Leto Peel

CONTACT ICTE
INFORMATION Fuller

ICTEAM, Euler Building, Avenue Lemaître 4,

B-1348 Louvain-la-Neuve, Belgium

E-mail: leto.peel@uclouvain.be

WWW: piratepeel.github.io

Twitter: @PiratePeel

RESEARCH INTERESTS Machine Learning and Data Mining in Network Data Structures community detection, social network analysis, Bayesian statistics, graphical models, blockmodels, active learning, anomaly and change-point detection.

EDUCATION

University College London, London, UK

EngD, Virtual Environments, Imaging and Visualisation, Mar 2009 – Aug 2013

• Thesis Topic: Predicting the Attributes of Nodes in Networks

Advisers: Dr Simon Julier, Prof John Shawe-Taylor
Examiners: Dr Mark Herbster, Dr Steve Gregory

University of Bristol, Bristol, UK

MEng., Knowledge Engineering,

Sep 2001 - Jul 2006

• Thesis Topic: Rule Based Uncertainty in the Semantic Web

• Adviser: Prof Trevor Martin

EXPERIENCE

Université catholique de Louvain, Louvain-la-neuve, Belgium

FNRS Chargé de recherche

Oct 2017 to Sep 2020

• Project: Methods for detecting changes in the structure of complex networks

MOVE IN Louvain Research Fellow

Aug 2016 to Sep 2017

• Project: Detecting the Large-scale Structures in Collections of Networks

Postdoctoral Research Associate

Aug 2015 to Aug 2016

- Project: Mining and Optimization of Big Data Models
- Supervisor: Dr Jean-Charles Delvenne

Université de Namur, Namur, Belgium

Visiting Researcher

Aug 2015 to present

• Supervisor: Dr Renaud Lambiotte

University of Colorado at Boulder, Boulder CO, USA

Postdoctoral Research Associate

Aug 2013 to Jul 2015

- Project: Statistical Inference for Detecting Structures and Anomalies in Networks
- Supervisor: Dr Aaron Clauset

University College London, London, UK

Postdoctoral Research Associate

Apr 2012 to Apr 2013

Project: Crime, Policing and CitizenshipSupervisor: Prof John Shawe-Taylor

BAE Systems Advanced Technology Centre, Bristol, UK

Senior Research Scientist Jan 2011 to Dec 2011 Jun 2008 to Dec 2010 Higher Research Scientist

Research Scientist Jul 2006 to May 2008

AWARDS

- Publons Peer Review Awards Top 1% in Field, 2018
- Best speaker award at the 5th Mediterranean School on Complex Networks, 2018
- 15th recipient of the prestigious Zachary Karate Club Club prize, 2018
- One of the 20 Best Reviewers at the 12th International AAAI Conference on Web and Social Media (ICWSM), 2018
- Best Oral Presentation Award at the 6th International Conference on Complex Networks and Their Applications, 2017
- 3rd in Best Student Paper Award at the 14th International Conference on Information Fusion (Prize USD 1000), 2011
- Received Honourable Mention in the category of Best Student Paper Award at the 13th International Conference on Information Fusion, 2010
- Winner of the IEEE Prognostics and Health Management Data Challenge, 2008 (IEEE GOLD Category) (Prize USD 2500)
- BAE SYSTEMS Bronze Chairman's Award for Innovation for Intelligent Fault Diagnosis Technologies, 2008
- L.N. Fryer Physics Prize, 2001

GOOGLE SCHOLAR http://scholar.google.com/citations?user=GR-yASwAAAAJ&hl=en

Papers under REVIEW

"Community detection in networks with unobserved edges"

T. Hoffman, L. Peel, R. Lambiotte, N. Jones

Submitted 2018 (arXiv:1808.06079)

"Individual perception dynamics in drunk games"

A. Antonioni, L. A. Martinez-Vaguero, C. Mathis, L. Peel, M. Stella

Submitted 2018 (arXiv:1807.08635)

REFEREED **PUBLICATIONS**

"The architecture of an empirical genotype-phenotype map"

