – May 2021 Santiago, Chile e problem seismic data
<ul> <li>Researcher. Research Center for Integrated Disaster Risk Management (CIGIDEN)</li> <li>Researched on Near-Real time Tsunami forecasting</li> <li>Built PCA algorithm to select and cluster candidate tsunami observation points.</li> <li>Implemented near-real time data assimilation algorithm for tsunami forecasting</li> <li>Developed heuristic to select optimal observation network</li> <li>Achieved state of the art forecasts with only 3 additional observation stations</li> <li>Authored journal publication [5] and coauthored two related publications [4,6]</li> </ul>	Mar 2019 – May 2021 Santiago, Chile
<b>Research Fellow.</b> Earthquake Research Institute (ERI), University of Tokyo Supervisor: Kenji Satake Research on Empirical Orthogonal Functions and Data Assimilation for tsunami forecasting	Oct 2017 – Nov 2017 Tokyo, Japan

## Publications and Academic Works

[1] **P. Navarrete**, C. Cousins, G. Bissias and Y. Zick. 2024. Deploying Fair and Efficient Course Allocation Mechanisms. In Incentives of Academia Workshop of the 25th ACM Conference on Economics and Computation (EC'24).

[2] **P. Navarrete**, C. Cousins, V. Viswanathan and Y. Zick. 2023. Efficient Yankee Swap for Fairly Allocating Courses to Students. Columbia Workshop on Fairness in Operations and AI. Columbia University, New York.

[3] M. González-Castillo, **P. Navarrete**, T. Tapia, Á. Lorca, D. Olivares, and M. Negrete-Pincetic. 2023. Cleaning scheduling in photovoltaic solar farms with deterministic and stochastic optimization. Sustainable Energy, Grids and Networks, vol. 36, p. 101 147, 2023.

[4] Y. Wang, H. Tsushima, K. Satake and **P. Navarrete**. 2021. Review on recent progress in near-field tsunami forecasting using offshore tsunami measurements: Source inversion and data assimilation. Pure and Applied Geophysics, pp. 1–20.

[5] **P. Navarrete**, R. Cienfuegos, K. Satake, Y. Wang, A. Urrutia, R. Benavente, P. Catalán, J. Crempien and I. Mulia. 2020. Sea surface network optimization for tsunami forecasting in the near field: Application to the 2015 illapel earthquake. Geophysical Journal International, vol. 221, no. 3, pp. 1640–1650.

[6] Y. Wang, K. Satake, R. Cienfuegos, M. Quiroz and **P. Navarrete**. 2019. Far-field tsunami data assimilation for the 2015 illapel earthquake. Geophysical Journal International, vol. 219, no. 1, pp. 514–521.

[7] **P. Navarrete**, R. Cienfuegos and K. Satake. 2018. Assessment of the tsunami forecast capacity using sea surface data assimilation: The 2015 Illapel Earthquake. III Engineering UC-USM Congress. Santiago, Chile.

## **Teaching Experience**

Teaching Assistant. University of Massachusetts Amherst	Fall 2022 – Spring 2024	
Introduction to Computation, Reasoning Under Uncertainty, Artificial Intelligence		
Teaching Associate. University of Massachusetts Amherst	Fall 2023	
Introduction to Python		
Adjunct Faculty. Pontifical Catholic University of Chile	Spring $2020$ –Spring $2022$	
Head instructor of Stochastic Models (Poisson processes, MDPs, Queue theory, Simulation)		
Teaching Assistant. Pontifical Catholic University of Chile	Spring $2013$ –Fall $2018$	
Calculus, Linear Algebra, Marketing, Stochastic Models		

#### Skills

**Programming**: Python, SQL, MATLAB, C#, Java, Bash, IATEX, R, Excel Libraries: NumPy, Pandas, Networkx, Matplotlib, Pytorch.