Kelvin C Fong

Postdoctoral Associate, Yale University School of Forestry and Environmental Studies
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EDUCATION

Doctor of Science, **Harvard TH Chan School of Public Health, 2018**
Environmental Epidemiology, Department of Environmental Health

Master of Science, **ETH Zurich (Swiss Federal Institute of Technology), 2012**
Environmental Sciences: Human Health, Nutrition, and Environment

Honours Bachelor of Science, **University of Toronto, 2010**
High distinction in Physiology and Music

WORK EXPERIENCE

School of Forestry and Environmental Studies, Yale University, New Haven, CT
Postdoctoral Associate, July 2018 – present

Environmental Health Disparities in an Aging Population
- Processing satellite imagery with Google Earth Engine for epidemiologic research
- Developing software packages in R to reproducibly and efficiently perform spatial statistics and data linkage
- Designing epidemiologic studies to quantify health disparities in the Medicare population in North Carolina, Michigan, and Texas
- Exploring air pollution and environmental exposure distributions in relation to area measures of sociodemographic segregation

Department of Environmental Health, Harvard TH Chan School of Public Health, Boston, MA
Doctoral Candidate, September 2015 – May 2018
Graduate Research Assistant, September 2013 – May 2018

Environmental Exposures during Pregnancy and Birthweight (Dissertation Focus)
- Conceptualized, designed, and performed data linkage (> 1 mil. records) of mothers' geographic information to air pollution predictions and environmental variables
- Applied quantile regression and showed that lighter newborns were more severely affected by particulate air pollution ($PM_{2.5}$) than normal-weight or heavier newborns
- Assessed nonlinearity using splines and effect modification by socioeconomic status in the relationship between residential greenness and birth outcomes
- Evaluated the relative toxicity of different constituents of $PM_{2.5}$ on birthweight

Optimism and Healthy Aging (Collaboration with Social and Behavioral Sciences Department)
- Cleaned large sets of epigenetic data to compute methylation age
- Performed mixed effects models to assess how optimism impacts the aging process

Neighborhood Social Stressors (Collaboration with Boston University)
- Led effort to assess how neighborhood income and racial segregation modify effects of environmental exposures on birth outcomes
- Provided big data computing, storage solutions, and IT support to team members

Harvard College and Harvard TH Chan School of Public Health, Cambridge / Boston, MA
Teaching Assistant / Fellow, February 2016 – May 2017

- Led tutorials, labs, and graded student work in 3 graduate and 2 undergraduate classes
- Revamped advanced regression course to use modern R packages and Rmarkdown
- Developed teaching content on reproducible research and data science online course

World Health Organization: European Center for Environment and Health, Bonn, Germany
Intern, February 2013 – May 2013

- Compiled, edited, and formatted review of air pollution and health effects
- Authored conference paper on the health and economic impacts of environmental noise

Verenum Engineering Bureau, Zurich, Switzerland
Pratikant, April 2011 – February 2012

- Performed literature survey of the health effects of aerosols from wood combustion for the Swiss government

Department of Environmental Health, University of Washington, Seattle, WA
Research Student, Summer 2009

- Investigated effect modification by single nucleotide polymorphisms on the relationship between air pollution exposure and left ventricular mass

Division of Critical Care Medicine, St. Michael's Hospital, Toronto, Canada
Summer Student, Summers 2007, 2008

- Investigated the effects of novel mechanical ventilation strategies on diaphragm atrophy and force-generating capacity

PUBLICATIONS

Fong KC, Di Q, Kosheleva A, Coull BA, Koutrakis P, Laden F, Schwartz JD. Relative Toxicities of Major Particulate Matter Constituents on Birthweight in Massachusetts. *Environmental Epidemiology 2019. (accepted)*

Fong KC, Kosheleva A, Kloog I, Coull BA, Koutrakis P, Laden F, Schwartz JD. Fine Particulate Air Pollution and Birthweight: Differences in Associations along the Birthweight Distribution. *Epidemiology 2019. (accepted)*

Gaskins AJ, Minguez-Alarcon L, **Fong KC**, Abu Awad Y, Di Q, Chavarro JE, Ford JB, Coull BA, Schwartz JD, Kloog I, Attaman J, Hauser R, Laden F. Exposure to Fine Particulate Matter and Ovarian Reserve among Women from a Fertility Clinic. *Epidemiology 2019. (accepted)*

Yitshak-Sade M, James P, Kloog I, Hart JE, Schwartz JD, Laden F, Lane KJ, Fabian MP, **Fong KC**, Zanobetti A. Neighborhood Greenness Attenuates the Adverse Effect of PM2.5 on Cardiovascular Mortality in Neighborhoods of Lower Socioeconomic Status. *Int. J. Environ. Res. Public Health 2019, 16(5).*

Schwartz JD, **Fong KC**, Zanobetti A. A National Multi-City Analysis of the Causal Effect of Local Pollution, NO_2, and $PM_{2.5}$ on Mortality. *Environmental Health Perspectives 2018, 126(8).*

Fong KC, Kloog I, Coull BA, Koutrakis P, Laden F, Schwartz JD, James P. Residential Greenness and Birthweight in the State of Massachusetts, USA. *Int J Environ Res Public Health 2018, 15(6), 1248*

Fong KC, Hart JE, James P. A Review of Epidemiologic Studies on Greenness and Health: Updated Literature through 2017. *Current Environmental Health Reports 2018, 5(1), 77-87.*

Fong KC, Nussbaumer T. Health Effects of Aerosols from Wood Combustion: Literature Survey and Assessment of State of Knowledge. *Swiss Federal Office of the Environment, 2012*

PRESENTATIONS

Fong KC. *Google Earth Engine and Environmental Epidemiology*. GIS-Day, Yale University, New Haven, CT, USA, 2018.

