ZHONGHUA ZHENG

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SUMMARY (OBJECTIVE: DATA SCIENTIST)

- A Ph.D. candidate with 3-year of **industry** and U.S. Department of Energy **national laboratory** experience
- An interdisciplinary scholar with skills and experience in **Data Science**, **Earth and Environmental Modeling**, and **Cloud Computing**
- Deep understanding of **AI for Environmental Science**, and environmental/climate/remote sensing data analysis and visualization
- Educational backgrounds in **Agricultural Engineering**, **Environmental Engineering**, and **Computational Science and Engineering**
- Led collaborative projects, resulting in **5** research grants and **5** peer-reviewed publications (and additional **5** pending publications)
- A self-motivated, problem-solving and collaborative scientist with excellent communication skills

INDUSTRY AND NATIONAL LABORATORY EXPERIENCE

Bayer (Monsanto Company) & The Climate Corporation (TCC) **Champaign, IL**
Data Scientist Intern 01/2018 to 12/2020

- **Proficient in utilizing** the internal resources and APIs for data fusion, data analysis & visualization, and machine learning
- **Completed** a list of projects, including but not limited to:
  - Classification of High-Resolution Winter Cover Presence on AWS Cloud — Fall 2020
  - Classification of Winter Cover Presence Using Remote Sensing and Machine Learning — Summer 2020
  - Data Fusion and Machine Learning Workflow on AWS Cloud — Spring 2020
  - The Application of Data Fusion in Predicting Soil Properties and Designing Soil Sampling Locations — Fall 2019
  - Global Calibration of High-Resolution Soil Mapping Sensors — Summer 2019
  - A Data Fusion Approach to Predict Soil Properties with Proximal and Remote Sensing — Spring 2019
  - Machine Learning Approaches to Soil Properties Regression — Fall 2018
  - Machine Learning Approaches to SmartFirmer Anomaly Detection — Spring 2018
- **Developed** a list of workflows, inlcuding but not limited to:
  - data fusion workflow to integrate the remote sensing and proximal sensing data with field sampling of soil properties
  - machine learning workflow to predict the soil properties using the remote sensing data
  - "smart sampling" workflow by incorporating the "cLHS" open-source python package (I am a contributor)
- **Delivered** more than 10 oral presentations including "Climate Talks" and more than 5 poster presentations
- **Collaborated** with scientists and engineers from different teams, including but not limited to:
  - Enabling (Sustainability), Data Insights & Discovery (derived data and novel data), Data Quality, and Measurements
- **Assisted** the new interns in Bayer Crop Science Innovation Center to accelerate the onboarding

Oak Ridge National Laboratory (National Center for Computational Sciences) **Oak Ridge, TN**
ORISE Ph.D. Intern/Researcher at Advanced Data and Workflow Group 05/2018 to 08/2018

- **Led** a project focused on developing a deep learning model to predict atmospheric aerosol properties
- **Implemented** TensorFlow code with Nvidia GPUs (DGX-2)
- **Completed** a U.S. Department of Energy technical report (first-author) about the evaluation of machine learning approaches
- **Submitted** two abstracts and **got accepted** by AGU Fall meeting and AMS Annual Meeting
- **Featured** in Oak Ridge Leadership Computing Facility (OLCF) intern story

PROFICIENCIES

Expert Python (e.g., xarray, pandas, scikit-learn, TensorFlow, SciPy, GeoPandas), Domino Data Lab, Git (GitHub and GitLab)
Intermediate R, QGIS, Bash, SQL, Cloud Computing, Remote Sensing, Markdown, Docker, LaTeX

EDUCATION

- Ph.D., **Environmental Engineering in Civil Engineering**, University of Illinois at Urbana-Champaign (UIUC) 2020
  - Concentration: **Computational Science and Engineering**
  - Dissertation: *Coupling Data Science and Numerical Simulations to Empower Atmospheric and Environmental Research*
- M.S., **Agricultural and Biological Engineering**, UIUC 2016
  - Thesis: *Impedance-based moisture content sensor assessment for gas-phase biofilters*
- B.Eng., **Biosystems Engineering** (Top 2 Agricultural Engineering Program in China), Zhejiang University 2015
- Study Abroad, University of Manchester, United Kingdom 2013

ADDITIONAL EXPERIENCE

- **Conference session Co-Chair & Judge for Student Contest** 2020
  19th Conference on AI for Environmental Science (100th American Meteorological Society Annual Meeting)
- **Recipient** of 20+ awards including AI for Earth Microsoft Azure Compute Grant ($10,000), and Earth on AWS (Amazon Web Services) & Amazon Sustainability Data Initiative Grant ($6,000 cloud credits)
- **Contributor** to the book Spatio-Temporal Statistics with R 2020
- **Contributor** to the Pangeo project - A community platform for Big Data geoscience 2019 to present
- **Mentor** of 4 undergraduates in independent research projects 2015 to 2017
- **Lifetime member** of Tau Beta Pi (Engineering Honor Society) and Alpha Epsilon (Agricultural Engineering Honor Society)