

John Dwyer

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PROFESSIONAL EXPERIENCE **Insight Data Science**

Fellow

Jan 2017 – Mar 2017

Created an artwork recommendation web app that learns user's tastes and suggests similar prints for home decoration. Used Python, Pandas, and PostgreSQL to obtain, parse, and manage image database. Built a model linking similar images based on metadata and color with NumPy and scikit-learn. Developed an interactive front end with Flask, Bootstrap, and JavaScript on AWS.

Massachusetts Institute of Technology

Postdoctoral Fellow, Department of Earth, Atmosphere and Planetary Sciences *Sep 2014 – Jan 2017*

Trained and implemented a neural network in Python to replace the convection scheme in a numerical global climate model in Fortran. Mentored an undergraduate research student on her senior thesis. Devised a scaling for the duration of precipitation extremes. Quantified effects of moisture on wave-mean flow interaction with partial differential equations.

Columbia University

Graduate Research Fellow, Department of Applied Math

Sep 2009 – Aug 2014

Simulated Earth's climate in numerical models and used principal component analysis to quantify how global warming affects seasonality. Forecasted shorter future hurricane seasons in the future with time series methods.

University of California, San Diego

Graduate Research Fellow, Department of Physics

Sep 2007 – Aug 2009

Evaluated the impact of pollution on "global dimming" using regression analysis. Guided 30 Physics Lab teaching assistants.

Columbia University

Undergraduate Research Fellow, Department of Physics

May 2005 – Aug 2007

Created a genetic algorithm to develop search methods to find gravitational wave signals in noisy data.

EDUCATION

Columbia University

Ph.D. in Applied Mathematics

2009 – 2014

University of California, San Diego

M.S. in Physics

2007 – 2009

Columbia University

B.A. in Mathematics and Physics

2003 – 2007

TECHNICAL SKILLS

Software and Programming Languages

Python, NumPy, SciPy, Pandas, scikit-learn, matplotlib, PostgreSQL, git, Jupyter Notebooks, Matlab, R, Linux, L^AT_EX, shell scripting, parallel computing, Fortran

Statistical and Mathematical Methods

Time series analysis, regression models, principal component analysis, partial differential equations

Machine Learning

Artificial Neural Networks, Random Forests, and Genetic Algorithms

HONORS & AWARDS

National Science Foundation Postdoctoral Research Fellowship

2015 – 2016

One of four given in Climate and Large-Scale Dynamics in 2014–2015

Simon Prize for Most Outstanding Doctoral Dissertation

2015

Department of Applied Physics and Applied Math at Columbia University

NASA Earth and Space Science Graduate Fellowship

2011 – 2014

57 out of 331 proposals were funded (17%).