Fong KC. *Surrounding Residential Greenness and Birthweight.* Chinese University of Hong Kong, Hong Kong, China, 2018. (Invited Seminar)

Fong KC, Lane KJ, Yitshak-Sade M, Kloog I, Hart JE, Fabian MP, Zanobetti A, Schwartz JD, Laden F. *Effect Modification of the $PM_{2.5}$ Association with Birthweight by Local Residential Racial and Economic Segregation.* International Society of Exposure Science and International Society of Environmental Epidemiology Joint Conference, Ottawa, Canada, 2018.

Yitshak-Sade M, Lane KJ, Kloog I, Hart JE, **Fong KC**, Schwartz JD, Laden F, Fabian MP, Zanobetti A. *$PM_{2.5}$ and Mortality: Modification of the Association by Personal and Area Level Indicators of Socioeconomic Status.* International Society of Exposure Science and International Society of Environmental Epidemiology Joint Conference, Ottawa, Canada, 2018.

Gaskins AJ, **Fong KC**, Abu Awad Y, Minguez-Alarcon L, Chavarro JE, Coull BA, Schwartz JD, Hauser R, Laden F. *Time-Varying Exposure to Fine Particulate Matter and Black Carbon and Outcomes of In Vitro Fertilization.* International Society of Exposure Science and International Society of Environmental Epidemiology Joint Conference, Ottawa, Canada, 2018.

Fong KC, Lane KJ, Kloog I, Schwartz JD, Hart JE, Zanobetti A. *The Effects of Neighborhood Social Stressors on Birth Weight*. International Society of Environmental Epidemiology, Sydney, Australia, 2017.

Fong KC, James P, Kosheleva A, Schwartz JD. *Maternal Exposure to Greenness during Pregnancy and Birth Weight*. International Society of Environmental Epidemiology, Sydney, Australia, 2017.

Fong KC, Di Q, Kosheleva A, Kloog I, Schwartz JD. *Contributions to Low Birth Weight by the Constituents of Air Pollution*. International Society of Environmental Epidemiology, Rome, Italy, 2016.

Fong KC, Kosheleva A, Kloog I, Schwartz JD. *Quantile Regression of Maternal Exposure to Particulate Air Pollution and Birth Weight*. International Society of Environmental Epidemiology, Rome, Italy, 2016.

George F, Heroux ME, **Fong KC**. *Public Health and Economic Burden of Environmental Noise*. Internoise: Noise Control for Quality of Life, Innsbruck, Austria, 2013.

Fong KC, Nussbaumer T. *Health Effects of Wood Combustion Aerosols*. 16th ETH Conference on Combustion Generated Nanoparticles, Zurich, Switzerland, 2012.

Fong KC, Haitsma JJ, Zhang H, Slutsky AS. *Lung Protective Ventilation Improves Diaphragm Force Generating Capacity*. Institute of Medical Sciences, University of Toronto, 2008.

Fong KC, Murphy JG. *Atmospheric Pollutants in Downtown Toronto*. Undergraduate Research Fair, University of Toronto, 2008.

AWARDS AND HONORS

Travel Award, International Society of Environmental Epidemiology, 2017.

Harvard Graduate Consortium on Energy & Environment, Harvard University Center for the Environment, 2015-2017.

Benjamin Greeley Ferris, Jr Fellowship in Environmental Epidemiology, Harvard TH Chan School of Public Health, 2015.

Glickenhaus Fund, Harvard TH Chan School of Public Health, 2014.

Doctoral Grant, Harvard TH Chan School of Public Health, 2013.

National Laureate, Excellence Awards, Canadian Merit Scholarship Foundation, 2008-2010.

Dean's List, University of Toronto, 2007-2010.

Dean's List, University of Washington, 2009.

Killam Fellowship, Fulbright Canada, 2009.

Finalist, St. Michael's Hospital Poster Competition, 2008.

Al Mercury Award, University of Toronto, 2008.

Walter and Mary Tuohy Award in Arts and Science, University of Toronto, 2008.

C.L. Burton Open Scholarship, University of Toronto, 2007.

SKILLS

Languages	English & Cantonese (fluent); German (advanced); French & Mandarin (basic)
Computer	Statistical Modeling in R, Python, and SAS Geographic Analysis in R, Google Earth Engine, ArcGIS Linux

SERVICE

Reviewer	*Epidemiology;* *Journal of Exposure Science and Environmental Epidemiology;* *International Journal of Hygiene and Environmental Health;* *Urban Forestry & Urban Greening*
Steering Committee	International Society of Environmental Epidemiology (ISEE) - Student and New Researcher Network Capacity Building and Education Commitee