



UNIVERSITÀ
DEGLI STUDI
DI TORINO

QUANT4SPORT.COM

SPORT SCIENCE



Dipartimento di
Economia e Statistica
Cognetti de Martiis



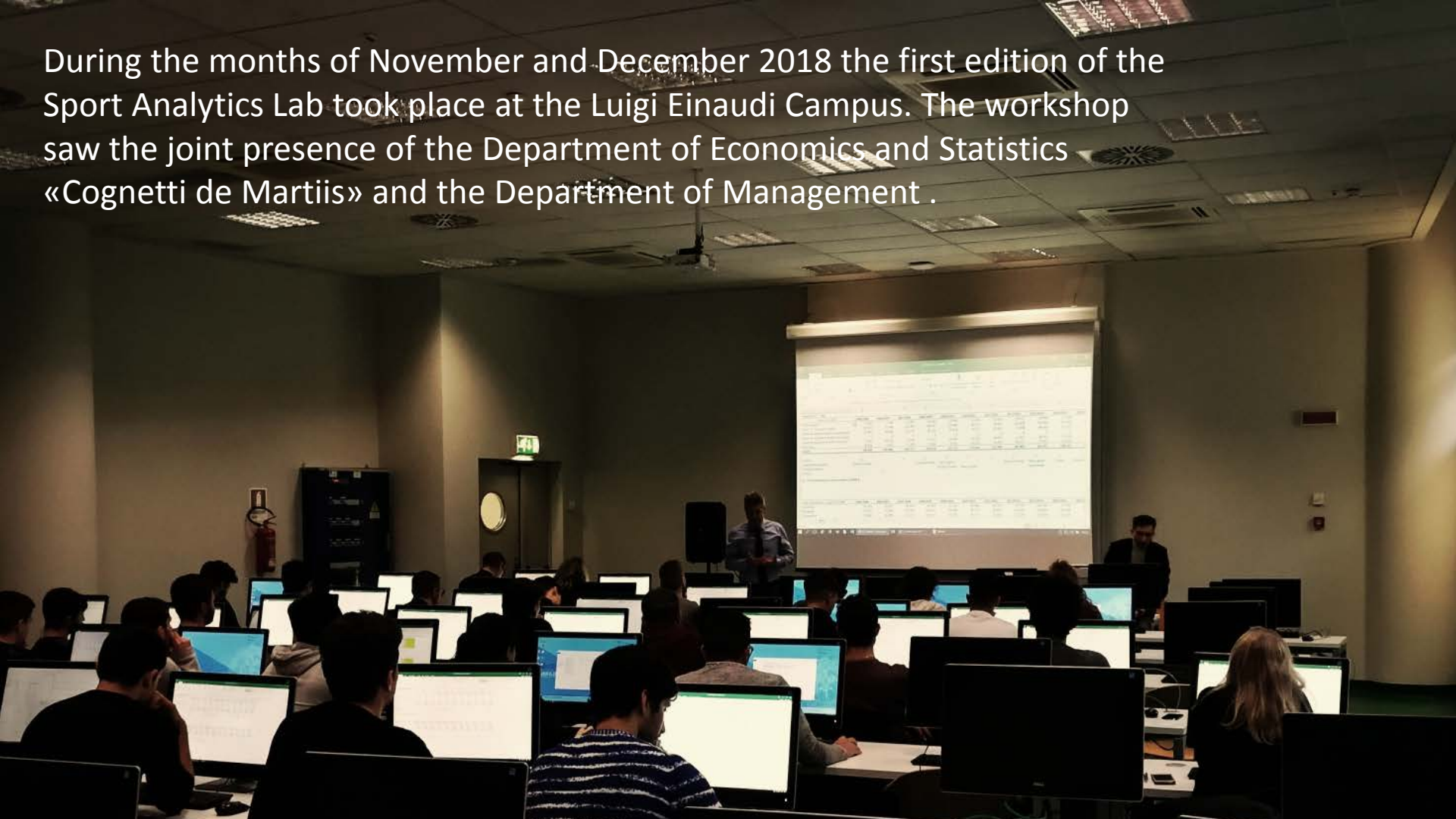
UNIVERSITÀ DEGLI STUDI DI TORINO
DM DIPARTIMENTO
DI MANAGEMENT

SAL 2018 - SPORT ANALYTICS LAB

TURIN 8th November - 13th December

Università degli Studi di Torino Campus Luigi Einaudi *by Norman Foster*

During the months of November and December 2018 the first edition of the Sport Analytics Lab took place at the Luigi Einaudi Campus. The workshop saw the joint presence of the Department of Economics and Statistics «Cognetti de Martiis» and the Department of Management .

