

# Ferdinando FIORETTO

Assistant Professor

📍 307 Rice Hall, Computer Science, University of Virginia, Charlottesville, VA 22904 - U.S.A.

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**Research Interests :** Machine Learning | Differential Privacy | Algorithmic Fairness | AI for Science and Engineering

## Education and Training

Dec. 2019	<b>Georgia Institute of Technology</b> , <i>School of Industrial and System Engineering</i> , Atlanta, GA
Sep. 2018	POST-DOCTORAL RESEARCHER
Dec. 2018	<b>University of Michigan</b> , <i>Industrial and Operations Engineering</i> , Ann Arbor, MI
Sep. 2016	RESEARCH FELLOW
Aug. 2016	<b>University of Udine</b> , <i>Computer Science</i> , Udine, IT PH.D. IN COMPUTER SCIENCE (WITH MS IN 2012)
Nov. 2009	<b>University of Parma</b> , <i>Computer Science &amp; Mathematics</i> , Parma, IT BS. IN COMPUTER SCIENCE

## Research and Professional Experience

Current	<b>University of Virginia</b> , <i>Computer Science</i> , Charlottesville, VA
Jun. 2023	ASSISTANT PROFESSOR
Jun. 2023	<b>Syracuse University</b> , <i>Electrical Engineering &amp; Computer Science</i> , Syracuse, NY
Jan. 2020	ASSISTANT PROFESSOR

## Selected Honors and Awards

2024	<b>Outstanding Research Faculty Award</b> , University of Virginia. <a href="#">Link</a>
2022	<b>Caspar Bowden PET Award</b> , Privacy Enhancing Technologies (PETs). <a href="#">Link</a>
2022	<b>NSF CAREER Award</b> , National Science Foundation. <a href="#">Press</a>
2022	<b>Google Research Scholar Award</b> , Google. <a href="#">Link</a>
2022	<b>Amazon Research Award</b> , Amazon – AWS AI. <a href="#">Link</a>
2022	<b>Best Paper Award</b> , IEEE Transaction of Power System. <a href="#">Link</a>
2022	<b>Early Career Spotlight</b> , International Joint Conference on Artificial Intelligence (IJCAI). <a href="#">Link</a>
2021	<b>Early Career Researcher Award</b> , Association for Constraint Programming. <a href="#">Link</a>
2021	<b>Mario Gerla Young Investigator Award for Research in Computer Science</b> , ISSNAF. <a href="#">Press</a>
2021	<b>Best Paper Award</b> , IEEE Transaction of Power System. <a href="#">Link</a>
2018	<b>Best AI Dissertation Award</b> , AI*IA. <a href="#">Press</a>

## Selected Publications

**Summary :** > 77 Conference papers > 14 Journals articles > 2 Book chapters > 3 Editorial articles  
> 31 Workshop papers > 20+ Preprints

**Total citations :** 2718 **H-index :** 27

FULL PUBLICATION LIST AVAILABLE [here](#)

1. Vincenzo Di Vito, Mostafa Mohammadian, Kyri Baker, Ferdinando Fioretto. **Learning To Solve Differential Equation Constrained Optimization Problems**. International Conference on Learning Representations (ICLR), 2025.
2. Jacob K. Christopher, Michael Cardei, Brian R Bartoldson, Bhavya Kailkhura, Ferdinando Fioretto. **Speculative Diffusion Decoding : Accelerating Language Generation through Diffusion**. Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL), 2025.
3. Ferdinando Fioretto, Diptangshu Sen, Juba Ziani. **Differentially Private Data Release on Graphs : Inefficiencies and Unfairness**. International Conference on Artificial Intelligence and Statistics (AISTATS), 2025.
4. Joonhyuk Ko, Juba Ziani, Saswat Das, Matt Williams, Ferdinando Fioretto. **Fairness Issues and Mitigations in (Differentially Private) Socio-demographic Data Processes**. AAAI Conference on Artificial Intelligence (AAAI), 2025. **[Oral]**.
5. Khang Tran, Ferdinando Fioretto, Issa Khalil, My T. Thai, NhatHai Phan. **FairDP : Certified Fairness with Differential Privacy**. In IEEE Secure and Trustworthy Machine Learning Conference (SaTML 2025), 2025.
6. Jacob K Christopher and Ferdinando Fioretto. **Constrained Synthesis with Projected Diffusion Models**. Conference on Neural Information Processing Systems (NeurIPS), 2024.

