

# Victor Kristof

Ph.D. Student in Computer Science

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## 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

- 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 **Visiting Ph.D. Student**, *Columbia University*, New York City, USA.  
(4 months) ○ 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](http://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](http://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](http://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)
- 2014 **Sezam**, [www.sezam.ch](http://www.sezam.ch).  
○ Developed an iOS application (Objective-C) to help users manage entrance-door codes  
○ Application downloaded by Mom, Dad, and 3000+ other people

## Professional Experience

- 2015 **Data Scientist Intern**, *Interact.io*, Berlin.  
(6 months) ○ 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 **Mac OS X Developer**, *Pryv*, Lausanne.  
(20 months) ○ Developed a macOS application to enable users to upload their data to the company service (Objective-C)
- 2012 **Web Developer**, *AVNTK*, Guadalajara.  
(6 months) ○ 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 \$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 ○ Google and Microsoft Travel Grant for the *Climate Change AI Workshop* at NeurIPS 2019  
○ EPFL Tech Transfer Office Grant (\$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)

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## 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)

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## 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)

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## Student Projects Supervision

- 2021 **Mining European Parliament Speeches**  
Mahmoud Sellami (Master)
- 2021 **Vote Prediction from Swiss Voting Booklets**  
Yasser Haddad (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 Modelling Swiss 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 Djefal (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)

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## Talks

- 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

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## Press

- 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