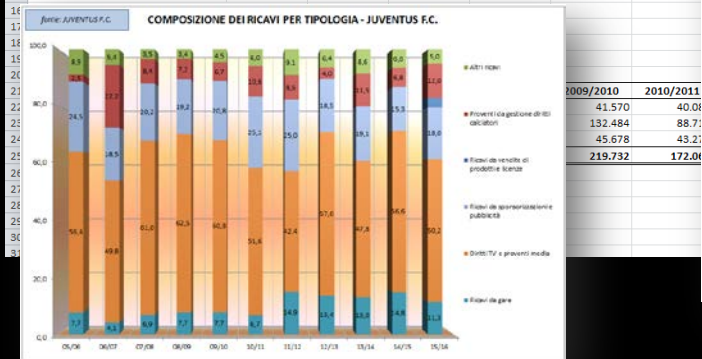


First day (Luca Malfatti)

- analysis of a historical series of revenues of Juventus F.C.
- composition in the "matchday", "broadcast" and "commercial" categories analyzed measuring the "sensitivity"
- "rebranding" strategy

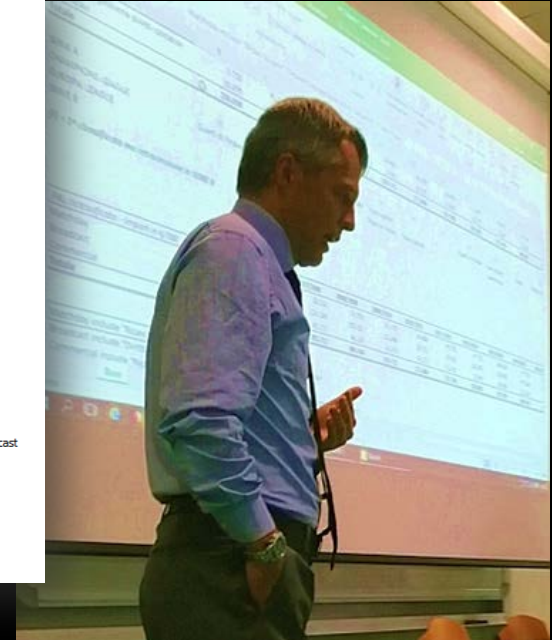
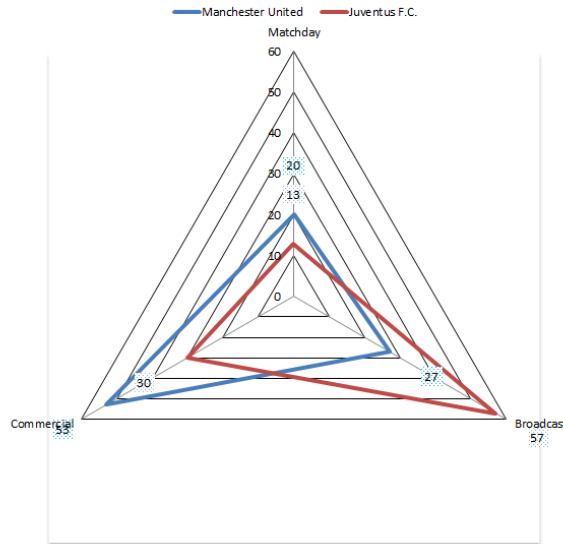
	A	B	C	D	E	F	G
1 Juventus F.C. - P&L							
2 Importi in €/000	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	
3 Ricavi da gare	17.509	7.744	13.980	18.436	16.990	11.51	
4 Diritti TV e proventi media	127.527	92.996	124.249	150.351	132.484	88.7	
5 Ricavi da sponsorizzazioni e pubblicità	55.400	34.498	41.173	46.133	45.678	43.2	
6 Ricavi da vendite di prodotti e licenze	0	0	0	0	0	0	
7 Proventi da gestione diritti calciatori	5.715	41.531	17.130	17.271	14.665	18.2	
8 Altri ricavi	19.879	9.917	7.200	8.243	9.915	10.2	
9 Totale	226.030	186.686	203.732	240.434	219.732	172.0	

11 SERIE A	(i)	-	3 ^A	2 ^A	7 ^A	7 ^A
12 CHAMPIONS LEAGUE	Quarti di finale	-	-	Ottavi di finale	Fase a gironi	-
13 EUROPA LEAGUE	-	-	-	-	Ottavi di finale	Fase a gironi
14 SERIE B	-	1 ^A	-	-	-	-



	2009/2010	2010/2011
Proventi da gestione diritti calciatori	41.570	40.08
Diritti TV e proventi media	132.484	88.7
Ricavi da vendite di prodotti e licenze	45.678	43.2
Totale	219.732	172.0