7. Jacob K. Christopher, Michael Cardei, Brian R Bartoldson, Bhavya Kailkhura, Ferdinando Fioretto. Speculative Diffusion Decoding : Accelerating Language Generation through Diffusion. Conference on Neural Information Processing Systems (NeurIPS), 2024. [\[Oral at AI4Mat Workshop\]](#).
8. Sree Nelaturu, N. Ravichandran, Cuong Tran, Sara Hooker, and Ferdinando Fioretto. On The Fairness Impacts of Hardware Selection in Machine Learning. International Conference on Machine Learning (ICML), 2024.
9. Saswat Das, Marco Romanelli, Ferdinando Fioretto. Disparate Impact on Group Accuracy of Linearization for Private Inference. International Conference on Machine Learning (ICML), 2024.
10. My H. Dinh, James Kotary, Ferdinando Fioretto. End-to-End Learning for Fair Multiobjective Optimization Under Uncertainty. Conference of Uncertainty on Artificial Intelligence (UAI), 2024.
11. Ethan King, James Kotary, Ferdinando Fioretto, Jan Drgona. Metric Learning to Accelerate Convergence of Operator Splitting Methods for Differentiable Parametric Programming. 63rd IEEE Conference on Decision and Control (CDC), 2024.
12. Cuong Tran, Keyu Zhu, Pascal Van Hentenryck, Ferdinando Fioretto. Fairness Increases Adversarial Vulnerability. International Joint Conference on Artificial Intelligence (IJCAI), 2024.
13. James Kotary, Vincenzo Di Vito, Jacob K. Christopher, Pascal Van Hentenryck, Ferdinando Fioretto. Predict-Then-Optimize by Proxy : Learning Joint Models of Prediction and Optimization. European Conference of Artificial Intelligence (ECAI), 2024.
7. My H. Dinh, James Kotary, Ferdinando Fioretto. Learning Fair Ranking Policies via Differentiable Optimization of Ordered Weighted Averages. ACM Conference on Fairness, Accountability, and Transparency (FAccT), 2024.
8. Ferdinando Fioretto, Keyu Zhu, Pascal Van Hentenryck, Saswat Das, Christine Task. Finding  $\epsilon$  and  $\delta$  of Traditional Disclosure Control Systems. AAAI Conference on Artificial Intelligence (AAAI), 2024.
9. Cuong Tran and Ferdinando Fioretto. Data Minimization at Inference Time. Conference on Neural Information Processing Systems (NeurIPS), 2023.
10. Vladimir Dvorkin and Ferdinando Fioretto. Price-Aware Deep Learning for Electricity Markets. Tackling Climate Change with Machine Learning, at NeurIPS, 2023.
11. James Kotary, My H. Dinh, Ferdinando Fioretto. Folded Optimization for End-to-End Model-Based Learning. International Joint Conference on Artificial Intelligence (IJCAI), 2023.
12. James Kotary, Vincenzo Di Vito, Ferdinando Fioretto, Pascal Van Hentenryck. SF-PATE : Scalable, Fair, and Private Aggregation of Teacher Ensembles. International Joint Conference on Artificial Intelligence (IJCAI), 2023.
13. James Kotary, Vincenzo Di Vito, Ferdinando Fioretto. End-to-End Combinatorial Ensemble Learning. International Joint Conference on Artificial Intelligence (IJCAI), 2023.
14. Cuong Tran, Ferdinando Fioretto. On the Fairness Impacts of Private Ensembles Models. International Joint Conference on Artificial Intelligence (IJCAI), 2023.
15. Terrence W.K. Mak, Ferdinando Fioretto, Pascal Van Hentenryck. Load Encoding for Learning AC-OPF. Proceedings of the IEEE PES General Meeting (PES), 2023.
16. My H. Dinh, Ferdinando Fioretto, Mostafa Mohammadian, and Kyri Baker. An Analysis of the Reliability of AC Optimal Power Flow Deep Learning Proxies. IEEE PES Innovative Smart Grid Technologies, 2023.
17. James Kotary, Vincenzo Di Vito, Ferdinando Fioretto. End-to-End Optimization and Learning for Multiagent Ensembles. International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2023.
18. Cuong Tran, Ferdinando Fioretto, Jung-Eun Kim, Rakshit Naidu. Pruning has a disparate impact on model accuracy. Conference on Neural Information Processing Systems (NeurIPS), 2022. [\[Spotlight\]](#).
19. Keyu Zhu, Ferdinando Fioretto, Pascal Van Hentenryck. Post-processing of Differentially Private Data : A Fairness Perspective. International Joint Conference on Artificial Intelligence (IJCAI), 2022.
20. Ferdinando Fioretto, Cuong Tran, Keyu Zhu, Pascal Van Hentenryck. Differential Privacy and Fairness in Decisions and Learning Tasks : A Survey. International Joint Conference on Artificial Intelligence (IJCAI), 2022.
21. Ferdinando Fioretto. Integrating Machine Learning and Optimization to Boost Decision Making. International Joint Conference on Artificial Intelligence (IJCAI), 2022. [\[Early Career Spotlight\]](#).
22. James Kotary, Ferdinando Fioretto, Pascal Van Hentenryck, Ziwei Zhu. End-to-end Learning for Fair Ranking Systems. ACM Web Conferences (WWW), 2022.
23. James Kotary, Ferdinando Fioretto, Pascal Van Hentenryck. Fast Approximations for Job Shop Scheduling : A Lagrangian Dual Deep Learning Method. AAAI Conference on Artificial Intelligence (AAAI), 2022.
24. Lesia Mitridati, Emma Romei, Gabriela Hug, Ferdinando Fioretto. Differentially-Private Heat and Electricity Markets Coordination. International Conference on Probabilistic Methods Applied to Power Systems (PMAPS), 2022.
25. Mostafa Mohammadian, Kyri Baker, My H. Dinh, Ferdinando Fioretto. Learning Solutions for Intertemporal Power Systems Optimization with Recurrent Neural Networks. International Conference on Probabilistic Methods Applied to Power Systems (PMAPS), 2022.

