

# dr. Olivier JEUNEN

## Post-Doctoral Scientist at Amazon

 LinkedIn  Twitter  GitHub  Google Scholar  
 Personal Website  olivierjeunen@gmail.com  Edinburgh, United Kingdom



*I'm a Post-Doctoral Scientist at Amazon, under the "Early-Career Scientist" programme.*

*My research focuses on the intersection of machine learning, information retrieval and causal inference.*

*I particularly enjoy working on a synthesis of theory and application, driving impact with high-quality research from sound foundations.*

## PROFESSIONAL EXPERIENCE

Present	Post-Doctoral Research Scientist	AMAZON, Edinburgh, United Kingdom
December 2021	"Early-Career Scientist" Programme, researching applications of machine learning and causal inference.	
November 2021	Post-Doctoral Research Scientist	UNIVERSITY OF ANTWERP, Belgium
September 2021	Research focused on implicit-feedback recommender systems and their evaluation in the Adrem Data Lab.	
September 2021	Doctoral Research Scientist	UNIVERSITY OF ANTWERP, Belgium
October 2017	Research focused on implicit-feedback recommender systems and their evaluation in the Adrem Data Lab.	
August 2021	Research Scientist Intern	SPOTIFY, London, United Kingdom
June 2021	Research centred around the intersection of causal inference and machine learning. (Remote)	
November 2020	Research Engineer Intern	FACEBOOK, London, United Kingdom
September 2020	Research centred around uncertainty estimation for causal models in computational advertising. (Remote)	
September 2019	Research Scientist Intern	CRITEO AI LAB, Paris, France
June 2019	Research centred around applications of counterfactual inference for recommender systems.	
August 2017	Data Scientist	FROOMLE, Antwerp, Belgium
	Back-end development for a real-time recommendation architecture. (University of Antwerp spin-off)	
June 2017	Data Scientist & Research Intern	PREDICUBE, Antwerp, Belgium
July 2016	Research on distributed learning for computational advertising. (University of Antwerp spin-off)	
June 2017	Data Scientist & Research Intern	TECHNICOLOR, Antwerp, Belgium
September 2015	Internships, student jobs and MSc thesis focused on machine learning applications with IoT data.	

## EDUCATION

2017 – 2021	Ph.D. in Computer Science	University of Antwerp, Belgium
2015 – 2017	M.Sc in Computer Science (Minor: Data Science & Research)	Magna cum laude. University of Antwerp, Belgium
2012 – 2016	B.Sc. in Computer Science	Cum laude. University of Antwerp, Belgium
2006 – 2012	Latin – Mathematics (Extra mathematics)	Moretus-Ekeren, Belgium
Jan. – June 2015	Erasmus Programme (Exchange semester)	University of Edinburgh, United Kingdom

## TECHNICAL SKILLS & RESEARCH INTERESTS

Programming	C, C++, Java, Python, SQL
Frameworks	Apache Hive, Numpy, Pandas, PyTorch, Scipy, Scikit-Learn, Apache Spark, Tensorflow
Research Focus	Causal inference, information retrieval, machine learning, recommender systems

## LANGUAGES

Dutch	● ● ● ● ●
English	● ● ● ● ●
French	● ● ○ ○ ○
German	● ○ ○ ○ ○

## HONOURS, AWARDS & ACHIEVEMENTS

> AdKDD Workshop at ACM SIGKDD '22	Best Paper Award
> ACM RecSys '21	Best Student Paper Award
> ACM RecSys '21	Outstanding Reviewer Award
> The Web Conference (WWW) '21	Student Scholarship Award
> Criteo's RecoGym Challenge '20	Led 1st place team (3.000 EUR)
> ACM RecSys '19	Doctoral Symposium & SIGCHI Travel Grant (1.500 USD)
> ACM WSDM Cup '19	5 <sup>th</sup> place out of 386 teams

<b>Organising Committee</b>	Dutch-Belgian Information Retrieval Workshop (DIR '20), ACM RecSys '22 Web Chair, Joint CONSEQUENCES+REVEAL Workshop at ACM RecSys '22
<b>Program Committee</b>	ACM RecSys '21–'22 (Main and LBR Tracks), ORSUM '21 (RecSys Workshop), ACM WSDM '22–'23, ACM WebConf '22 (Web Mining and Content Analysis Track), ACM SIGKDD '22 (ADS Track)
<b>Journal Reviewer</b>	ACM Transactions on Information Systems (ToIS), ACM Transactions on Recommender Systems (ToRS), IEEE Transactions on Knowledge & Data Engineering (TKDE), Springer Data Mining and Knowledge Discovery (DAMI)
<b>Volunteer</b>	Antwerp School of AI Meetups '19, ACM RecSys '19 Student Volunteer
<b>Member</b>	ACM SIGCHI, SIGIR, SIGKDD