Ricavi - Distribuzione della composizione percentuale

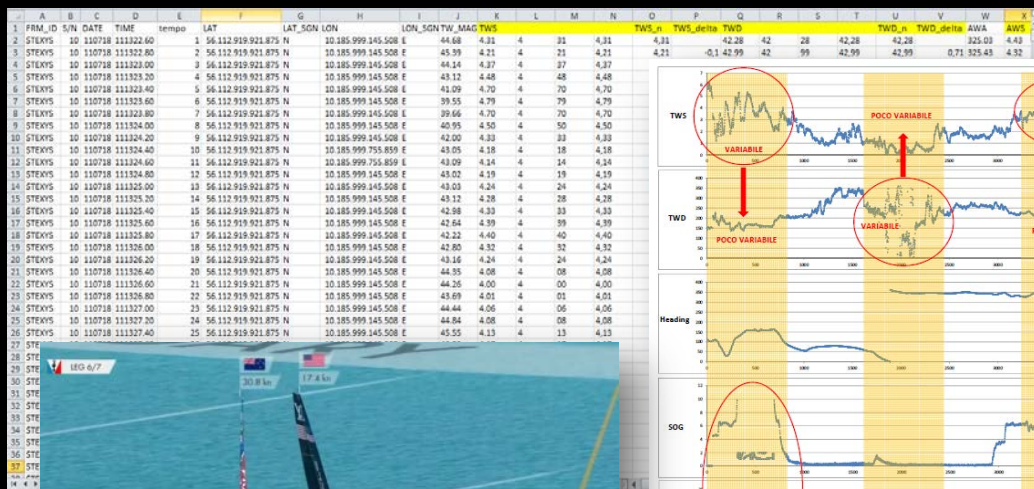


Second day (Gianluca Rosso, Elena Cristofori)

- analysis of **sailing** with contribution of TriM, friend of quant4sport
- topics: latitude and longitude, real wind, apparent wind, boat movement and speed
- analysis of a real database of 90 thousand measurements (five meas. per second)
- standardization operations of data, synchronized graphic analysis and outliers searching



Ing. Elena Cristofori (successful analyst at Rio 2016: Argentina gold medal and Austria bronze medal) with Luca Malfatti and Gianluca Rosso.



Third day (Gianluca Rosso)

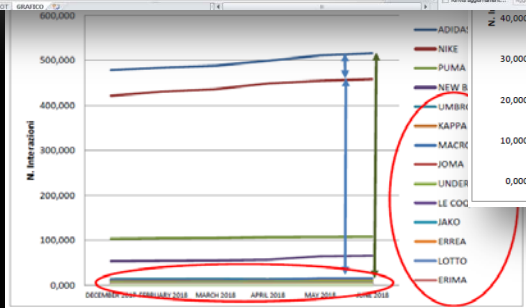
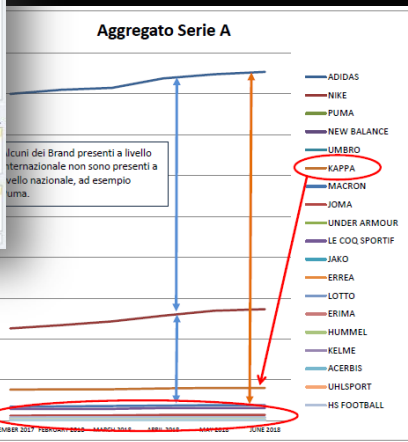
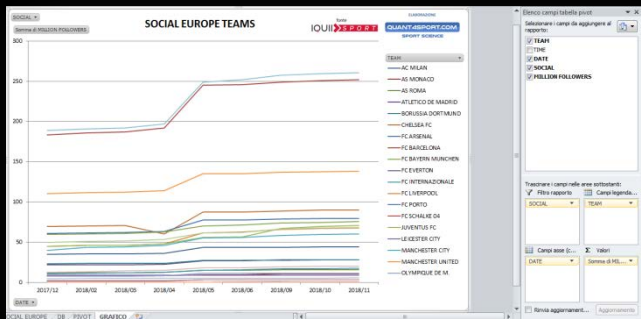
- introduction of **Formula E** with contribution of Venturi Team, friend of quant4sport
- analysis of the real FIA database of the last three seasons (teams, drivers, races, lap times and pit stops, weather conditions data)
- approach to telemetry (pivot tables and charts, regression, performance peaks)

The collage illustrates the data analysis workflow for Formula E. It features:

