CONOR T. DOHERTY

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EDUCATION:

Stanford University. Stanford, CA. PhD in Environmental Engineering (September 2019 – Present). Expected graduation March 2023.
- Stanford Data Science Scholar (2020-2021) – competitive graduate fellowship sponsored by Stanford Data Science
- Coursework in Synthetic Aperture Radar, Signal Processing, Bayesian Methods for Imaging and Uncertainty Quantification, Data Science for Geosciences, Remote Sensing of Hydrology

Carnegie Mellon University. Pittsburgh, PA. MS in Public Policy & Management, May 2019.
- Coursework in GIS, Data Mining/Machine Learning, Optimization, Statistics, Econometrics

Stanford University. Stanford, CA. BS in Mathematics with minor in Philosophy. June 2013.

RESEARCH AREAS:

Satellite remote sensing -- applications including:
- Evapotranspiration estimation for water use accounting and irrigation scheduling
- Characterization of agricultural land surface processes

Mathematical theory and methods for analysis of environmental time series and spatial data

RESEARCH ARTICLES:

Doherty, C.T., et al., (in preparation). "Satellite-based classification of irrigated fields without labeled training data."

Doherty, C.T., Mauter, M.S., (in submission, preprint available). "Fisher Discriminant Analysis for Extracting Interpretable Phenological Information from Multivariate Time Series Data." https://doi.org/10.31223/X5H94P

Doherty, C.T., et al., (2022). "Effects of meteorological and land surface modeling uncertainty on errors in winegrape ET calculated with SIMS." *Irrigation Science*. https://doi.org/10.1007/s00271-022-00808-9

Melton, F.S., Huntington, J., […], **Doherty, C.T.**, […], (2021). "OpenET: Filling a Critical Data Gap in Water Management for the Western United States." *Journal of the American Water Resources Association*. https://doi.org/10.1111/1752-1688.12956

TEACHING:

Data Assimilation (CEE 261D) Winter 2023: Dynamic systems and state-space representation, Kalman Filter (KF), Ensemble and Compressed-State KF for large systems, optimal filter tuning (TA).

Imaging with Incomplete Information (CEE 362G/CME262) Spring 2022: Bayesian estimation and uncertainty quantification for inverse problems with applications to hydrologic imaging (TA).

Inclusive Mentorship in Data Science (BIODS 360) Winter 2022: Course for graduate students who serve as mentors for undergraduates at 2- and 4-year colleges (TA and curriculum development).

Remote Sensing of Hydrology (CEE 260D/ESS 224) Spring 2021: Survey of principles and methods used in remote sensing of hydrology (TA and curriculum development).

Environmental Policy Analysis (CEE 275D) Fall 2019: Introduction to policy analysis for environmental engineering graduate students (TA).

SERVICE:

Inclusive Mentorship in Data Science Program (2021-2022): Weekly mentorship session with community college students. Activities include homework help, resume/application review, discussions about careers and graduate school. Participated for two years including assisting with administration and curriculum development in second year.

TECHNICAL SKILLS:

Significant experience with Python, GDAL, SQL, Linux, Git, Google Earth Engine, cloud computing, parallel and scientific computing. Additional experience with JavaScript, MATLAB, C/C++.

WORK EXPERIENCE:

OpenET/NASA Ames/California State University Monterrey Bay, Software Engineer (part time/remote). June 2019 – present.
- Implemented and tested soil water balance extension to Google Earth Engine version of Satellite Irrigation Management Support (SIMS) evapotranspiration model.
- Implemented and analyzed alternative methods for SIMS to handle fallowed fields.
- Assist with assorted development, testing, and debugging tasks.
- Currently developing operational method for estimating deep percolation and effective precipitation for water resource management applications.

NASA Ames/California State University Monterrey Bay, Graduate Student Intern. Moffett Field, CA. June 2018 – August 2018.
- Implemented soil water balance extension to SIMS. Wrote in Python, tested on Pleiades supercomputer.
- Helped conduct remote sensing of evapotranspiration workshop for Western state water agency staff scientists. Wrote code for comparing model outputs and helped attendees run models.

Freelance Developer and Writer. San Francisco, CA. November 2015—March 2018.
- Collaborated with MemSQL(now SingleStore) as primary author and executive editor of O'Reilly books describing predictive analytics and applied machine learning. Topics included deploying machine learning applications in production, data pipeline design, and system architecture.
- Lead developer and administrator on MemSQL web properties including memsql.com.

MemSQL Inc./SingleStore, Multiple positions held simultaneously. San Francisco, CA. October 2013 – November 2015.

Technical Marketing Engineer
- Built applications in Python, Scala, and SQL to demonstrate combined OLTP/OLAP/streaming workloads in MemSQL. Examples include stock market simulator and real-time data aggregator.
- Wrote and edited technical content on topics including enterprise system architecture, query optimization, and comparison/contrast of database systems.

Product Manager for MemSQL and Apache Spark offering
- Produced original demo and CEO's trade show speech that initiated the attention of investors and Fortune 500s, causing MemSQL to invest heavily in integration with Spark.

Stanford Undergraduate Research Institute in Mathematics. Stanford, CA. Summer 2012.
- Conducted research in algebraic number theory with team of undergraduate/graduate students.

Research Assistant in corn genetics lab. Stanford, CA. Fall 2009 – Spring 2011.
- Undergraduate work-study and summer research position in the lab of Professor Virginia Walbot. Performed field/greenhouse work and lab work including DNA extraction and PCR.