MathSport International

MathSport International 2019 Conference - Athens (Greece), 1-3 July 2019

MATHSPORT INTERNATIONAL 2019 CONFERENCE

---- Program ----

Crowne Plaza Hotel
Athens, 1-3 July 2019

ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

Organized by AUEB Sports Analytics Group

Conference Sponsors

MathSport International 2019 Conference - Athens (Greece), 1-3 July 2019

SUNDAY 30 JUNE 2019	
19.30-21.30	Welcome Cocktail at Crowne Plaza Athens Hotel

MONDAY 1 JULY 2019		
08:30-09:00	REGISTRATION	
09:00-09:05	OPENING REMARKS	
09:05-10:00	**Plenary Session #1 (Chair: D. Karlis)** **The Ancient Olympics: Events, Technology, Superstars, Women, Lessons for Them and for Us** By Professor Raymond Stefani, *California State University, Long Beach, USA*	
10:00-11:40	**Parallel Session 1A (Chair: S. Jenkings)** **Invited Session on Sport Psychology** **Pre-Game Speeches: Impact and Measurement** Vargas, Tiffanye **Coaching Athletes with Hidden Disabilities: Collaborative research findings and measurement** Beyer, Robbi **Assessing Mental Toughness** Madrigal, Leilani **Using assessments to facilitate mental performance consulting** Hunt, Madison and Blevins, Anastasia	**Parallel Session 1B (Chair: D. Goossens)** **Design of Tournaments** **Will Groups of 3 Ruin the World Cup?** Guyon, Julien **Fair-Fixture: Minimizing Carry-Over Effects In Football Leagues** Günneç, Dilek and Demir, Ezgi **Quantifying the Evolution of First-Class Rugby in New Zealand** Patel, Ankit; Bracewell, Paul and McIvor, Jack **Integrated Break and Carryover Minimization Problem in Round Robin Tournaments** Cavdaroglu, Burak and Atan, Tankut
11:40-12:10	COFFEE BREAK	
12:10-13:25	**Parallel Session 2A (Chair: S. Drikos)** **Player Performance and Evaluation** **Maximizing financial and on-field performances when composing teams in soccer** Hvattum, Magnus Lars and Pantuso, Giovanni **Econometric approach to assess the transfer value of professional football players** Besson, Roger; Poli, Raffaele and Ravenel, Loic **Player impact measures for scoring in ice hockey** Sans Fuentes, Carles; Carlsson, Niklas and Lambrix, Patrick	**Parallel Session 2B (Chair: D. Karlis)** **Inplay Analysis** **Move it or lose it: Exploring the relation of defensive disruptiveness and team success** Kempe, Matthias and Goes, Floris **Analysing the effect of a change of transition probabilities related to possession on scoring a goal in a football match** Hirotsu, Nobuyoshi and Komine, Ayako **Predicting possession outcomes using spatiotemporal data in Australian Rules football** Spencer, Bartholomew; Jackson, Karl and Robertson, Sam
13:30-14:30	LUNCH	