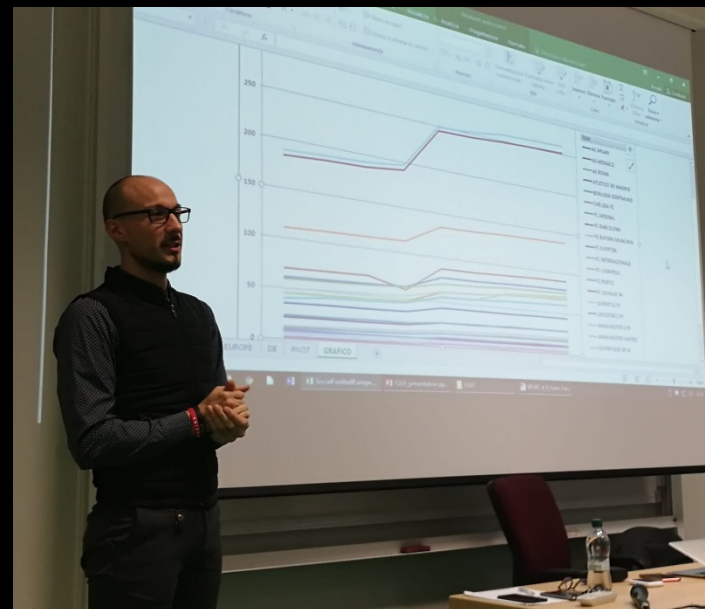
- Spreadsheet:** A table with columns for DRIVER, RACE, and lap numbers, and rows for lap times across seasons 2014-2015, 2015-2016, and 2016-2017.
- Line Charts:** Multiple charts showing lap times and performance metrics. One chart includes regression equations: $y = 0.047x + 70$ with $R^2 = 0.0736$, and $y = 0.0405x^2 - 0.4912x + 73.185$ with $R^2 = 0.7188$.
- Presentation Slide:** A slide titled "FORMULA E ANALISI DELLE STAGIONI DAL 2014 AL 2017" showing a Venturi race car.
- Photograph:** Two men in business attire standing in front of a screen displaying data.
- Race View:** A first-person perspective from the driver's seat of a race car on a track.

Fourth day (Luca Malfatti, Gianluca Rosso, Simone Cinelli)

- analysis of **social networks for football** related with fan engagement, with contribution of IQUII Sport friend of quant4sport
- relation with the performance during the season.
- analysis of commercial brands from an economic point of view (focus on Kappa)

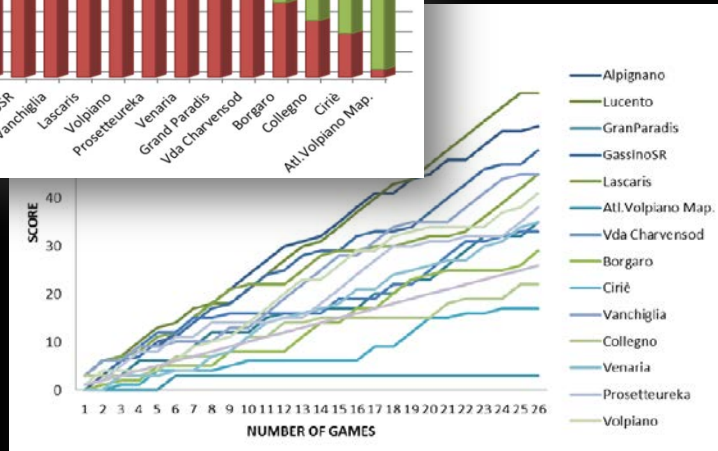
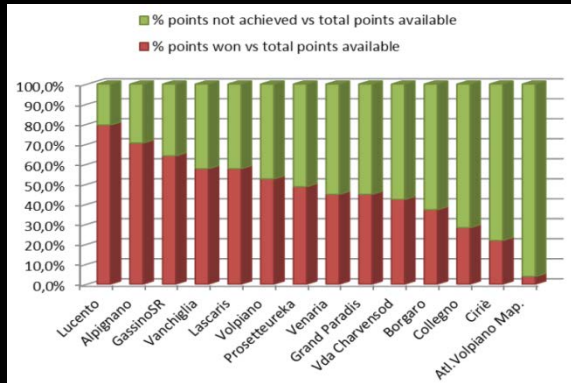


Simone Cinelli (IQUII Sport).