J. Aguilar-Rodríguez, L. Peel, M. Stella, A. Wagner, J. Payne

Evolution, 2018 72 (6): 1242-1260

"Multiscale mixing patterns in networks"

L. Peel, J-C. Delvenne, R. Lambiotte

Proc. Natl. Acad. Sci. USA, 2018 115 (16): 4057-4062 (arXiv:1708.01236)

"The ground truth about metadata and community detection in networks"

L. Peel, D. Larremore, A. Clauset

Science Advances, 2017 3: e1602548 (arXiv:1608.05878)

"Graph-based semi-supervised learning for relational networks"

L. Peel

SIAM Int. Conf. on Data Mining (SDM), Apr 27–29, 2017 (arXiv:1612.05001) acceptance rate 26%

"Detectability thresholds and optimal algorithms for community structure in dynamic networks"

A. Ghasemianlangroodi, P. Zhang, A. Clauset, C. Moore, L. Peel

Physical Review X, 2016 6 (3): 031005 (arXiv:1506.06179) "Predicting sports scoring dynamics with restoration and anti-persistence"

L. Peel. A. Clauset

IEEE Int. Conf. on Data Mining (ICDM), Nov 14–17, 2015 (arXiv:1504.05872) acceptance rate 18.2% (regular paper 8.4%)

"Detecting change points in the large-scale structure of evolving networks"

L. Peel. A. Clauset

AAAI Conf. on Artificial Intelligence (AAAI), Jul 25–30, 2015. (arXiv:1403.0989) acceptance rate 26.7%

"Active discovery of network roles for predicting the classes of network nodes"

L. Peel

Journal of Complex Networks, 2014 3 (3): 431-449. (arXiv:1312.7258)

"Maritime anomaly detection using Gaussian process active learning"

K. Kowalska, L. Peel

Int. Conf. on Information Fusion (FUSION), July 9–12, 2012.

"Estimating parameters for selecting community detection algorithms"

L. Peel

Journal of Advances in Information Fusion. 6(2):119–130. 2011.

"Topological feature based classification"

L. Peel

Int. Conf. on Information Fusion (FUSION), Jul 5–8, 2011. (arXiv:1110.4285)

"Capturing time-of-flight data with confidence"

M. Reynolds, J. Doboš, L. Peel, T. Weyrich, G.J. Brostow

IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), Jun 20–25, 2011. acceptance rate 26.4%

"Estimating parameters for selecting community detection algorithms"

L. Peel

Int. Conf. on Information Fusion (FUSION), Jul 26–29, 2010. (arXiv:1010.5377)

"Data driven prognostics using a Kalman filter ensemble of neural network models"

L. Peel

IEEE Conf. on Prognostics and Health Management (PHM), October 6-9, 2008.

OTHER PUBLICATIONS

"Dynamical Game Theory"

A. Antonioni, L. A. Martinez-Vaquero, N. Mathis, **L. Peel**, M. Stella *Proc. of the Santa Fe Institute Complex Systems Summer School (CSSS)*, 2014

"Change-point detection in temporal networks using hierarchical random graphs"

L. Peel, A. Clauset

ACM SIGKDD Works. on Outlier Detection & Description under Data Diversity (ODD² 2014), Aug 24, 2014.

"Supervised blockmodelling"

L. Peel

ECML/PKDD Works. on Collective Learning and Inference in Structured Data(CoLISD), Sep 28, 2012. (arXiv:1209.5561)

"Fast maritime anomaly detection using kd-tree Gaussian processes"

J. Will, L. Peel, C. Claxton

IMA Mathematics in Defense Conference, Oct 20, 2011.