14:30-16.10	**Parallel Session 3A (Chair: N. Hirotsu)** **Ranking of Teams and Athletes** **Ranking Elite Swimmers using Extreme Value Theory** Spearing, Harry and Tawn, Jonathan **Objectively Modelling the College Football Playoff Committee's Selections** Trono, John **Ranking of Japanese University Baseball** Toriumi, Takashi **Talent detection in sport: Machine Learning methods for performance prediction** Leroy, Arthur	**Parallel Session 3B (Chair: I. Ntzoufras)** **Sports Modelling and Prediction** **Modelling the outcomes of professional snooker matches** Collingwood, James; Wright, Michael and Brooks Roger **Statistical Models of Horse Racing Outcomes Using R** Owen, Alun **Extreme value prediction: an application to sport records** Fonseca, Giovanni and Giummolè, Federica **Modelling Momentum in Football** Ötting, Marius; Langrock, Roland and Maruotti, Antonello
16:10-16:40	COFFEE BREAK	
16.40-17.40	**Plenary Session #2 (Chair: P. Scarf)** **Availability-to-train in elite sport** By Dr. Ioannis Kosmidis, Reader in Data Science, *Department of Statistics, University of Warwick*	
17.40-19.45	**Parallel Session 4A (Chair: M. Hvattum)** **New Challenges in Sports** **The explosive growth of eSports and the potential for research opportunities** Kee, Lyn; Huynh, Minh; Meyer, Denny and Marshall, Kelly **Overcoming the incentive incompatibility of tournaments with multiple group stages** Csato, Laszlo **Avoiding combinatorial clashes for the Champions Hockey League Group Stage Draw** Westphal, Stephan **Favorite longshot bias and betting margin: An insider's perspective** Maras, Kostas	**Parallel Session 4B (Chair: G. Hunter)** **Understanding the Game** **The Age Advantage in Youth Football** Lawrence, Steve; Jonker, Laura and Verbeek, Jan **Modelling netball scores** Scarf, Phil; Baker, Rose and Parma, Rishikesh **Comparison between some European football leagues through related count data variables** Cueva, Valentina; Rodríguez-Avi, José and Olmo-Jiménez, María José **Contextual information improves the accuracy of predicting the direction of serve in professional tennis** Yamamoto, Hiroyuki; Kudo, Kazutoshi; Buszard, Tim; Reid, Machar; Farrow, Damian and Kovalchik, Stephanie **Identifying Technical Functions of Footballers using Hierarchical Cluster Analysis** Unsoy, Orbay
19:45-24.00	Free evening	

TUESDAY 2 JULY 2019		
09:05-10:00	**Plenary Session #3 (Chair: R. Stefani)** **Extensions of the Elo Rating System for Margin of Victory** By Dr Stephanie Kovalchik, *Institute of Sport, Exercise and Active Living, Victoria University, Melbourne, Australia*	
10:00-11:40	**Parallel Session 5A (Chair: S. Kovalchik)** **Quantitative Methods in Tennis** **Fame and Fortune in Elite Tennis Revisited** Meyer, Denny; Huynh, Minh; Marshall, Kelly and Pollard, Geoff **Random Walks with Memory Applied to Grand Slam Tennis Matches Modeling** Kouřim, Tomáš **Serve and Return Glicko: An approximate Bayesian model for within-match win prediction** Ingram, Martin **Using a multi-camera tracking system to estimate ball spin in tennis** Cant, Olivia; Kovalchik, Stephanie; Cross, Rod and Reid, Machar	**Parallel Session 5B (Chair: A. Owen)** **Prediction in Football (Soccer)** **Score-based soccer match outcome modeling - an experimental review** Hubáček, Ondřej; Šourek, Gustav and Železný Filip **Modelling the 2018 FIFA World Cup - Could we have "Beaten the Bookies" ?** Hunter, Gordon; Jauvion, Benjamin; Rashid Ishan and Sharif-Ali, Mohamed **A Bayesian dynamical bivariate Poisson state space model for predicting football scores and results** Ridall, Peter **Using the Poisson-Log-Normal Regression Model with Varying Dispersion to analyze soccer data** Tzougas, George and Karlis, Dimitris
11:40-12:10	COFFEE BREAK	
12:10-13:25	**Parallel Session 6A (Chair: G. Fonseca)** **Betting** **Sports betting strategies: an experimental review** Uhrín, Matej; Šourek, Gustav; Hubáček, Ondřej and Železný, Filip **A Modern Love Story: Machine Learning and the Global Sports Betting Industry** Danzig, Lloyd **Establishing a performance edge in P2P betting** Donovan, Carl; Caneco, Bruno and Bleak, Colin	**Parallel Session 6B (Chair: I. Kosmidis)** **Understanding the game using inplay analysis** **Flexible multivariate point processes with applications to modelling football matches** Narayanan, Santhosh; Kosmidis, Ioannis and Dellaportas, Petros **The influence of match phase and field position on collective team behaviour in Australian Rules football** Alexander, Jeremy; Spencer, Bartholomew; Sweeting, Alice; Mara, Jocelyn amd Robertson, Sam **Structuring Patterns in Team Movement and Performance from Vector Field Analysis and Fractal Dynamics** Zafar, Abdullah and Yousefian, Farzad