## TEACHING & INVITED TALKS (EXCLUDING CONFERENCE & POSTER PRESENTATIONS)

### Teaching & Tutorials

2017 - 2021	Research Thesis Supervisor and Jury Member	M.Sc. Computer Science, University of Antwerp, BE
Sept. 2019	Bandit Feedback and Likelihood Models for Recommendation	RecSys Summer School, Gothenburg, SWE
June 2019	Neural Networks and Causal Recommendation	Data Science Summer School, École Polytechnique, FR
2019 - 2020	Artificial Intelligence Project	M.Sc. Computer Science, University of Antwerp, BE
2017 - 2019	Project Data Science	M.Sc. Computer Science, University of Antwerp, BE
Apr. 2021	Recommender Systems through the Lens of Decision Theory	WWW '21, Online
July 2020	A Gentle Introduction to Recommendation as Counterfactual Policy Learning	UMAP '20, Online

### Invited Talks, Keynotes & Guest Lectures

June 2022	Pessimistic Decision-Making for Recommendation	PRS Workshop, Netflix, USA
Apr. 2022	Machine Learning Challenges in Advertising at Amazon	Guest Lecture at University of Antwerp, BE, Online
Apr. 2022	Advances in Bandit Learning for Recommendation	Booking.com, NL, Online
Feb. 2022	Embarassingly Shallow Auto-Encoders for Dynamic Collaborative Filtering	DIR '21, NL, Online
Nov. 2021	Advances in Bandit Learning for Recommendation	RMIT University, AUS, Online
Oct. 2021	The Quest for Recommendations with Online Success	ORSUM Workshop <b>Keynote</b> at RecSys '21, NL
Sept. 2021	Advances in Bandit Learning for Recommendation	University of Amsterdam, NL
Aug. 2021	Pessimistic Reward Models for Off-Policy Learning in Recommendation	Spotify, UK & USA, Online
July 2021	Realigning Offline Objectives with Online Success	Farfetch, PT, Online
Mar. 2021	Recommender Systems as (Offline) Bandit Learning	Cornell University, USA, Online
Dec. 2020	Joint Policy-Value Learning for Recommendation	DIR '20, BE, Online
Aug. 2020	Joint Policy-Value Learning for Recommendation	AISC "Machine Learning Explained" Seminars, CAN, Online
Feb. 2020	Counterfactual Policy Learning for Recommendation	SMiLe '20, DE
Dec. 2019	Counterfactual Policy Learning for Recommendation	DBDBD '19, NL
Nov. 2019	Efficient Similarity Computation for Collaborative Filtering in Dynamic Environments	DIR '19, NL
Nov. 2019	Revisiting Offline Evaluation for Implicit-Feedback Recommender Systems	University of Glasgow, UK
Sept. 2019	Counterfactual Policy Learning for Recommendation	Data Science Meetups, BE

### Podcast Interview

Dec. 2021	Episode 3: Olivier Jeunen	"Recsperts: Recommender Systems Experts" series by Marcel Kurovski.
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## OPEN-SOURCE PROJECTS (EXCLUDING IMPLEMENTATIONS OF PUBLICATIONS)

AUCTIONGYM – A REINFORCEMENT LEARNING SIMULATOR FOR ONLINE ADVERTISING	Paper  GitHub	JULY 2022
RECOGYM – A REINFORCEMENT LEARNING SIMULATOR FOR RECOMMENDER SYSTEMS	Blogpost  GitHub	JUNE 2019
WSDM CUP: SPOTIFY SEQUENTIAL SKIP PREDICTION	AICrowd  Paper  GitHub	JAN. 2019
VARIOUS KAGGLE COMPETITIONS	Kaggle	2017-2018



## PATENTS

A Method for Allocating Frequency Channels to a Plurality of Neighbouring Access Points.  
O. Jeunen, E. Zeljkovic, P. Bosch, K. Van Doorselaer, N. Godman. June 2017. eu 173057241 – 1875.  
Patent Granted by USPTO and EPO – Application Pending in Brazil and China.

### Journal Papers

1. **Scheduling on a Budget: Avoiding Stale Recommendations with Timely Updates.** Elsevier MLWA, 2022  
R. Verachtert, O. Jeunen and B. Goethals.  
*Under review for Elsevier's Machine Learning with Applications.* (Under review)
2. **Pessimistic Decision-Making for Recommender Systems.** ACM ToRS, 2022  
O. Jeunen and B. Goethals.  
*ACM Transactions on Recommender Systems (ToRS) Special Issue on Highlights of RecSys '21.* (Under revision)
3. **Embarrassingly Shallow Auto-Encoders for Dynamic Collaborative Filtering.** Springer UMUI, 2022  
O. Jeunen, J. Van Balen and B. Goethals.  
*User Modelling and User-Adapted Interaction (UMUI) Special Issue on Dynamic Recommender Systems and User Modelling (DyRSUM).*

