
PRIYA L. DONTI

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA, USA 2016–present
Ph.D., Computer Science Department and Department of Engineering & Public Policy
Advisors: Zico Kolter, Inês Azevedo

Harvey Mudd College, Claremont, CA, USA 2011–2015
B.S. Computer Science and Mathematics, Emphasis in Environmental Analysis
Graduated with High Distinction, GPA: 3.93

SELECTED HONORS AND AWARDS

Lightning Talks Competition winner, Duke Energy Data Analytics Symposium 2020
Best Paper Honorable Mention, International Conference on Machine Learning (ICML) 2019
Best Poster, Power and Energy Conference at Illinois (PECI) 2019
Highlighted Paper Award, NeurIPS AI for Social Good workshop 2018
DOE Computational Science Graduate Fellowship 2017–present
National Science Foundation Graduate Research Fellowship 2015–2017
Thomas J. Watson Fellowship 2015–2016
Computing Research Association (CRA) Outstanding Undergraduate Award Finalist 2014
Udall Scholarship Honorable Mention 2014
Harvey Mudd President’s Scholarship 2011–2015

PUBLICATIONS

Full Papers

Enforcing Policy Feasibility Constraints through Differentiable Projection for Energy Optimization

ACM International Conference on Future Energy Systems (ACM e-Energy)

Bingqing Chen,* **Priya L. Donti**,* Kyri Baker, J. Zico Kolter, Mario Bergés

Enforcing robust control guarantees within neural network policies

International Conference on Learning Representations (ICLR) 2021

Priya L. Donti, Melrose Roderick, Mahyar Fazlyab, J. Zico Kolter

DC3: A learning method for optimization with hard constraints

International Conference on Learning Representations (ICLR) 2021

Priya L. Donti,* David Rolnick,* J. Zico Kolter

Tackling Climate Change with Machine Learning (*Preprint, 2019*)

David Rolnick, **Priya L. Donti**[†], Lynn H. Kaack, Kelly Kochanski, Alexandre Lacoste, Kris Sankaran, Andrew Slavin Ross, Nikola Milojevic-Dupont, Natasha Jaques, Anna Waldman-Brown, Alexandra Luccioni, Tegan Maharaj, Evan D. Sherwin, S. Karthik Mukkavilli, Konrad P. Kording, Carla Gomes, Andrew Y. Ng, Demis Hassabis, John C. Platt, Felix Creutzig, Jennifer Chayes, Yoshua Bengio

[†]Co-editor of full paper, and sole author of *Electricity Systems* section.

SATNet: Bridging deep learning and logical reasoning using a differentiable satisfiability solver

International Conference on Machine Learning (ICML) 2019

Po-Wei Wang, **Priya L. Donti**, Bryan Wilder, and J. Zico Kolter

🏆 **Best paper honorable mention** at ICML 2019 (top 1% of accepted papers)

Matrix Completion for Low-Observability Voltage Estimation

IEEE Transactions on Smart Grid (2019)

Priya L. Donti, Yajing Liu, Andreas J. Schmitt, Andrey Bernstein, Rui Yang, Yingchen Zhang

How Much Are We Saving after All? Characterizing the Effects of Commonly Varying Assumptions on Emissions and Damage Estimates in PJM

Environmental Science & Technology (2019)

Priya L. Donti, J. Zico Kolter, Inês Lima Azevedo

Inverse Optimal Power Flow: Assessing the Vulnerability of Power Grid Data (*Working paper*)

Priya L. Donti, Inês Lima Azevedo, J. Zico Kolter

🏆 *Highlighted paper* at the AI for Social Good workshop at NeurIPS 2018

🏆 *Best poster* at the Power and Energy Conference at Illinois (PECI) 2019

Task-based End-to-end Model Learning in Stochastic Optimization

Advances in Neural Information Processing Systems (NeurIPS) 2017

Priya L. Donti, Brandon Amos, J. Zico Kolter

Workshop Papers and Reports

Artificial Intelligence and Climate Change: Opportunities, considerations, and policy levers to align AI with climate change goals

Heinrich Böll Foundation E-Paper (2020)