PATENTS

L. Peel, Detecting a least one community in a network. *International Application No.: PCT/GB2011/050464*, Publication Date: 22.09.2011 International Filing Date: 09.03.2011

INVITED TALKS • University College London Financial Computing Seminar, UK, Dec 14, 2018 Dept. of Mathematical Sciences, Politecnico di Torino, IT, Nov 14, 2018 Telecommunications and microwaves seminar, KU Leuven, BE, Oct 5, 2018 • Dynamics on and of Complex Networks XI, Thessaloniki, GR, Sep 27, 2018 5th Mediterranean School of Complex Networks, Salina, IT, Sep 7, 2018 • Int. Works. on Comp. Economics and Econometrics, Rome, IT, Jun 26, 2018 Fondazione Bruno Kessler, Trento, IT. Apr 11, 2018 • Institute for Data Systems and Society, MIT, Cambridge, MA, US, Mar 12, 2018 Center for Data Science, New York Univ., New York, NY, US, Feb 28, 2018 Donnelly Centre, Univ. of Toronto, CA, Feb 26, 2018 University of Rome Tor Vergata, Rome, IT. Feb 21, 2018 Institute of Cognitive Sciences and Technologies, Rome, IT, Feb 20, 2018 9th Int. Conf. of the ERCIM WG CMStatistics, Seville, ES, Dec 10, 2016 Networks Seminar, Dept. of Bus. Admin., Univ. of Zurich, CH, Oct 25, 2016 Dept. of Computer Science, Univ. of Exeter, UK. Jul 26, 2016 Complex Systems Inst. of Paris (ISC-PIF), CNRS, FR, Jul 21, 2016 • Dept. of Computer Science, Lancaster Univ., UK, Feb 1, 2016 Inference on Networks workshop, Santa Fe Institute, NM, US, Dec 14, 2015 Al Lab, Vrije Universiteit Brussel, BE, Dec 3, 2015 Meyers Lab, Dept. of Int Bio, Univ. of Texas, Austin, TX, US, Jan 26, 2015 Dynamics Of and On Networks works., Santa Fe Institute, NM, US, Dec 18, 2014 Network Science Lab, Harvard School of Public Health, MA, US, Aug 29, 2014 • Dynamical Systems Seminar, CU Boulder, CO, US, Mar 20, 2014 Invited Talk. Santa Fe Institute. NM. US. Jan 10, 2014 • Euro. Partners Against Corruption 12th Conf., Barcelona, ES, Nov 21-23, 2012 UCL CPC Project Launch Event, Univ. College London, UK. May 18, 2012 IEEE Conf. on Prognostics and Health Mgmt., Denver, CO, US, Oct 6-9, 2008 • 10th Conf. on Complex Networks (Complenet), Tarragona, ES, CONTRIBUTED Mar 18-21, 2019 Complex Networks and their Applications, Cambridge, UK, Dec 12, 2018 **TALKS** The 2018 Conf. on Complex Systems (CCS), Thessaloniki, GR, Sep 25, 2018 The 2018 Conf. on Complex Systems (CCS), Thessaloniki, GR, Sep 24, 2018 DATAM 2018, CCS Satellite, Thessaloniki, GR, Sep 26, 2018 People, places things, NetSci Satellite, Paris, FR, Jun 12, 2018 Statistical Inference for Network Models, NetSci Satellite, Paris, FR, Jun 11, 2018 7th Belgian Network Research Meeting, Ghent, BE, Dec 6, 2017 Int. Conf. on Complex Networks and their Applications, Lyon, FR, Dec 1, 2017 The 2017 Conf. on Complex Systems (CCS), Cancun, MX, Sep 19, 2017 The 2017 Conf. on Complex Systems (CCS), Cancun, MX, Sep 19, 2017 The 2017 Conf. on Complex Systems (CCS), Cancun, MX, Sep 18, 2017 • Int. Conf. on Network Science (NetSci), Indianapolis, IN, US, Jun 21, 2017 Statistical Inference for Network Models works., NetSci2017, IN, US, Jun 20, 2017 Machine Learning in Network Science works., NetSci2017, IN, US, Jun 19, 2017 Machine Learning Conf. of the Benelux (BeneLearn), Eindhoven, NL, Jun 9, 2017 SIAM Int. Conf. on Data Mining (SDM), Houston, TX, US, Apr 28, 2017 8th Workshop on Complex Networks (CompleNet), Dubrovnik, HR. Mar 23, 2017 8th Workshop on Complex Networks (CompleNet), Dubrovnik, HR, Mar 21, 2017 The 2016 Conf. on Complex Systems (CCS), Amsterdam, NL, Sep 22, 2016 The 2016 Conf. on Complex Systems (CCS), Amsterdam, NL, Sep 22, 2016

IEEE Int. Conf. on Data Mining (ICDM), Atlantic City, NJ, US,

Outlier Detection & Description under Data Diversity, NY, US.

