M. Jeffrey Mei, Ph. D.

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WORK/RESEARCH EXPERIENCE

Data Scientist II, Wayfair LLC, Boston MA, USA December 2020 –

- Developed transformer model using self-attention with customers' browse contexts to serve product recommendations, improving order rates by 1% and gross revenue by $43M (tech blog post) (Apache Airflow, Google Cloud AI Platform Training, PyTorch, git, Docker)
- Created interactive tool (bokeh) to interpret and visualize learned item embeddings, and demonstrated that the model was implicitly learning product style, price and popularity attributes

Graduate Research Assistant, MIT/WHOI Joint Program June 2015 – September 2020

- Created a convolutional neural network from scratch to analyze sea ice imagery to infer ice thickness and snow depth from surface topography, reducing error in sea ice thickness estimates by 60% (PyTorch, OpenCV)
- Interpreted learned filters to demonstrate that the ConvNet was learning to distinguish textural features based on their surface roughness
- Developed a textural segmentation algorithm to distinguish different deformed sea ice surfaces which increase amount of snow depth data available to researchers by 10x via textural extrapolation
- Wrote automated algorithms to download and align terabytes of open-source NASA altimetry data with camera imagery, identify areas of open water and interpolate elevations onto a grid
- Collected sea ice data using surface laser (lidar) scans during 3-month winter fieldwork in Antarctica

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA June 2015 – September 2020

Woods Hole Oceanographic Institution, Woods Hole, MA

Ph. D., Mechanical Engineering (major: Oceanographic Engineering; minor: Data Science)

- Dissertation: "Morphological Approaches To Understanding Antarctic Sea Ice Thickness"

New York University Abu Dhabi, Abu Dhabi, United Arab Emirates August 2011 – May 2015

B. S. cum laude, Physics and Mathematics. GPA: 3.8/4.0

- New York University Honors Scholar, 2015
- Semester study abroad at NYU Berlin/Humboldt-Universität zu Berlin (Germany), Spring 2013
- Full scholarship, 2011 – 2015

TEACHING EXPERIENCE

12.720 Elements of Modern Oceanography, MIT Fall 2018

Teaching assistant

- Explained physical oceanography concepts to 25 first-year graduate students from a variety of mathematical backgrounds
- Improved scientific rigor and precision of students research projects with individual feedback

OTHER SKILLS

Fluent in English, German, Mandarin Chinese; conversant in Russian

Experienced with Python (numpy/sklearn/pytorch/pandas), SQL, OpenCV, Linux/Unix, bash, git, GCP (Google Cloud Platform), Docker, AWS (Amazon Web Services), Aerospike, Hive, Presto, Latex