Lynn H. Kaack, Priya L. Donti, Emma Strubell, David Rolnick

An adversarially robust approach to security-constrained optimal power flow

Machine Learning for Engineering Modeling, Simulation, and Design workshop at NeurIPS 2020

Neeraj Vijay Bedmutha, Priya L. Donti, J. Zico Kolter

Forecasting Marginal Emissions Factors in PJM

Tackling Climate Change with Machine Learning workshop at NeurIPS 2020

Amy Wang, Priya L. Donti

A Call for Universities to Develop Requirements for Community Engagement in AI Research

Position paper at the CHI 2020 Fair & Responsible AI Workshop

Emily Black, Joshua Williams, Michael A. Madaio, Priya L. Donti

Predicting the Quality of User Experiences to Improve Productivity and Wellness

Proceedings of the Twenty-Ninth AAAI Conference (2015)

Priya L. Donti, Jacob Rosenbloom, Alex Gruver, James C. Boerkoel Jr.

Exploring Active and Passive Team-Based Coordination

Proceedings of the AAAI 2014 Fall Symposium on AI for HRI (2014)

Priya L. Donti, James C. Boerkoel Jr.

SELECTED PROFESSIONAL SERVICE

Climate Change AI, Co-founder and Chair (2018–present)

Lead organization to catalyze impactful work in climate change and machine learning.

Catalyst Cooperative, Advisory Board Member (2020–present)

Provide advice to initiative aimed at increasing the usability and accessibility of public energy data.

Creative Destruction Lab, Lab Scientist (2020–present)

Provide guidance to startups and perform technical evaluations in CDL-Paris climate stream.

CMU Computer Science Faculty Hiring Committee, Student Representative (2020–2021)

Participate in the evaluation and hiring of faculty candidates.

CMU Computer Science PhD Admissions, AI Area Reader and Diversity Analyst (2019)

Evaluated applications, analyzed diversity, presented recommendations to departmental leadership.

CMU Computer Science Dept. Doctoral Review Committee, *Member* (2017–present)
Serve on official advisory committee to the Director of the PhD program and Department Head.

Reviewing

- Reviewer (papers): International Conference on Machine Learning (ICML), Conference on Neural Information Processing Systems (NeurIPS), International Conference on Artificial Intelligence and Statistics (AISTATS), IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Smart Grid, Machine Learning for the Developing World (ML4D) workshop at NeurIPS, ML4Eng workshop at NeurIPS, Women in Machine Learning (WiML) workshop, Climate Change AI workshop series
- Reviewer (grants): Vinnova “AI in the Service of Climate”
- Meta Reviewer: Climate Change AI workshop series

EXPERIENCE

- National Grid ESO, *Consultant***, Wokingham, UK Jun–Jul 2019
- Implemented a model for granular forecasting of electricity load (at the grid supply point level), which is now deployed UK-wide.
- National Renewable Energy Lab, *PhD Intern***, Golden, CO, USA May–Aug 2018
- Conducted research on matrix completion methods for distribution system voltage estimation.
- Thomas J. Watson Fellowship, *Watson Fellow***, Global Jul 2015–Aug 2016
- Conducted expert interviews on next-generation power systems in five countries (Germany, India, South Korea, Japan, and Chile), as part of a year-long fellowship.
- Harvey Mudd College, *Undergraduate Researcher***, Claremont, CA, USA Jan 2014–Jul 2015
- Led the “Productivity and Wellness Pal” research project, which aimed to provide individualized, data-driven recommendations to improve student productivity and wellness.
- PotaVida, Inc., *Global Clinic Team Member***, Claremont, CA, USA Sep 2014–May 2015
- Enhanced PotaVida’s low-cost solar water disinfection device as part of Global Clinic, a year-long senior capstone project at Harvey Mudd College.
- Crowdy, Inc., *Lead Software Engineer***, Claremont, CA, USA Sep 2013–Aug 2014
- Developed iOS app for Crowdy, an event-based social networking platform.
- Google, *Engineering Intern***, Mountain View, CA, USA May–Aug 2013
- Implemented web and Android app functionality for PACO, a user experience surveying tool.
- Harvey Mudd Games Team, *Undergraduate Researcher***, Claremont, CA, USA Jul–Aug 2012
- Created and tested educational games for elementary and middle school students.