Complex Systems Summer School, Santa Fe Institute, NM, US,

Int. Conf. on Network Science (NetSci), Seoul, KR,

5th Belgian Network Research Meeting, Namur, BE,

Jun 1, 2016

Nov 17, 2015

Sep 30, 2015

Aug 24, 2014

Jul 3, 2014

 Int. Conf. on Network Science (NetSci), Berkeley, CA, USA, Collective Learning and Inference in Structured Data, Bristol, UK, Int. Conf. on Information Fusion (FUSION), SG, Int. Conf. on Information Fusion (FUSION), Chicago, IL, US, Int. Conf. on Information Fusion (FUSION), Edinburgh, UK, L. Peel, Graph-based semi-supervised learning for relational networternational Conference on Data Mining, April 2017 	Jun 5, 2014 Sep 28, 2012 Jul 9, 2012 Jul 6, 2011 Jul 26, 2010 orks. <i>SIAM In-</i>
 L. Peel, D. Larremore, A. Clauset, The ground truth about metadata a detection in networks. <i>Conference on Complex Networks</i>, Decembe L. Peel, D. Larremore, A. Clauset, The ground truth about metadata a detection in networks. <i>7th Workshop on Complex Networks</i>, March 2 L. Peel, A. Clauset, Detecting large-scale changes in the structure of works. <i>29th AAAI Conference on Artificial Intelligence</i>, January 26, 2 T. Cheng, K. Bowers, P. Longley, J. Shawe-Taylor, R. Davenport, S. Crime, policing and citizenship. <i>RCUK Global Uncertainties Idea Showcase Event</i>, October 1, 2012. L. Peel, Inference of abnormal behaviour in shipping vessels. <i>CPC May 18</i>, 2012. L. Peel, Topological feature based classification. <i>Machine Leas School</i>, September 4–17, 2011. 	r 2016 and community 2016 of evolving net- 2015. Moat, L. Peel , as and Beliefs Launch Event,
Workshop support grant (WWCS18), Workshop organiser, (Co-organisers: S. Selakovic, Q. Feng, J. Gard multiple sources: (Utrecht Uni. UNamur, Corpnet, CSS), 2018	7,500 EUR cia-Bernardo)
Integrated response for infectious disease surveillance: Development and application of AI models for TB control 1,133,717 EUR Technical and scientific manager , (PIs: J-C. Delvenne, M. Delmée, X. Morelle) <i>Innoviris Team Up</i> , 2017	
Methods for detecting changes in the structure of complex networks Individual fellowship FNRS Chargé de Recherche, 2017-20	230,700 EUR
DataBeers Brussels Event organiser multiple sources: (VUB, ISACA, Dataminded, UCL, Dataiku), 2016-8	1,413 EUR
Detecting large-scale structures in collections of networks Individual fellowship MOVE-IN Louvain (co-funded by Marie-Curie actions), 2016-7	112,000 EUR
Travel fellowships (total) Individual travel fellowship FNRS, 2015-7	2,155 EUR
Maritime wide area surveillance using AIS data Project manager and technical lead BAE Systems TTP, 2011	300,000 GBP
Role detection in networks Project manager and technical lead <i>BAE Systems TTP</i> , 2010	100,000 GBP
 Community Detection phys.org Jenna Marshall, May 4, 2017 (also in Science Newsline and Eurekalert) 	

CONFERENCE POSTERS

FUNDING

PRESS

Sports Scoring

Clyde Street Keith Lyons, February 21, 2017 **Clyde Street** Keith Lyons, August 5, 2017

