Karen Yu

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Education

Harvard University — *Cambridge, MA*

PhD candidate, Environmental Science & Engineering, secondary field in Computational Science & Engineering — *May 2017 (anticipated)*

M.S., Applied Mathematics — *May 2016*

Carnegie Mellon University — *Pittsburgh, PA*

M.S., Civil and Environmental Engineering — *May 2012*

B.S., Civil Engineering with additional major in Policy and Management — *Dec. 2011*

Experience

Harvard University — *Cambridge, MA*

Graduate researcher in Atmospheric Chemistry Modeling Group — *Sep. 2012 - PRESENT*

- Developed high-resolution regional modeling capability in GEOS-Chem Model to support field mission in collaboration with 100+ scientists.
- Examined effect of increasing grid resolution in chemical transport modeling by evaluating high-resolution model against data from field campaign. Presented work at American Geophysical Union conference and published work in peer-reviewed journal.
- Quantified errors in chemical transport model (CTM) using offline meteorological fields compared to coupled chemistry-climate model. Developed parameterizations to address resolution induced transport errors in offline CTMs. Manuscript in preparation.

Teaching Fellow for Mathematical Modeling (AM115) — *Sep. 2013 - Dec. 2013*

- Managed class of 40+ students and provided one-on-one mentoring for students' final projects.

Duke University — *Durham, NC*

Research Intern — *May 2011 - July 2013*

- Investigated effectivess of sequential chemical extraction methods for the speciation of silver nanomaterials in ambient environments.

Carnegie Mellon University — *Pittsburgh, PA*

Peer Tutor — *Aug. 2010 - May 2012*

- Held walk-in tutoring sessions in freshmen dorms for Physics for Engineers I & II, and one-on-one tutoring sessions for various engineering courses.

Undergraduate Researcher — *June 2010 - May 2011*

- Investigated cause of poor transport of nanomaterial through natural soil to improve effectiveness of toxic waste remediation using column experiments, gas chromatography, and UV-visible spectroscopy.
- Applied microbiology techniques to examine effect of engineered silver nanomaterials on bacterial populations in simulated natural environments.

Skills, Coursework, and Awards

Programming Languages Python, R, MatLab, Fortran 77/90, IDL

Coursework Fluent in spoken Mandarin Chinese, basic proficiency in French

Stochastic Optimization Methods, Parallel Programming, Machine Learning, Partial Differential Equations, Numerical Methods, Computational Fluid Dynamics, Probability and Estimation Methods in Engineering Systems

Awards Graduate Consortium on Energy and Environment (partial tuition fellowship), CMU CEE Tuition Scholarship

Service and Activities

Harvard University — *Cambridge, MA*

School of Engineering and Applied Sciences (SEAS) Graduate Council Community Service Initiative Leader — *Feb. 2016 - PRESENT*

- Build community within SEAS by organizing social and professional development events for graudate students. As community service initiative lead, I led a group of students to volunteer at a local middle school in preparation for their science fair.

Carnegie Mellon University — *Pittsburgh, PA*

Engineers without Borders Grants and Sponsorships Chair — *Mar. 2011 - Mar. 2012*

- Acquired over $20,000 in funding for CMU's EWB chapter. Worked as part of team to design solar rooftop installation for school in India.