SELECTED PUBLICITY

The Rising, *To what extent can artificial intelligence help tackle climate change today?*, May 2020
The Interchange podcast, *Beyond Forecasting: Artificial Intelligence Is a Powerful Decarbonization Tool*, Feb 2020
Future of Life Institute podcast, *Tackling Climate Change with Machine Learning*, Oct 2019
ScienceDaily, *Are we underestimating the benefits of investing in renewable energy?*, Oct 2019
Eye On A.I. Podcast, *Climate Change and AI*, Sep 2019
National Geographic, *How artificial intelligence can tackle climate change*, Jun 2019

MIT Technology Review, *Here are 10 ways AI could help fight climate change*, Jun 2019
Pittsburgh Post-Gazette, *Pittsburgh libraries join initiative to protect data*, Apr 2017

SELECTED PROGRAM ORGANIZATION

Conference: International Symposium on Sustainable Systems and Technology (theme chair)

Workshop: Tackling Climate Change with Machine Learning (co-organizer)

At the *Conference on Neural Information Processing Systems (NeurIPS)*, Dec 2020

Workshop: Machine Learning for Engineering Modeling, Simulation, and Design (co-organizer)

At the *Conference on Neural Information Processing Systems (NeurIPS)*, Dec 2020

Conference: TEDxClimateChangeAI (lead organizer)

Held as part of Countdown, TED's initiative on climate change, Oct 2020

Workshop: Tackling Climate Change with Machine Learning (lead organizer)

At the *International Conference on Learning Representations (ICLR)*, Apr 2020

Workshop: Tackling Climate Change with Machine Learning (lead organizer)

At the *Conference on Neural Information Processing Systems (NeurIPS)*, Dec 2019

Panel: AI: Applications in Climate Mitigation and Adaptation (lead organizer)

At the *United Nations Climate Change Conference (COP25)*, Dec 2019

Conference: CompSustNet Doctoral Consortium (lead organizer)

Computational Sustainability Network annual conference, Oct 2019

Seminar Series: CompSust Open Graduate Seminar (COGS) (lead organizer)

Virtual webinar for Computational Sustainability Network, 2018–present

Workshop: Climate Change: How Can AI Help? (co-organizer)

At the *International Conference on Machine Learning (ICML)*, Jun 2019

TALKS

Methodological challenges for machine learning in power systems,

Electric Power Research Institute “Reverse Pitch” event, May 2021

Climate Change: A Key Consideration for Responsible and Equitable CS, CMU DEI seminar, Apr 2021

Incorporating power system physics into deep learning via implicit layers,

AMLD AI & Sustainable Energy track, Apr 2021

Climate Change: A Key Consideration for Responsible AI, ICLR Responsible AI workshop, Apr 2021

Panel: Research and Challenges of ML/AI against COVID-19 and Climate Change in the context of

Developing Countries, ICLR workshop on Practical ML for Developing Countries, Apr 2021

Incorporating power system physics into deep learning via implicit layers, Data-Driven Physical

Simulation (DDPS) seminar at Lawrence-Livermore National Lab, Apr 2021

Tackling Climate Change with Machine Learning, On Deck Climate Tech Fellowship, Mar 2021

Panel: Data Science for the Common Good, Voices of Data Science at UMass Amherst, Feb 2021

Artificial Intelligence and Climate Change: A Multi-faceted Relationship,

Environmental Law Institute Webinar on AI & Environment, Feb 2021

Panel: Big Data and Climate Change, BERC Energy Summit, Feb 2021

Opportunities for AI in Tackling Climate Change, Global Engagement and Empowerment Forum, Feb 2021

Incorporating physics and domain knowledge into deep learning, Climate Crisis AI Hackathon, Jan 2021

Incorporating physics and domain knowledge into deep learning, UofT AI Conference, Jan 2021

How artificial intelligence could help mitigate climate change, Heinrich Böll virtual briefing, Dec 2020

Tackling Climate Change with Machine Learning, The Algo, Dec 2020

Inverse Optimal Power Flow: Assessing the Vulnerability of Power Grid Data,
 Duke Energy Data Analytics Symposium, Nov 2020

