

# MARCO MIOTTI

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## EDUCATION

**Massachusetts Institute of Technology** 2014 - 2019 (expected)

Ph.D. in Engineering Systems

Committee: Prof. Jessika Trancik (chair), Prof. John Heywood, Prof. P. Christopher Zegras

**Swiss Federal Institute of Technology (ETH) Zurich** 2010 - 2013

S.M. in Environmental Engineering

Thesis: *Life cycle and cost assessment of current and future fuel cell vehicles*

**Swiss Federal Institute of Technology (ETH) Zurich** 2007 - 2010

B.S. in Environmental Sciences

Thesis: *Temporal turnover patterns of phytoplankton composition in Lake Zurich*

## RESEARCH & PROFESSIONAL EXPERIENCE

**Massachusetts Institute of Technology** September 2014 - present

Research Assistant | Cambridge, MA, USA

- Evaluating the emissions and costs of personal vehicles across different vehicle technologies, driving patterns, and background conditions to inform decarbonization pathways for personal transport in the U.S.
- Designing interactive websites to inform consumers directly about vehicle costs and emissions.
- Collaborated in a large-scale research project that aims to reduce travel energy consumption through a combination of personalized travel information and system-wide optimization.

**Centro Nacional de Producción Más Limpia** February 2014 - June 2014

Swiss Civilian Service | Bogotá, Colombia

- Informed new regulations and educational programs to handle electronic waste in Colombia.
- Drafted concept for new database to store information on electronic waste recycling sites.

**Paul Scherrer Institute** November 2013 - February 2014

Research Assistant | Villigen, Switzerland

- Evaluated real-world fuel economy, emissions, and production costs of fuel cell vehicles.
- Contributed to technology assessment of deep geothermal electricity and heat co-generation.

**Global Risk Forum Davos** August 2013 - October 2013

Swiss Civilian Service | Davos, Switzerland

- Supported the organization of the *4th Conference on Community Resiliency* in Davos.
- Assisted in the creation of a new peer-reviewed e-journal, *Planet@Risk*.

## Evonik Industries

March 2012 - September 2012

Intern | Marl, Germany & Shanghai, China

- Conducted several life cycle emission assessments of specialty chemical products.
- Carried out an interview-based case study on sustainability in the chemical industry in China and presented results in global Evonik headquarters in front of 100+ people.

## PEER-REVIEWED ARTICLES

McNerney, Needell, Chang, **Miotti**, and Trancik. TripEnergy: Estimating personal vehicle energy consumption given limited travel survey data. *Transportation Research Record: Journal of the Transportation Research Board*, 2017. [[Link](#)].

Fletcher, **Miotti**, Swaminathan, Klemun, Strzepek, and Siddiqi. Water Supply Infrastructure Planning: Decision-Making Framework to Classify Multiple Uncertainties and Evaluate Flexible Design. *Journal of Water Resources Planning and Management*, 2017. [[Link](#)].

**Miotti**, Hofer, and Bauer. Integrated environmental and economic assessment of current and future fuel cell vehicles. *International Journal of Life Cycle Assessment*, 2017. [[Link](#)].

**Miotti**, Supran, Kim, and Trancik. Personal vehicles evaluated against climate change mitigation targets. *Environmental Science & Technology*, 2016. [[Link](#)].

## MANUSCRIPTS IN PREPARATION

**Miotti**, Needell, and Trancik. Quantifying the impact of driving style changes on light-duty vehicle fuel consumption. *In revision*.

**Miotti** and Trancik. A Bayesian mixture model to evaluate variation in fuel consumption and annual travel distance of combustion engine and electric vehicles. *In preparation*.

**Miotti** and Trancik. Your mileage varies, and it matters: implications of heterogeneous electric vehicle emission reductions and costs. *In preparation*.

## SOFTWARE AND TOOLS

Carboncounter.com: Cars evaluated against climate targets. 100,000+ unique visitors since September 2016. Responsibilities: Initiated development, designed user interface and user experience, collected data, programmed and maintained website.  
*Featured in the New York Times, The Guardian, npr.org, vox.com.*

FM Sensing App: a mobile app interface for mobility incentives schemes and automatized travel surveys. Responsibilities: Helped integrate TripEnergy (a model to estimate vehicle fuel consumption) into server-side modeling framework; developed a server-side module in Python to measure the eco-driving performance of a car driver after a given trip.

## OTHER PUBLICATIONS

Trancik, Edwards, Kavlak, Klemun, McNerney, **Miotti**, Needell, Pereira, Supran, and Wei. "Notes on scale: Why U.S. states can make a significant contribution to the Paris Agreement." Press release, 2017. [[Link](#)].

Trancik, Supran, and **Miotti**. "Reality is that most EVs emit less CO2 than petrol cars over their lifetimes." Letter, The Financial Times, Nov. 20 2017. [[Link](#)].  
*Most read letter of the week in The Financial Times online.*

Trancik, Brown, Jean, Kavlak, Klemun, Edwards, McNervey, **Miotti**, Mueller, and Needell. Technology improvement and emissions reductions as mutually reinforcing efforts: Observations from the global development of solar and wind energy. Technical report, 2015. [[Link](#)].

TA-Swiss Study 62/2015. Hirschberg, Wiemer, and Burgherr (eds). Energy from the Earth: Deep Geothermal as a Resource for the Future? *VDF Hochschulverlag, Zurich*, 2015. [[Link](#)].