· Crime, Policing and Citizenship

The Guardian Ami Sedghi, October 30, 2012

ACADEMIC SERVICE

Workshop Organiser

Winter Workshop on Complex Systems 2018

Co-organisers: Sanja Selakovic, Qingyi Feng, Javier Garcia-Bernardo

Utrecht, The Netherlands. February, 2018

Belgian Network Research Meeting (BeNet) 2016

Co-organisers: Sophie Béreau, Jean-Charles Delvenne, Yerali Gandica, Leo Gutierrez, Mauro Faccin, Michael Schaub Louvain-la-neuve, Belgium. December, 2016

Conference on Complex Systems 2016 workshop on Coarse-graining Complex Systems

Co-organisers: Mauro Faccin, Renaud Lambiotte, Michael Schaub Amsterdam, The Netherlands. September 21, 2016

NetSci 2015 2nd workshop on Statistical Inference for Network Models Co-organisers: Aaron Clauset, Abigail Z. Jacobs and Dan Larremore Zaragoza, Spain. June, 2015

NIPS 2014 workshop on Networks: From Graphs to Rich Data Co-organisers: Edo Airoldi, David Choi, Aaron Clauset and Johan Ugander Montreal, Quebec, Canada. December 13, 2014

NetSci 2014 workshop on Statistical Inference for Network Models Co-organisers: Aaron Clauset, Abigail Z. Jacobs and Dan Larremore Berkeley, California, USA. June 2, 2014

Technical Program Committee Member

International Workshop on Dynamics on and of Networks (DYNO)	2018
SIAM Workshop on Network Science (NS)	2018
International Conference on Complex Networks (CompleNet)	2018
International Conference on Complex Networks and their Applications	2017 – 2018
Workshop on Data Science for Human Performance in Social Network	s 2017
International Conference on Social Informatics (SocInfo)	2017 – 2018
International School and Conference on Network Science (NetSci)	2017
World Wide Web Conference (WWW)	2017 - 2019
AAAI Conference on Artificial Intelligence (AAAI)	2016 – 2019
AAAI Conference on Web and Social Media (ICWSM)	2016 – 2018
ACM International Conference on Web Search and Data Mining (WSD	OM) 2016
SDM Workshop on Mining Networks and Graphs	2015
ACM Web Science Conference (WebSci)	2014
International Conference on Information Fusion (FUSION)	2010 - 2012

Reviewer

Journals

Algorithms, Applied Network Science, BMC Bioinformatics, Chaos, Data Mining and Knowledge Discovery, Entropy, Europhysics Letters, IEEE Communications Magazine, Journal of Machine Learning Research, Journal of Statistical Mechanics, Nature Scientific Reports, Neural Computing and Applications, New Journal of Physics, Physical Review E, Physical Review X, PLOS One, Proceedings of

the IEEE, Science Advances, Social Network Analysis and Mining, Sustainability, Transactions on Knowledge Discovery from Data, Transactions on Signal Processing

Conferences

AAAI (2014, 2016-2019), CompleNet (2018), Complex Networks (2017-2018), FUSION (2010-2012), ICWSM (2014-2018), NetSci (2017), SocInfo (2017-2018), SC (2017-2018), WebSci (2014), WSDM (2016), WWW (2014-2015, 2017-2019)

Workshops

Benelux meeting on systems and control (2017), Belgian Network Research Meeting (2016), CCS Corse-graining complex systems (2016), Data Science for Human Performance in Social Networks (2017), NetSci workshop on Statistical Inference for Network Models (2014), NIPS workshop on Networks: From Graphs to Rich Data (2014), SDM Workshop on Mining Networks and Graphs (2015)

Other Service Roles

Steering committee member 2018 – 2021 Winter Workshop on Complex Systems

Publicity Chair 2018
International Conference on Complex Networks and Their Applications

Advisory panel member 2017 – 2018 W. England Academic Health Science Network Digital Engagement Platform

Elected council member 2016 – 2019 Complex Systems Society

STUDENT ADVISING

Doctoral Students

Matteo Cinelli (with A. Iovanella), Uni. of Rome Tor Vergata	2017 – 2018
Leonardo Gutierrez Gomez (with J-C. Delvenne), ICTEAM, UCLouvain	2016 - 2018
Amir Ghasemian (with A. Clauset), Comp. Sci., CU Boulder	2015 - 2016

