# 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 | **Georgia Institute of Technology**, *School of Industrial and System Engineering*, Atlanta, GA |
| Sep. 2018 | Post-doctoral Researcher |
| Dec. 2018 | **University of Michigan**, *Industrial and Operations Engineering*, Ann Arbor, MI |
| Sep. 2016 | Research Fellow |
| Aug. 2016 | **University of Udine**, *Computer Science*, Udine, IT |
| | Ph.D. in Computer Science (with MS in 2012) |
| Nov. 2009 | **University of Parma**, *Computer Science & Mathematics*, Parma, IT |
| | BS. in Computer Science |

## Research and Professional Experience

| | |
|---|---|
| Current | **University of Virginia**, *Computer Science*, Charlottesville, VA |
| Jun. 2023 | Assistant Professor |
| Jun. 2023 | **Syracuse University**, *Electrical Engineering & Computer Science*, Syracuse, NY |
| Jan. 2020 | Assistant Professor |

## Selected Honors and Awards

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

## 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 Google Scholar

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 Stackebelg 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

› **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 |