Fifth day (Luca Malfatti, Gian Piero Cervellera)

- analysis on **youth football** with Football Intelligence, friend of quant4sport
- presentation by Prof. Cervellera of his experience as a Machine Learning researcher, winner of the Guardiola Hackaton Contest as the best mathematical model in football (performed live in the classroom)



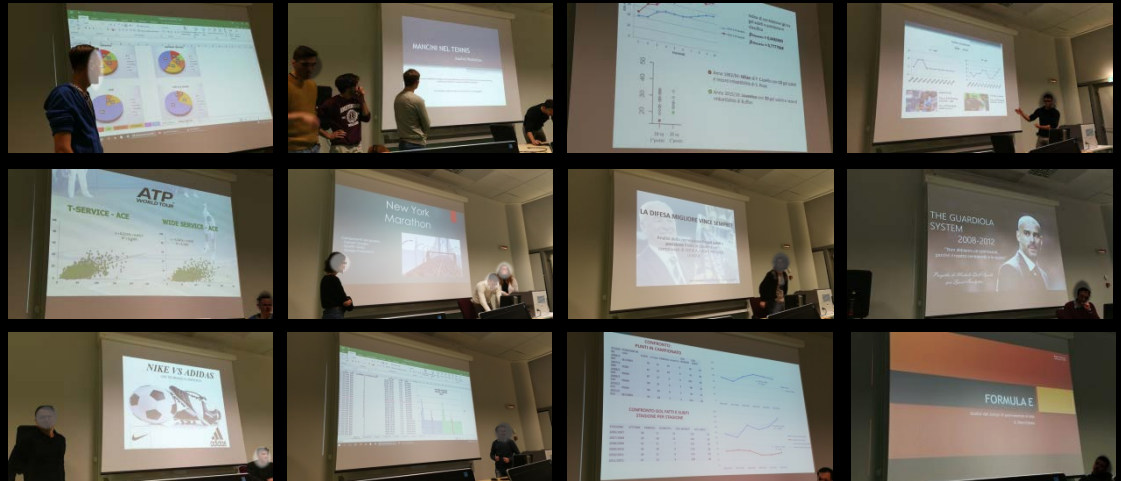
Prof. Cervellera with two friends of quant4sport after the lecture: Daniele Berrone of DeltaTre (in the center) and Adriano Bacconi (right), journalist and technical collaborator of Marcello Lippi and of the Italian National Football Team winner of the 2006 World Cup .

Sixth day, final of the Lab

- presentations of the student's analysis works (forewords by Prof. Riccardo D'Elicio)
- topics: analysis of the tennis service, the left-handed tennis players, the fans, the search for the best defense, the Guardiola system, arbitration and VAR at the World Cup, football business sustainability, analysis of timing and pit stops in Formula E, Nike vs Adidas brands, Manchester City vs Manchester United, Venturi in Formula E, the New York Marathon.



Some moments of the presentations by the students



Acknowledgments



UNIVERSITÀ
DEGLI STUDI
DI TORINO





UNIVERSITÀ
DEGLI STUDI
DI TORINO

QUANT4SPORT
RESEARCH



Dipartimento di
Economia e Statistica
Cognetti de Martiis



UNIVERSITÀ DEGLI STUDI DI TORINO
DM
DIPARTIMENTO
DI MANAGEMENT

THE SPORT ANALYTICS LAB 2019

Turino October – December

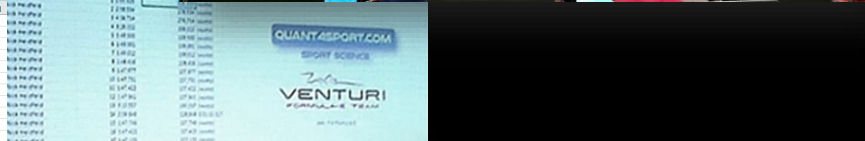
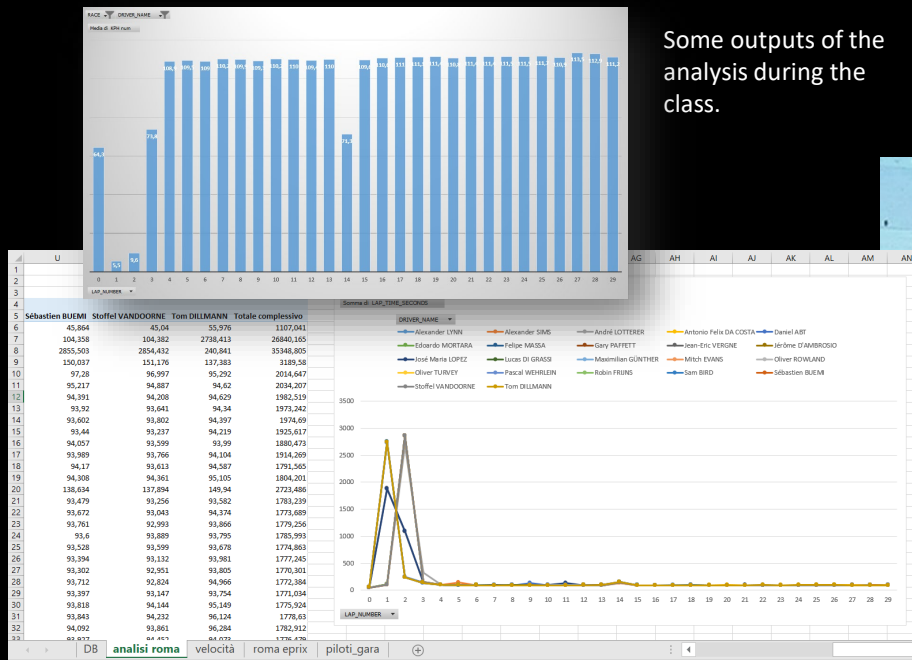
Università degli Studi di Torino – Campus Luigi Einaudi