26. Cuong Tran, My H. Dinh, Ferdinando Fioretto. Differentially Private Deep Learning under the Fairness Lens. Conference on Neural Information Processing Systems (NeurIPS), 2021.
27. James Kotary, Ferdinando Fioretto, Pascal Van Hentenryck. Learning Hard Optimization Problems : A Data Generation Perspective. Conference on Neural Information Processing Systems (NeurIPS), 2021.
28. Cuong Tran, Ferdinando Fioretto, Pascal Van Hentenryck, Zhiyan Yao. Decision Making with Differential Privacy under the Fairness Lens. International Joint Conference on Artificial Intelligence (IJCAI), 560–566, 2021. [2022 Caspar Bowden PET Award].
29. James Kotary, Ferdinando Fioretto, Pascal Van Hentenryck, Bryan Wilder. End-to-End Constrained Optimization Learning : A Survey. International Joint Conference on Artificial Intelligence (IJCAI), 4475–4482, 2021.
30. Keyu Zhu, Pascal Van Hentenryck, Ferdinando Fioretto. Bias and Variance of Post-processing in Differential Privacy. AAAI Conference on Artificial Intelligence (AAAI), 11177–11184, 2021.
31. Cuong Tran, Ferdinando Fioretto, Pascal Van Hentenryck. Differentially Private and Fair Deep Learning : A Lagrangian Dual Approach. AAAI Conference on Artificial Intelligence (AAAI), 9932–9939, 2021.
32. Ferdinando Fioretto, Pascal Van Hentenryck, Terrence W.K. Mak, Cuong Tran, Federico Baldo, Michele Lombardi. A Lagrangian Dual Framework for Deep Neural Networks with Constraints. European Conference on Machine Learning (ECML), 18–135, 2020.
33. Ferdinando Fioretto, Lesia Mitridati, Pascal Van Hentenryck. Differential Privacy Stackelberg Games. International Joint Conference on Artificial Intelligence (IJCAI), 3480–3486, 2020.
34. Ferdinando Fioretto, Pascal Van Hentenryck. OptStream : Releasing Time Series Privately. International Joint Conference on Artificial Intelligence (IJCAI), 5135–5139, 2020. [Invited journal paper].
35. Terrence W.K. Mak, Ferdinando Fioretto, Pascal Van Hentenryck. Privacy-Preserving Obfuscation for Distributed Power Systems. Power Systems Computation Conference (PSCC), 2020.
36. Ferdinando Fioretto, Terrence W.K. Mak, Pascal Van Hentenryck. Predicting AC Optimal Power Flows : Combining Deep Learning and Lagrangian Dual Methods. AAAI Conference on Artificial Intelligence (AAAI), pages 630–637, 2020.
37. Atena Tabakhi, William Yeoh, Ferdinando Fioretto. The Smart Appliance Scheduling Problem : A Bayesian Optimization Approach. International Conference on Principles and Practice of Multi-Agent Systems (PRIMA), 100–115, 2020.
38. Ferdinando Fioretto, Pascal Van Hentenryck. Privacy-Preserving Federated Data Sharing. International Conference on Autonomous Agents and Multiagent Systems (AAMAS), pages 638–646, 2019.
39. Ferdinando Fioretto, Terrence W.K. Mak, Pascal Van Hentenryck. Privacy-Preserving Obfuscation of Critical Infrastructure Networks. International Joint Conference on Artificial Intelligence (IJCAI), pages 1086–1092, 2019.
40. Ferdinando Fioretto, Pascal Van Hentenryck. Differential Privacy of Hierarchical Census Data : An Optimization Approach. International Conference on Principles and Practice of Constraint Programming (CP), pages 639–655, 2019. [Invited to Constraint journal].