13:30-14:30	LUNCH	
14:30-16.10	**Parallel Session 7A (Chair: V. Manasis)** **Models and Methods for Volleyball** **Modelling volleyball data using a Bayesian approach** Egidi, Leonardo and Ntzoufras, Ioannis **A quantitative method for evaluating the skills of national volleyball teams** Konaka, Eiji **Bayesian Modelling of Volleyball Sets** Palaskas, Vasileios; Ntzoufras, Ioannis and Drikos, Sotiris **Complex-1 in Male Volleyball as a Markov Chain** Drikos, Sotiris	**Parallel Session 7B (Chair: F. Spieksma)** **Scheduling of Sport Events** **Lessons Learned in Scheduling the Finnish Major Ice Hockey League** Nurmi, Kimmo; Kyngäs, Jari and Kyngäs, Nico **On the flexibility of Home-Away pattern sets** Lambers, Roel; Goossens, Dries and Spieksma, Frits **Rest Differences among Teams in European Football Leagues** Atan, Tankut and Cavdaroglu, Burak **Iterated Local Search for Multi-league Scheduling Problems** Repoussis, Panagiotis and Gisler, Walter
16:10-16:40	COFFEE BREAK	
16.40-17.40	**Plenary Session #4 (Chair: S. Drikos)** **Sports Coaching: An Art and a Science** By Professor Simon Jenkins, *Department of Sport, Exercise and Health, University of Winchester*	
17.40-19.00	Free Time	Free time
19:00-24.00	Departure for Dinner at Karaiskaki Stadium	

WEDNESDAY 3 JULY 2019		
09:05-10:00	**Plenary Session #5 (Chair: I. Ntzoufras)** **Winning in Basketball with Data and Machine Learning** By Dr Konstantinos Pelechrinis, *School of Computing and Information, University of Pittsburgh*	
10:00-11:40	**Parallel Session 8A (Chair: K. Pelechrinis)** **Prediction in Basketball and Football** **Combining the Four Factors with the Generalized PageRank (GeM) model for NBA Basketball** Twersky, Georgia; Lyman, George and Pilkington, Anne **New Performance Measures for the NBA: An Indirect Evolutionary Game Theory Approach** Obrien, John and Fichman, Mark **A hybrid random forest to predict soccer matches in international tournaments** Van Eetvelde, Hans; Ley, Christophe; Groll, Andreas and Schauberger, Gunther **Alternative count regression models for modeling football outcomes** Barbiero, Alessandro	**Parallel Session 8B (Chair: P. Repousis)** **Fairness and Design Effect in Football (Soccer)** **Fair sudden death** Lambers, Roel and Spieksma Frits **Perspectives on Fairness in Sport** Potts, Chris **An evaluation of the three-point rule in football** Koevoets, Wim **Champions League or domestic league: a coach's choice** Goossens, Dries; Wang, Chang and Vandebroek, Martina
11:40-12:10	COFFEE BREAK	

12:10-13:50	**Parallel Session 9A (Chair: S. Kechagias)** **Inplay Prediction** **Predicting match outcome in professional Dutch football using tactical performance metrics computed from position tracking data** Goes, Floris; Kempe, Matthias and Lemmink, Koen **Randomness of Play Calling in College Football** Curley, Brian; Hopkirk, Gretchen; Lokhorst, Ryan and Pilkington, Annette **Survival Modelling of Goal Arrival Times in Champions League** Leriou, Ilias; Ntzoufras, Ioannis and Karlis, Dimitris **Detection of Playing Style of Football Teams and Players using Latent Dirichlet Allocation** Perdomo Meza, David	**Parallel Session 9B (Chair: P. Ridall)** **Game Strategy & Decision Making** **Finding optimal strategies for substitutions in soccer using a two-scale Markov Decision Process approach** Rambau, Jörg and Richter, Rónán **Play-by-play data analysis for team managing in basketball** Grassetti, Luca; Bellio, Ruggero; Fonseca, Giovanni and Vidoni, Paolo **Passing tactical relevance during soccer matches determined by machine learning** Merlin, Murilo; Moura, Felipe; Torres, Ricardo; Principe, Vitor and Cunha, Sergio Augusto
13:50-14:00	CLOSING REMARKS	
14:00-15:00	LUNCH	
15.00-16.30	Free time	
16.30-19.00	(Informal Walk in Panathinaic Stadium and the City Center)	