Between the months of October and December 2019, the second edition of the Sport Analytics Lab was held at the Luigi Einaudi Campus. The laboratory was part of the training offer of the Department of Economics and Statistics "Cognetti de Martiis".

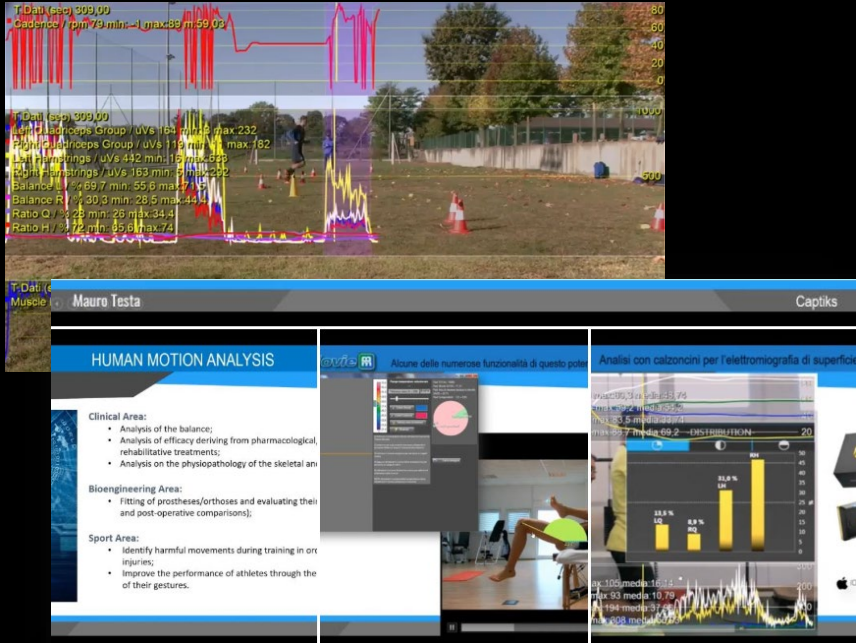


On the **first day**, Gianluca Rosso introduced **Formula E**, the championship of electric and sustainable cars which is enjoying great success and which features top-class brands such as Audi, BMW, Citroen, Jaguar, Mercedes, Porsche, Renault. The partnership of quant4sport with the Monegasque Venturi allowed the students to analyze the real FIA database of the last three seasons: data related to teams, drivers, races, lap times and pit stops, as well as weather data. After the official Venturi video, the students approached the telemetry measurement system, performed pivot tables, pivot charts, regression analysis and research and identification of positive and negative performance peaks.

Some outputs of the analysis during the class.



The **second day** was dedicated to biomechanics and Paralympic sports. We had the pleasure of having Farhan Hadafo, Paralympic athlete in Rio2016 (bronze medal) and Tokyo2020, his coach Manuele Lambiase and Mauro Testa of Biomoove with us in the classroom. The students learned the meaning of biomechanics, saw some practical applications and were able to practice using some datasets. **Above all**, it was possible to share Farhan's **sport and life** experience.