### Conference Papers

4. **Pessimistic Reward Models for Off-Policy Learning in Recommendation.**  Best Student Paper Award  RecSys '21  
O. Jeunen and B. Goethals.
5. **Top-K Contextual Bandits with Equity of Exposure.** RecSys '21  
O. Jeunen and B. Goethals.
6. **Closed-Form Models for Collaborative Filtering with Side-Information.** RecSys '20  
O. Jeunen, J. Van Balen and B. Goethals. (Late-Breaking-Result)
7. **Joint Policy-Value Learning for Recommendation.** KDD '20  
O. Jeunen, D. Rohde, F. Vasile and M. Bompai.
8. **Efficient Similarity Computation for Collaborative Filtering in Dynamic Environments.** RecSys '19  
O. Jeunen, K. Verstreppe and B. Goethals.
9. **Revisiting Offline Evaluation for Implicit-Feedback Recommender Systems.** RecSys '19  
O. Jeunen. (Doctoral Symposium)
10. **A Machine Learning Approach for IEEE 802.11 Channel Allocation.** CNSM '18  
O. Jeunen, P. Bosch, M. Van Herwegen, K. Van Doorselaer, N. Godman and S. Latré.

### Workshop Papers, Tutorials & Demonstrations

11. **CONSEQUENCES – Causality, Counterfactuals & Sequential Decision-Making for Recommender Systems.** CONSEQUENCES '22  
O. Jeunen, T. Joachims, H. Oosterhuis, Y. Saito and F. Vasile. (RecSys Workshop Proposal)
12. **Learning to Bid with AuctionGym.**  Best Paper Award  AdKDD '22  
O. Jeunen, S. Murphy and B. Allison. (KDD Workshop)
13. **Disentangling Causal Effects from Sets of Interventions in the Presence of Unobserved Confounders.** WHY '21  
O. Jeunen, C. M. Gilligan-Lee, R. Mehrotra and M. Lalmas. (NeurIPS Workshop)
14. **Offline Metrics and Counterfactual Estimators have Failed to Deliver Reward-Optimizing Recommendation.** SimuRec '21  
I. Aouali, A. Benhalloum, M. Bompai, B. Heymann, O. Jeunen, D. Rohde, O. Sakhi and F. Vasile. (RecSys Workshop Position Paper)
15. **Recommender Systems through the Lens of Decision Theory.** WWW '21  
F. Vasile, D. Rohde, O. Jeunen, A. Benhalloum and O. Sakhi. (Tutorial)
16. **An Empirical Evaluation of Doubly Robust Learning for Recommendation.** REVEAL '20  
O. Jeunen and B. Goethals. (RecSys Workshop)
17. **A Gentle Introduction to Recommendation as Counterfactual Policy Learning.** UMAP '20  
F. Vasile, D. Rohde, O. Jeunen and A. Benhalloum. (Tutorial)
18. **Three Methods for Training on Bandit Feedback.** CausalML '19  
D. Mykhaylov, D. Rohde, F. Vasile, M. Bompai and O. Jeunen. (NeurIPS Workshop)
19. **Learning from Bandit Feedback: An Overview of the State-of-the-art.** REVEAL '19  
O. Jeunen, D. Mykhaylov, D. Rohde, F. Vasile, A. Gilotte and M. Bompai. (RecSys Workshop)

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| <p>20. <b>On the Value of Bandit Feedback for Offline Recommender System Evaluation.</b><br/> <b>O. Jeunen</b>, D. Rohde and F. Vasile.</p>                             | <p><b>REVEAL '19</b><br/> (RecSys Workshop)</p> |
| <p>21. <b>Interactive Evaluation of Recommender Systems with SNIPER - An Episode Mining Approach.</b><br/> S. Moens, <b>O. Jeunen</b> and B. Goethals.</p>              | <p><b>RecSys '19</b><br/> (Demo)</p>            |
| <p>22. <b>Predicting Sequential User Behaviour with Session-based Recurrent Neural Networks.</b><br/> <b>O. Jeunen</b> and B. Goethals.</p>                             | <p><b>WSDM Cup '19</b><br/> (WSDM Workshop)</p> |
| <p>23. <b>Fair Offline Evaluation Methodologies for Implicit-Feedback Recommender Systems with MNAR Data.</b><br/> <b>O. Jeunen</b>, K. Verstrepen and B. Goethals.</p> | <p><b>REVEAL '18</b><br/> (RecSys Workshop)</p> |

#### Graduate Theses

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| <p>1. <b>Offline Approaches to Recommendation with Online Success.</b><br/> <b>Promotor:</b> prof. dr. Bart Goethals.<br/> <b>Committee:</b> prof. drs. Toon Calders, Maarten de Rijke, Floris Geerts, Thorsten Joachims and Mounia Lalmas.</p> | <p><b>Ph.D. in Computer Science – 2021</b></p>                        |
| <p>2. <b>Data-Driven Frequency Planning in IEEE 802.11 Networks.</b><br/> <b>Promotor:</b> prof. dr. Steven Latré.</p>  | <p><b>M.Sc. in Computer Science – 2017</b><br/> (Summa cum laude)</p> |