Victor Kristof

Ph.D. in Machine Learning

EPFL IC INDY, Station 14
1015 Lausanne, Switzerland
☎ +41 78 835 93 03
✉ victor.kristof@epfl.ch
🖥 victorkristof.me

Profile

- Six-year research experience in **machine learning** and **data mining**
- Strong skills in **probabilistic modeling**, **data visualization**, and **software engineering**
- I develop **interpretable models** of voting, law-making, sports, peer-production, and human perception

Education

2021–?   **Postdoctoral Researcher**, *Ecole Polytechnique Fédérale de Lausanne (EPFL)*, Switzerland.
- Starting an Ignition Grant to launch a spin-off company out of my Ph.D. research

2015–2021   **Ph.D. in Computer Science**, *Ecole Polytechnique Fédérale de Lausanne (EPFL)*, Switzerland.
- Advised by Prof. Patrick Thiran and Prof. Matthias Grossglauser in the *Information and Network Dynamics Lab*
- Thesis title: *Discrete-Choice Mining of Social Processes*

2017 & 2018 (6 months)   **Visiting Ph.D. Student**, *Columbia University*, New York City, USA.
- Visited Prof. Augustin Chaintreau in the *Mobile Social Lab* during the Summer

2009–2015   **B.Sc. and M.Sc. in Communication Systems**, *EPFL*, Switzerland.
- **GPA: 5.47/6** (Ranking: 3/53)
- Thesis title: *Mining and Modeling Real-Time Communications to Enable Smarter Business Interactions*

2011–2012   **Exchange Year**, *Tecnológico de Monterrey*, Mexico.

Projects

2019–2021   **Climpact**, www.climpact.ch.
- Designed a Bayesian model to estimate people's perception of their carbon footprint from pairwise comparisons

2016–2021   **Kickoff.ai**, www.kickoff.ai.
- Designed a Bayesian model to predict the outcomes of soccer matches outperforming the betting odds
- Developed a web platform to provide predictions for the top-5 European leagues (featured in the media)

2014–2021   **Predikon**, www.predikon.ch.
- Designed a statistical model able to predict voting results with less than 1% error
- Developed a web platform for visualizing voting patterns and predicting voting results (featured in the media)

Professional Experience

2015 (6 months)   **Data Scientist Intern**, *Interact.io*, Berlin.
- Designed a classifier (96% accuracy) to discriminate human-created emails from automatically generated ones
- Integrated into a web application and deployed to production (Python, HTML/CSS, JavaScript)

2013–2014 (20 months)   **Mac OS X Developer**, *Pryv*, Lausanne.
- Developed a macOS application to enable users to upload their data to the company service (Objective-C)

2012 (6 months)   **Web Developer**, *AVNTK*, Guadalajara.
- Increased traffic by 150% by adapting their translation tool (from English to Basic English) into a web application

Skills

Data Science   Stochastic Optimization, Representation Learning, Active Learning, Bayesian Statistics, Databases

Programming   Python, Torch, TensorFlow, Objective-C, Java, Scala, JavaScript, HTML/CSS, Bash, LaTeX, SQL, Vim

Other Commitments & Interests

Association   **President**, *Swiss Youth for Climate*.
- Active board member for four years in a 250-member NGO advocating and raising awareness on climate change
- Raised CHF 100,000. Organized and presented at conferences for 100+ persons. Managed groups of 5 to 15 people.
- Participated in the UN conference on climate change (COP22 and COP24) as delegate and civil-society observer
- Increased members by 85% and supporters by 140% during two years of Presidency

Grants & Awards
- Durabilis Award 2021 for Climpact
- EPFL Ignition Grant (CHF 30,000) to start a spin-off company out of Predikon
- EPFL Tech Transfer Office Grant (CHF 15,000) to develop Kickoff.ai

Services
- Co-organizer of the "AI & Democracy" Track at Applied Machine Learning Days 2021.
- Reviewer for AAAI 2020. Member of the faculty teaching committee. Webmaster for my lab website.

Sports   I played soccer for 14 years. I ran a 32-kilometer trail and two half-marathons. Now, I bike and sail.

Languages   **French** (mother tongue), **English** (fluent), **Spanish** (fluent), and **German** (good knowledge)

Publications

I am the first or co-first author in all publications.

WWW 2021   **War of Words II: Enriched Models of Law-Making Processes**
V. Kristof, A. Suresh, M. Grossglauser, P. Thiran

KDD 2020   **Sub-Matrix Factorization for Real-Time Vote Prediction**
A. Immer, V. Kristof, M. Grossglauser, P. Thiran
Oral presentation with 5% acceptance rate

WWW 2020   **War of Words: The Competitive Dynamics of Legislative Processes**
V. Kristof, M. Grossglauser, P. Thiran

CCAI 2019   **A User Study of Perceived Carbon Footprint**
V. Kristof, V. Quelquejay, R. Zbinden, L. Maystre, M. Grossglauser, P. Thiran
Climate Change AI Workshop (NeurIPS 2019)

KDD 2019   **Pairwise Comparisons with Flexible Time-Dynamics**
L. Maystre, V. Kristof, M. Grossglauser
Oral presentation with 10% acceptance rate

KDD 2018   **Can Who-Edits-What Predict Edit Survival?**
B. Yardim, V. Kristof, L. Maystre, M. Grossglauser
Oral presentation with 10% acceptance rate

MLSA 2016   **The Player Kernel: Learning Team Strengths Based on Implicit Player Contributions**
L. Maystre, V. Kristof, A. J. González Ferrer, M. Grossglauser
Machine Learning and Data Mining for Sports Analytics Workshop (ECML-PKDD 2016)

Teaching

I was a teaching assistant for the following classes.