## AWARDS & HONORS

Martin Family Sustainability Fellowship	2018
Best Paper Award, Transportation Research Board Energy Subcommittee (4 <sup>th</sup> author)	2018
Editor's Choice Paper, Journal of Water Resources Planning and Management (2 <sup>nd</sup> author)	2018
Siebel Scholarship	2017
Society of Industrial Ecology Young Professionals Scholarship	2017
Willi-Studer Prize (for best GPA in master's program), ETH Zurich	2013
<i>Perspectives</i> membership (offered to "the most outstanding interns"), Evonik Industries	2013
Unitech Fellowship, ETH Zurich	2012

## INVITED TALKS

Environmental footprint of electric vehicles. Hitachi-University of Tokyo Forum on Society 5.0. Tokyo, Japan, 2019.

Evaluating technology evolution pathways against climate goals: The case of light-duty vehicles. Stanford University, Stanford CA, 2018.

Environmental footprint of electric vehicles. Inter-American Development Bank (IDB), Washington DC, USA, 2018.

Incorporating regional conditions and driving patterns into lifecycle emission estimates of personal vehicles. LCA XVIII special session: LCA on mobility, Fort Collins CO, USA, 2018.

Data for energy: building interactive tools to inform consumer purchasing decisions. Swiss-US Energy Innovation Days, Lausanne, Switzerland, 2018.

## SELECTED CONFERENCE PRESENTATIONS

- Miotti**, Trancik. Leveraging data to estimate localized emissions and costs of personal vehicles. Gordon Research Seminar (GRS) on Industrial Ecology, Les Diablerets, Switzerland, 2018.
- Miotti**, Needell, Trancik. Quantifying reductions in personal vehicle energy consumption due to driving style changes. Transportation Research Board 97th Annual Meeting, Washington DC, USA, 2018.
- Miotti**, Trancik. Evaluating the emissions and costs of light-duty vehicles. International Society for Industrial Ecology/International Symposium on Sustainable Systems and Technologies (ISIE-ISSST) Joint Conference, Chicago, USA, 2017
- Miotti**, Supran, Kim, Trancik. Using a parameterized LCA to evaluate over 120 current passenger vehicle models against climate change mitigation targets. American Center for Life Cycle Assessment Conference (LCA XV), Vancouver, CA, 2015.
- Miotti**, Supran, Kim, Trancik. Evaluating the Climate Change Mitigation Potential of Personal Vehicle Technologies. International Society for Industrial Ecology (ISIE) Conference, Surrey, UK, 2015.

## TEACHING EXPERIENCE

### Seminar Participant

Kaufman Teaching Certificate Program (KTCP), MIT Summer 2018

### Undergraduate Research Supervision

Sai Sameer Pusapaty (Undergraduate Research Project) Fall 2017

— *currently a Software Engineering Intern at Google in Mountain View, CA*

Christiane Adcock (Undergraduate Thesis in Course 2: Mechanical Engineering) Spring 2017

— *now a PhD student in Computational and Mathematical Engineering and a Knight-Hennessy Scholar at Stanford*

### Guest Lecturer

Introduction to Life Cycle Assessment, MIT Fall 2017

### Teaching Assistant

Mapping and Evaluating New Energy Technologies, MIT Fall 2017

## LEADERSHIP ACTIVITIES

President, MIT IDSS Student Council 2018 - present

Captain, MIT IDSS Hockey Team 2017 - present

Co-Organizer, MIT Policy Hackathon: From Data to Decisions 2018

Team Lead, Impact Assessment Fellows, MIT Climate CoLab 2015 - 2017

Co-President, MIT Engineering Systems Student Society	2016 - 2017
Seminar Chair, MIT Engineering Systems Student Society	2015 - 2016
Member, Student Leadership in Sustainability at MIT Working Group	2015 - 2016
Co-President and Graphic Design Lead, FFP Music Festival, Riniken, Switzerland	2006 - 2012

## SELECTED MEDIA COVERAGE

Quartz. "Electric cars claim to be cheaper and greener. But are they?"	2018-12-12
Manager Magazin. "Darum ist ein fetter Tesla sauberer als ein kleiner Ford."	2017-11-24
The Guardian. "New MIT app: check if your car meets climate targets."	2016-09-28
The New York Times. "An App to Help Save Emissions (and Maybe Money) When Buying a Car."	2016-09-27
NPR. "It May Not Cost You More To Drive Home In A Climate-Friendly Car."	2016-09-27

## PROFESSIONAL SERVICE

### Manuscript reviewer

Environmental Science & Technology; Transportation Research Record; Transportation Research Part D: Transport & Environment; Journal of Industrial Ecology.

### Abstract reviewer

2017 International Society For Industrial Ecology (ISIE) Conference.

## PROFESSIONAL SOCIETIES

International Society for Industrial Ecology, Transportation Research Board (Affiliate Member).

## SKILLS

### Spoken languages

German (native), English (fluent), Spanish (proficient), French (intermediate), Swedish (intermediate).

### Programming and markup languages | 10,000+ lines written

Python, Javascript, PHP, HTML/CSS.

### Programming and markup languages | 1,000+ lines written

Matlab, R, SQL (mySQL), LaTeX.

### Software

Adobe Photoshop/Illustrator/InDesign, version control (Git), ArcGIS, Rhino 3D.