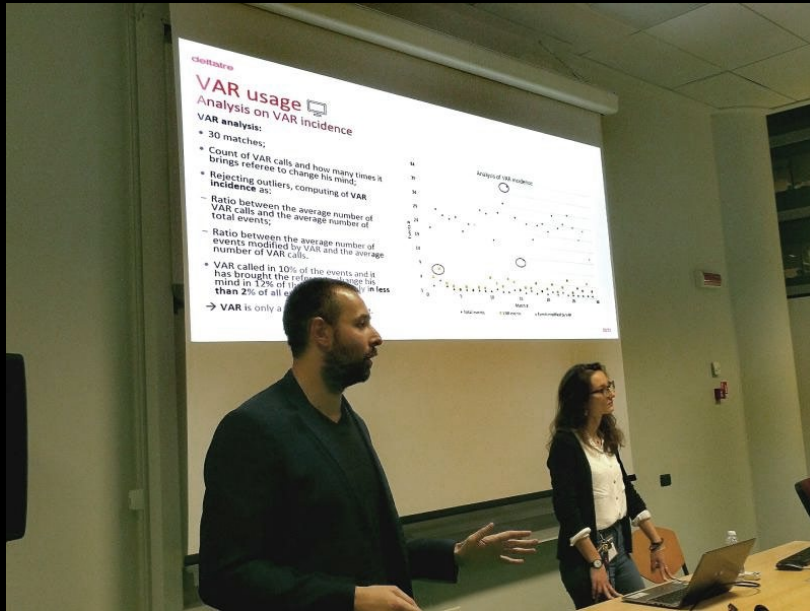


Farhan Hadafo, Manuele Lambiase and Mauro Testa at Lab.

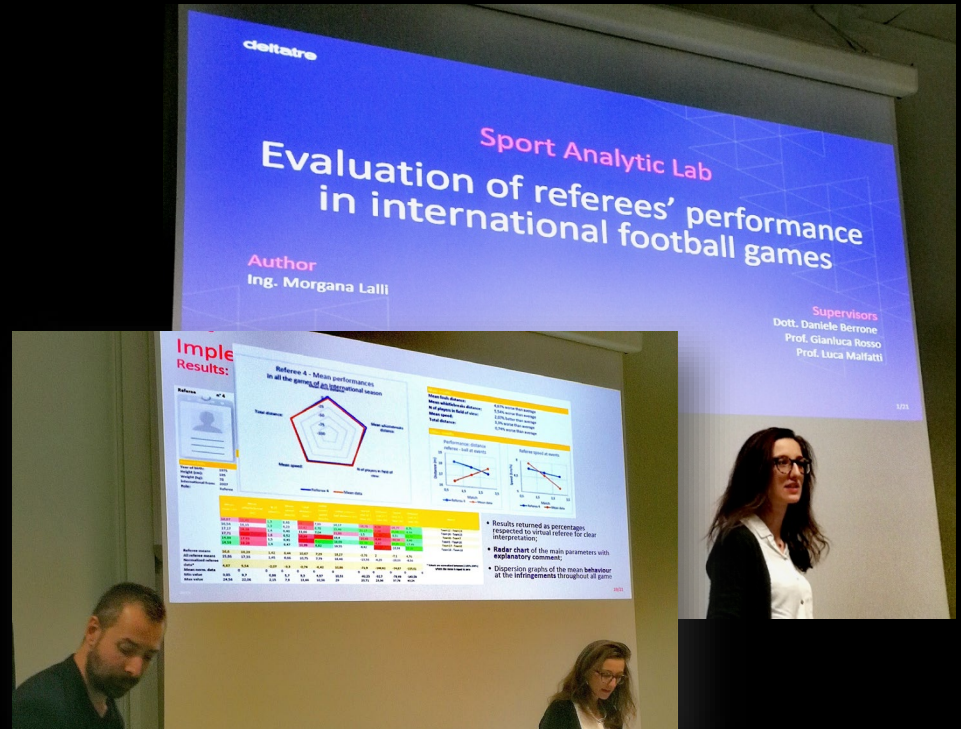


Mauro Testa's work at Biomoove (source published on LinkedIn).

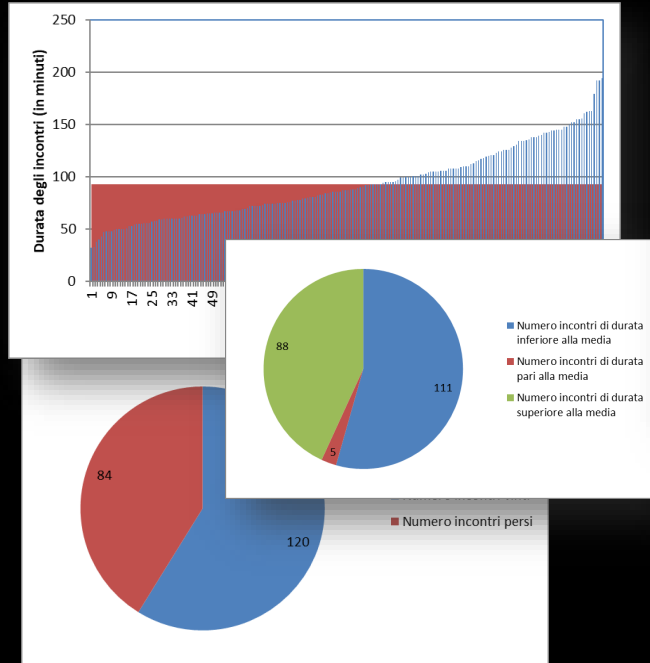
On the **third day** Daniele Berrone and Morgana Lalli of **Deltatre** illustrated the results of a mathematical and statistical model for assessing the performance of referees in international football competitions. The students had the opportunity to learn the stages of the process of elaborating a mathematical and statistical model, to analyze the difficulties associated with it and to learn the results of the model itself.



