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# PRIYA L. DONTI

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## EDUCATION

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

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

## SELECTED HONORS AND AWARDS

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Lightning Talks Competition winner at Duke Energy Data Analytics Symposium 2020  
Best Paper Honorable Mention at International Conference on Machine Learning (ICML) 2019  
Best Poster at Power and Energy Conference at Illinois (PECI) 2019  
Highlighted Paper Award at AI for Social Good workshop (NeurIPS 2018) 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 Outstanding Undergraduate Award (Finalist) 2014  
Udall Scholarship (Honorable Mention) 2014  
Harvey Mudd President’s Scholarship 2011–2015

## PUBLICATIONS

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### Full Papers

**Enforcing Policy Feasibility Constraints through Differentiable Projection for Energy Optimization**  
Under review at *ACM e-Energy*  
Bingqing Chen,\* **Priya L. Donti**,\* Kyri Baker, J. Zico Kolter, Mario Bergés

**Is Artificial Intelligence Good or Bad for the Climate? It Depends.** (*Working paper*)  
Lynn H. Kaack, **Priya L. Donti**, Emma Strubell, George Kamiya, Felix Creutzig, David Rolnick

**Enforcing robust control guarantees within neural network policies**  
To appear at the *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**  
To appear at the *International Conference on Learning Representations (ICLR) 2021*  
**Priya L. Donti**,\* David Rolnick,\* J. Zico Kolter

**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  
🏆 *Honorable mention* at ICML 2019

**Matrix Completion for Low-Observability Voltage Estimation**  
*IEEE Transactions on Smart Grid* (2019)  
**Priya L. Donti**, Andreas J. Schmitt, Andrey Bernstein, Yingchen Zhang

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

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*Environmental Science & Technology* (2019)

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

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

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.

**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**

*ML4Eng 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* (Poster Abstract, 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* (Poster Abstract, 2014)

**Priya L. Donti**, James C. Boerkoel Jr.

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**SELECTED PROFESSIONAL SERVICE**

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

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

**Catalyst Cooperative**, *Advisory Board Member* (2020–present)

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

**Creative Destructive Lab**, *Lab Scientist* (2020–present)

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

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**CMU Computer Science Faculty Hiring Committee, *Student Representative*** (2020–present)  
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, Machine Learning for the Developing World (ML4D) workshop at NeurIPS, Women in Machine Learning (WiML) workshop, Climate Change AI workshop at ICML
- Reviewer (grants): Vinnova “AI in the Service of Climate”
- Meta Reviewer: Climate Change AI workshops at ICML and NeurIPS

## EXPERIENCE

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**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 state 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 travel fellowship.

**Productivity and Wellness Pal, *Researcher***, Claremont, CA, USA Jan 2014–Jul 2015

- Led research on providing individualized recommendations, based on machine learning and survey data, 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, *Researcher***, Claremont, CA, USA Jul–Aug 2012

- Created and tested educational games for elementary and middle school students.

## SELECTED PUBLICITY

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**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

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**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

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**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

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*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

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

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*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** ---

*An adversarially robust approach to security-constrained optimal power flow*  
 ML4Eng 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

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*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

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**Guest Lecture: Climate Change and Machine Learning**, Terra.do

Taught hands-on online course on machine learning and climate change (Jan 2021).

**Guest Lecture: Climate Change and Machine Learning**, Winchester-Thurston High School

Taught basics of machine learning and of climate change at 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

Consulted student papers and presentations, and ran writing skills workshops (Sep 2012–May 2015).

## RELEVANT COURSEWORK

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### Graduate

- Machine learning: Advanced Introduction to Machine Learning, Artificial Intelligence, Applied Data Analysis, Intermediate Statistics, Convex Optimization
- Energy and Climate: 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 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

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

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.

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**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**

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