2017–2021   **Stochastic Models for Communication Systems** (Bachelor)

2019   **Probability and Statistics** (Bachelor)

2017–2018   **Internet Analytics** (Bachelor)

2015–2017   **Machine Learning** (Master)

Student Projects Supervision

2021   **Predicting Swiss Referenda from Voting Booklets**
Yasser Haddad (Master)

2021   **Mining European Parliament Speeches**
Mahmoud Sellami (Master)

2021   **Lawgit: An Interactive Tool to Visualize the Amendment Process in the European Union**
Max Stieber (Master)

2021   **Understanding the Dynamics of Delegations to International Climate Negotiations**
Jan Linder (Bachelor)
Manuscript in preparation

2021   **Who Makes Law? Understanding the Structure of Lobbying in Brussels**
Antoine Magron (Bachelor), co-supervised with Aswin Suresh

2020–2021   **The Carbon Footprint of a Swiss Citizen**
Alexis Barrou, Edouard Catting, and Blanche Dalimier (Master), co-supervised with Dr. Jérôme Payet

2020   **Mining Party Interventions to International Climate Negotiations**
Tatiana Cogne (Bachelor)
Manuscript in preparation

2019   **Visualizing Voting Patterns in Switzerland**
Ragnor Comerford (Bachelor)

2018–2019   **Mining and Modeling Swss Referendum Votes**
Alexander Immer (Master)
Published at KDD 2020

2019   **A User Study of Perceived Carbon Footprint**
Valentin Quelquejay-Leclère and Robin Zbinden (Bachelor), co-supervised with Lucas Maystre
Published at the *Climate Change AI Workshop* (NeurIPS 2019)

2018   **Linear Models for Legislative Edit Predictions**
Guillaume Mollard (Master)

2018   **Text Models for Legislative Edit Predictions**
Brune Bastide (Master)

2018   **Graph Embedding for Hybrid Networks**
Khuram Javed (Master), co-supervised with Sébastien Henri

2018	**How Do Fake News Go Viral?**
	Julie Djeffal (Master), co-supervised with William Trouleau
2017	**Predictive Models of Edits in Peer-Production Systems**
	Batuhan Yardim (Master), co-supervised with Lucas Maystre
	Published at KDD 2018
2017	**How Do Tweets Relate to Political Polls?**
	Antoine Mougeot (Bachelor), co-supervised with William Trouleau
2016	**Gaussian Process Classification for Predicting Football Matches**
	Antonio Gonzalez Ferrer (Master), co-supervised with Lucas Maystre
	Published at the *Machine Learning and Data Mining for Sports Analytics Workshop* (ECML-PKDD 2016)

Talks

2021	**Predikon: Make Elections Safe Again**
	Center for Digital Trust (C4DT) General Assembly
2021	**War of Words: The Competitive Dynamics of Law-Making Processes**
	Panel Presentation at the International Conference on Public Policy
2021	**Predikon: Sub-Matrix Factorization for Real-Time Vote Prediction**
	Open Government Data Workshop at the Swiss Federal Statistical Office
2021	**Round Table: The Role of Artificial Intelligence in Politics**
	Panelist at the Open Geneva Festival
2021	**War of Words: The Competitive Dynamics of Legislative Processes**
	Annual Congress of the Swiss Political Science Association (SPSA)
2021	**War of Words: The Competitive Dynamics of Legislative Processes**
	Chair of Governance and Regulation (Paris-Dauphine)
2021	**Discrete Choice Mining of Social Processes**
	ETHZ Computational Social Science Lab
2020	**Climpact: A User Study of Perceived Carbon Footprint**
	ETHZ Workshop "Data Science in Climate and Climate Impact Research"
2019	**Artificial Instincts: Will There Ever Come a Day When There's No Reason to Watch Sports?**
	Dell Technologies "AI: Hype or Reality" Podcast
2018	**Who Will Win? Predicting in a Dynamic World**
	SoftwareONE
2018	**Discrete Choice Models for Data Mining**
	Invited Lecture for EPFL's *Database Systems* Course
2018	**Une société artificiellement intelligente**
	Tribune de Genève (Opinion)
2017	**Data Science and Politics**
	Economiesuisse

Press

2021	**La victoire de la Suisse ou la défaite des Football Analytics**
	Heidi.news
2021	**Machine Learning is Becoming a Technology**
	Geneva Solutions
2021	**A Journey With Predikon**
	Center for Digital Trust (C4DT)
2020	**Predikon: Dieses Tool soll die Resultate heute exakt vorhersagen**
	Nau.ch
2018	**Millennials, peut-on leur laisser les clés?**
	Radio Télévision Suisse (RTS Infrarouge)
2018	**Un algorithme de l'EPFL prédit qui va remporter le Mondial de football**
	Radio Télévision Suisse (RTS Le 12H30)
2016	**Des algorithmes pour prédire l'avenir?**
	ARTE Futuremag
2016	**L'intelligence artificielle envahit l'Euro 2016**
	Radio Télévision Suisse (RTS La Matinale)
2016	**Artificial intelligence predicts Euro 2016 match results**
	Swissinfo
2016	**Euro 2016: AI 'Robot Oracle' predicts France and England wins**
	Metro

2014 **Ebikon, la commune qui vote plus suisse que les autres**
Le Temps

2014 **Der Traum von «Predikon»**
Tages-Anzeiger

2014 **Die politische Swissminiature**
Neue Zürcher Zeitung