## Selected Synergistic Activities

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➤ Editorial Board Member :	
Artificial Intelligence Journal	2024 – current
➤ Conference co-chair and Organizing Committee :	
Conference Chair : International Conference on Principles and Practice of Constraint Programming (CP)	2022
Track Chair : International Joint Conference on Artificial Intelligence (IJCAI)	2023
Tutorial Chair : International Conference on Autonomous Agents and Multiagent Systems (AAMAS)	2022
➤ Workshop co-organizer :	
Workshop on Privacy Preserving Artificial Intelligence, (at AAAI)	2020 – 2026
Workshop on Optimization and Learning in Multi-Agent Systems, at AAMAS	2018 – 2022
Algorithmic Fairness through the Lens of Causality and Privacy, (at NeurIPS)	2022 – 2025
Workshop on Machine Learning for Operational Research, (at AAAI)	2022, 2024
➤ (Senior) Area Chair :	
AAAI Conference on Artificial Intelligence (AAAI)	2020 – 2026
International Joint Conference on Artificial Intelligence (IJCAI)	2021 – 2025
International Conference on Machine Learning (ICML)	2025
ACM Conference on Fairness, Accountability, and Transparency (FAccT)	2023 – 2025
European Conference on Machine Learning (ECML)	2023 – 2024
European Conference on Artificial Intelligence (ECAI)	2023 – 2024

## Collaborations and Affiliations

Name	Organizational Affiliation	Last Active
Cormode, Graham	Meta	02/24
Steinke, Thomas	Google Research	02/24
Tao, Yuchao	Duke University	02/24
Pujol, David	Tumult Labs	02/24
Machanavajjhala, Ashwin	Duke University	02/24
Ye, Jiayuan	National University of Singapore	02/24
Shokri, Reza	National University of Singapore	02/24
Thakurta, Abhradeep	Google DeepMind	02/24
Papernot, Nicolas	University of Toronto and Vector Institute	02/24
Bonawitz, Kallista	Google	02/24
Kairouz, Peter	Google	02/24
McMahan, Brendan	Google	02/24
Ramage, Daniel	Google	02/24
M. Abowd, John	Cornell University	02/24
B Hawes, Michael	US Census	02/24
Kifer, Daniel	Penn State University	02/24
M. Suriyakumar, Vinith	Massachusetts Institute of Technology	02/24
Goldenberg, Anna,	The Hospital for Sick Children	02/24
Ghassemi, Marzyeh	Massachusetts Institute of Technology	02/24
Anderson, James	Columbia University	02/24
Zhou, Fengyu	California Institute of Technology	02/24
H. Low, Steven	California Institute of Technology	02/24
Fan, Liyue	University of North Caroline	02/24
Gaboardi, Marco	Boston University	02/24
Hay, Michael	Colgate University	02/24
Vadhan, Salil	Harvard University	02/24
Gipson, Bryant	Google	02/24
Terzis, Andreas	Google	02/24
Sushko , Yurii	Google	02/24
Desfontaines, Damien	Tumult Labs	02/24
Cherubin, Giovanni	Alan Turing Institute	02/24
Chatzikokolakis, Konstantinos	University of Athens	02/24
Palamidessi, Catuscia	Inria and Institut Polytechnique de Paris	02/24
Seeman, Jeremy	Pennsylvania State University	02/24
Cummings, Rachel	Columbia University	02/24
Baek, Stephen	University of Virginia	02/24

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Name	Organizational Affiliation	Last Active
Romanelli, Marco	New York University	02/24
Zhang, Aidong	University of Virginia	01/24
Wang, Tianhao	University of Virginia	01/24
Evans, David	University of Virginia	01/24
Behl, Madhur	University of Virginia	01/24
Li, Sheng	University of Virginia	01/24
Heng Huang	University of Maryland, College Park	01/24
Koenig, Sven	University of Southern California	01/24
Pan, Hai	New Jersey Institute of Technology	01/24
Hooker, Sara	Cohere AI	11/23
Task, Christine	Knexus Research	10/23
Dvorkin, Vladimir	University of Michigan	11/23
Van Hentenryck, Pascal	Georgia Institute of Technology	08/23
Yeoh, William	Washington University in St. Louis	01/23
My T. Thai	University of Florida	01/23
Pontelli, Enrico	New Mexico State University	01/22
Soundarajan, Sucheta	Syracuse University	01/22
Bowen, Claire	Urban Institute	01/22
Wang, Yeqing	Syracuse University	01/22
Baker, Kyri	UC Boulder	01/24
Zivan, Roie	Ben-Gurion University	01/22
Wilder, Bryan	Carnegie Mellon University	01/21
Mak, Terrence, W. K.	Georgia Institute of Technology	04/21
Tabakhi, Atena, M.	Washington University in St. Louis	12/20
Lombardi, Michele	University of Bologna	01/20
Pinson, Pierre	Technical University of Denmark	01/20
Kazempour, Jalal	Technical University of Denmark	01/20