Masters Students

Kira Kowalska (intern), BAE Systems ATC / Eng. Maths, U. of Bristol 2011

Undergraduate Students

Henri Devillez (with M. Faccin), Applied Maths, UCLouvain)	2016
Margerie Huet (with M. Faccin), Elec. Eng., UCLouvain	2016
Robert Cazaciuc (intern), BAE Systems ATC / Comp. Sci., U. of York	2011
Chris Howarth (intern), BAE Systems ATC / Maths,, U. of Bath	2009 - 2010
Robert Presley (intern), BAE Systems ATC / Maths,, U. of Bath	2008

TEACHING University Courses

 Algorithms in data science LINMA 2472 (Graduate) 	Autumn 2018
Lecturer – UCLouvain	
 Algorithms in data science LINMA 2472 (Graduate) 	Autumn 2017
Lecturer – UCLouvain	
 Integer Programming LINMA 2450 (Graduate) 	Autumn 2015
Teaching Assistant – UCLouvain	
 Algorithms CSCI 3014 (Undergraduate) 	Spring 2014
Guest Lecturer – University of Colorado	
 Networks CSCI 5352 (Graduate) 	Autumn 2014
Guest Lecturer – University of Colorado	

Autumn 2013

Networks CSCI 5352 (Graduate)
 Guest Lecturer – University of Colorado

Tutorial Seminars

- Network inference in practice.
 - Mediterranean School of Complex Networks, Salina, Italy. September, 2018
- Philosophy and practice of community detection
 Winter Workshop on Complex Systems, Petnica Science Centre, Serbia. February 2017
- Philosophy and practice of community detection
 AsCII Tutorial Seminar, UCLouvain, Belgium. March 2017

OUTREACH

DataBeers Brussels Founder and Organiser

2016 - present

with Jelena Grujic, Johan Loeckx, and Christina Makarona

Recurring public outreach and networking event (http://databeers.brussels/)

• October 2018

Speakers: Hannelore Aerts, Alexandre Bovet

• May 2018

Speakers: Robert Calderbank, Ingrid Daubechies, Pierre-Henri Golard, Katrien Beuls, Gert de Geyter

• March 2018

Speakers: Luc Steels, Aimee Coelho, Julien Hendrickx, Maarten Lambrechts

January 2018

Speakers: Gautier Krings, Ellie D'Hondt, Michael Gillon, Genevieve Quek

• November 2017

Speakers: Lisa Truyers, Leen Dieltjens, Karim Douieb, Baldwin Berges, Vsevolod Salnikov, Tias Guns

• September 2017

Speakers: Jerome Kunegis, Kris Peeters, Vassilis Syropoulos, Rosanna Kurrer

May 2017

Speakers: Winnie Poncelet, Shamma Raghib, Daniel Perez, Bavo Van den Heuvel

November 2016

Speakers: Christina Makarona, Pierre Deville, Marc Vael, Pieter Colpaert

SCHOOLS AND COURSES ATTENDED

- Mediterranean School of Complex Networks, Sicily, 2015
- Summer Teaching as Research Institute for Post-docs in Engineering (STRIPE), University of Colorado, *Boulder, Colorado, USA*, 2014
- Complex Systems Summer School, Santa Fe Institute, Santa Fe, New Mexico, USA, 2014
- Machine Learning Summer School, MLSS Series, Bordeaux, France, 2011
- Pattern Analysis and Time Series Modelling, Aston University, Aston, UK, 2008
- Simultaneous Localisation And Mapping Summer School, SLAM Summer School Series, Oxford, UK, 2006
- PRINCE 2 Foundation and Practitioner Project Management, OCG, UK, 2006

HARDWARE AND Computer Programming:

SOFTWARE SKILLS • Python, Java, C++, JavaScript, SQL, Prolog, Fril, Hadoop, Html

Numerical Analysis:

• Numpy/Scipy, MATLAB, R

Desktop Editing and Production Software:

• Vim, Scite, T_EX (L^AT_EX, BIBT_EX), Microsoft Office, OpenOffice.org, Google Docs, InkScape, D3.js, Matplotlib

Operating Systems:
• Microsoft Windows family, Linux