Panel: Saving Our Planet: Climate, Energy, & AI, ML@SJSU, Oct 2020

Tackling Climate Change with Machine Learning, CompSustNet Doctoral Consortium, Oct 2020

Inverse Optimal Power Flow: Assessing the Vulnerability of Power Grid Data,
 CMU CEIC Annual Meeting, Oct 2020

Tackling Climate Change with Machine Learning, Energy Innovation Network Enspire, Sep 2020

Tackling Climate Change with Machine Learning, Global Indian International School webinar, Jul 2020

Tackling Climate Change with Machine Learning, ACM GECCO GreenAI workshop, Jul 2020

Inverse Optimal Power Flow: Assessing the Vulnerability of Power Grid Data,
 International Symposium for Sustainable Systems and Technology (ISSST), Jun 2020

Panel: Accelerating Adoption of AI for Climate, CogX, Jun 2020

Climate Change 101, ICLR Tackling Climate Change with Machine Learning workshop, Jul 2020

Tackling Climate Change with Machine Learning, CMU Symposium on AI and Social Good, Apr 2020

Tackling Climate Change with Machine Learning, Engineers for a Sustainable World DigiCon, Apr 2020

Tackling Climate Change with Machine Learning, Clean Energy Leadership Institute webinar, Apr 2020

Tackling Climate Change with Machine Learning, Microsoft Research, Dec 2019

Tackling Climate Change with Machine Learning, CMU AI Seminar, Nov 2019

Tackling Climate Change with Machine Learning, University of Massachusetts, Oct 2019

Tackling Climate Change with Machine Learning, CompSustNet Doctoral Consortium, Oct 2019

Matrix Completion for Low-Observability Voltage Estimation, CMU CEIC Annual Meeting, Oct 2019

Matrix Completion for Low-Observability Voltage Estimation, CMU CEDM Seminar, Sep 2019

Inverse Optimal Power Flow, NeurIPS AI for Social Good workshop, Dec 2018

All models are wrong; let's make them useful, CMU CEIC Annual Meeting, Oct 2018

Inverse Optimal Power Flow, CompSust Open Graduate Seminar, Oct 2018

Matrix Completion for Low-Observability Voltage Estimation, CompSustNet Doctoral Consortium, Sep 2018

Optimization and machine learning for distribution system state estimation, NREL, Aug 2018

Characterizing the uncertainty in damage reductions from interventions and loads in PJM,
 CEDM Annual Meeting, May 2018

Characterizing Marginal Emissions Factors in PJM, CMU CEDM Seminar, Oct 2017

Characterizing Marginal Emissions Factors in PJM, CMU CEIC Annual Meeting, Oct 2017

Task-based end-to-end model learning in stochastic optimization, INFORMS, Oct 2017

Task-based Machine Learning, and Assessing Emissions Effects of Power System Interventions,
 Instituto Superior Técnico, Jun 2017

Assessing the Uncertainty of Emissions Reductions from Various Interventions,
 CMU CEDM Seminar, Apr 2017

Pingree School Commencement (commencement speaker), Jun 2019

Harvey Mudd College Convocation (alumni keynote), Aug 2017

Harvey Mudd College Convocation (student keynote), Sep 2013

POSTER PRESENTATIONS

DC3: A learning method for optimization with hard constraints,
 International Conference on Learning Representations (ICLR), Apr 2021

Enforcing robust control guarantees within neural network policies,
 International Conference on Learning Representations (ICLR), Apr 2021

An adversarially robust approach to security-constrained optimal power flow
 ML for Engineering Modeling, Simulation, and Design workshop at NeurIPS, Dec 2020

Forecasting Marginal Emissions Factors in PJM
 Tackling Climate Change with Machine Learning workshop at NeurIPS, Dec 2020

Matrix Completion for Low-Observability Voltage Estimation, DOE CSGF Annual Meeting, Jul 2019

SATNet: Bridging deep learning and logical reasoning using a differentiable satisfiability solver,