Daniele Berrone and Morgana Lalli, Deltatre.



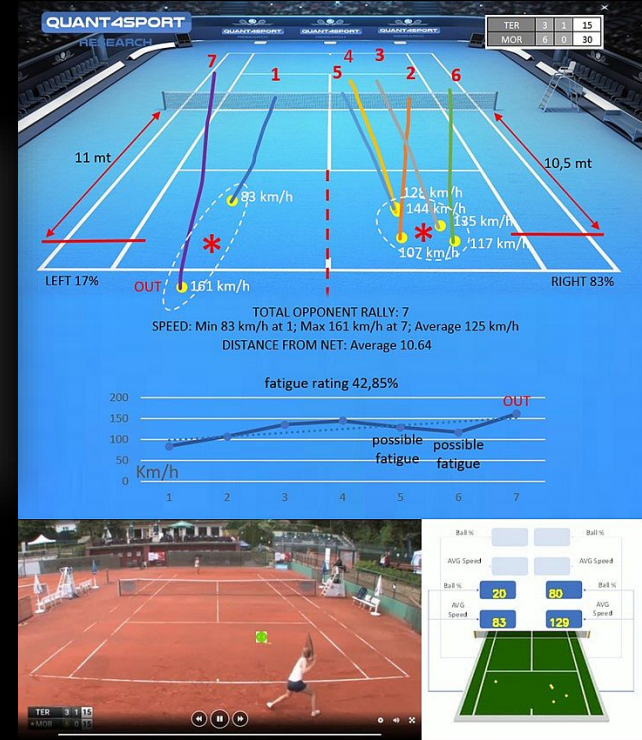
The **fourth day** was dedicated to tennis with specific reference to a project aimed at allowing a young player to acquire the score necessary to access the ATP ranking. The students were able to analyze the database relating to the qualifying quantities over 110 tennis matches, performing tables and graphs and practicing the calculation of some statistical quantities (average, median, fashion) in order to elaborate the conclusions deriving from their analysis. The optical tracking project that quant4sport is developing with the collaboration of Prof. Cervellera from the University of Siena was then presented.



Some outputs of the analysis.



Ph. Marco Allais

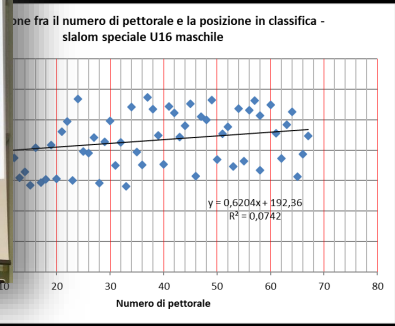
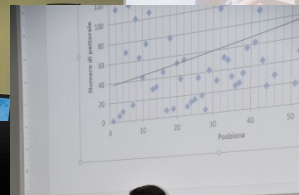


The tracking and optical analysis project.

During the **fifth day Piero Gros** was our guest in the class. We commented with him the results of the statistical analysis applied to a skiing competition. With Piero Gros we reasoned about the changes that have taken place in skiing in the last 40 years in terms of materials, downhill technique, athletic preparation, quality of the slopes and application of data analysis tools. **Marta Bassino** answered the same questions through a video. It was therefore possible for students to compare two different generations of successful athletes in the world of skiing on the same topics.



Piero Gros (in the center): winner of the general World Cup and of the giant slalom World Cup in 1974, alpine skiing gold medal at the XII Winter Olympic Games Innsbruck 1976.



Ph. Marco Allais

The **sixth day** was the final day of the Lab. Students had the opportunity to present their analysis work and expose the knowledge acquired. The presentation of the papers, all of considerable interest and high level, was preceded by the intervention of **Marco Chessa**, member of the City Council of the Municipality of Turin and President of the 1st Permanent Council Commission for Budget and Planning.

The final day was also attended by **Lorenzo Malanga** Co-Founder & Head of Data Science of Mercurius Betting Intelligence.



Marco Chessa, member of the City Council of the Municipality of Turin and Lorenzo Malanga Co-Founder & Head of Data Science of Mercurius Betting Intelligence.

Acknowledgment



UNIVERSITÀ
DEGLI STUDI
DI TORINO



deltatre





QUANT4SPORT.COM

SPORT SCIENCE

SPORTSCIENCE.SOLUTIONS

contact@quant4sport.com