International Conference on Machine Learning (ICML), Jun 2019
Inverse Optimal Power Flow, CMU Energy Week, Mar 2019
Inverse Optimal Power Flow, Power and Energy Conference at Illinois (PECI), Feb 2019
Task-based End-to-end Model Learning in Stochastic Optimization,
 Women in Machine Learning (WiML) workshop, Dec 2018
Inverse Optimal Power Flow, NeurIPS Modeling the Physical World workshop, Dec 2018
Inverse Optimal Power Flow, NeurIPS AI for Social Good workshop, Dec 2018
Matrix Completion for Low-Observability Voltage Estimation, CompSustNet Doctoral Consortium, Sep 2018
Task-based End-to-end Model Learning in Stochastic Optimization, CompSustNet NSF Review, Sep 2018
Task-based End-to-end Model Learning in Stochastic Optimization, DOE CSGF Annual Meeting, Jul 2018
Task-based End-to-end Model Learning in Stochastic Optimization,
 Conference on Neural Information Processing Systems (NeurIPS), Dec 2017
Task-based End-to-end Model Learning in Stochastic Optimization, CompSustNet NSF Review, Oct 2017
Assessing the Uncertainty of Emissions Reductions from Various Interventions,
 CMU CEDM Annual Meeting, May 2017
Predicting Marginal Generators in Real Time, CMU Energy Week, Apr 2017

TEACHING

Guest Lecture: Climate Change and Machine Learning, Terra.do
 Taught hands-on online course on machine learning and climate change (Jan 2021, May 2021).

Guest Lecture: Climate Change and Machine Learning, Winchester-Thurston High School
 Taught basics of machine learning and climate change to high school class (Nov 2019).

Teaching Assistant: Graduate Artificial Intelligence, Carnegie Mellon University
 Wrote homework and exam questions, held office hours, and graded (Spring 2018 semester).

Teaching Assistant: Artificial Intelligence, Harvey Mudd College
 Held office hours and graded work (Fall 2014 and Spring 2015 semesters).

Teaching Assistant: Algorithms, Harvey Mudd College
 Held office hours and graded work (Spring 2015 semester).

Writing Center Consultant, Harvey Mudd College
 Provided feedback on student papers and presentations, ran skills workshops (Sep 2012–May 2015).

RELEVANT COURSEWORK

Graduate

- Machine learning: Advanced Introduction to Machine Learning, Artificial Intelligence, Applied Data Analysis, Intermediate Statistics, Convex Optimization
- Climate and energy: Engineering & Economics of Electric Energy Systems, Electricity Market Restructuring seminar, Low-Carbon Electric Power seminar, Climate Change Mitigation (audit)
- Policy: Theory & Practice in Policy Analysis, Quant. Methods for Policy Analysis, Microeconomics

Undergraduate (summary)

- Courses in computer science and pure mathematics for joint major in Computer Science/Math.
- Technical and social science courses for Emphasis in Environmental Analysis.
- Broad core curriculum in science, technology, and mathematics, accompanied by an extensive breadth requirement in the humanities, social sciences, and arts.

Transcripts available upon request.

OTHER ACTIVITIES

CMU Tech4Society, *Co-founder and Project Lead* (2016–2020)

Provide technical and data support to local grassroots organizations.

Engineers for a Sustainable World, *New Chapter Development Director* (2016–2019)

Developed new collegiate chapters across the United States focused on sustainability and engineering.

Harvey Mudd Sustainability Committee, *Student Representative* (2014–2015)

Worked with college administration to direct and oversee the college’s sustainability program.

ESW/MOSS Environmental Club, *Co-President* (2012–2014), *Member* (2011–2015)

Led projects including creation of \$1M Green Fund, policy outreach, and campus awareness events.

Harvey Mudd College Honor Board, *Class Representative* (2011–2015)

Presided over hearings and participated in discussions regarding the college’s honor code.

Science Bus, *Co-president* (2012–2013), *Teacher* (2011–2014)

Created, taught, and organized weekly science lessons at 18 elementary school classrooms in Pomona, CA.

ADDITIONAL INFORMATION

Spoken Languages	English (native speaker), Telugu (fluent), Spanish (basic)
Programming Languages	Python, MATLAB (proficient) C, C++, Haskell, R, SQL, Bash, Objective-C, Java (knowledgeable)
Deep Learning Frameworks	PyTorch (proficient), TensorFlow (knowledgeable)
Citizenship	USA