Andrea Brunello

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About me: Data Scientist

WORK EXPERIENCE

NOV 2019 – NOV 2020 – Udine, Italy
POSTDOCTORAL RESEARCHER – University of Udine

Research and development of deep learning techniques applied to virtual sensing, healthcare, and indoor positioning.

NOV 2019 – NOV 2020 – Udine
ICT CONSULTANT – Gap s.r.l.u.

Support to natural language processing and data integration/storage/presentation tasks.

JUL 2017 – DEC 2017 – Pasian di Prato (UD), Italy
ICT CONSULTANT – Associazione 'La Nostra Famiglia'

Development of a database for the management of the medical activities of the center, and of the processes necessary for their planning through operational research solutions.
Tools: Python, PostgreSQL, GNU Linear Programming Kit

SEP 2016 – DEC 2016 – Sgonico (TS), Italy
ICT CONSULTANT – u-blox Italia s.p.a.

Development of data migration processes from / to a document management system related to positioning devices.
Tools: Python, PostgreSQL, NodeJS

JUN 2016 – NOV 2016 – Udine, Italy
EMPLOYEE AT RESEARCH AND DEVELOPMENT DEPARTMENT – Gap s.r.l.u.

Development of data science solutions, specifically related to speech to text models and text mining. Specifically, a speech analytics process has been developed which, starting from audio recordings, first transcribes them by means of model developed ad-hoc according to the needs of the company; afterwards, phone calls with specific characteristics are automatically identified.
Tools: Python, R, Perl, Kaldi ASR Toolkit, Pentaho Data Integration

JUN 2015 – JUN 2016 – Udine, Italy
RESEARCH FELLOW – University of Udine

The addressed topics include business intelligence and data mining analysis in the context of Contact Centers. Specifically, the focus has been on the following aspects:

- Development of a business intelligence layer, on top of an enterprise-wide data warehouse for GAP s.r.l.,currently employed in a production setting (*PostgreSQL, Pentaho Business Analytics, Jasper Reports*)
- Detailed study and test of several techniques in the context of attribute selection, supervised and unsupervised learning. The experiences gained have been presented through a series of seminars, held at the University of Udine
- Development of a set of tools, also employing data/text mining techniques (*Python, NLTK, WEKA*), for:
- the evaluation of operator's work performance
- the detection of anomalies in company's processes
- the scheduling of outbound telephonic campaigns (propensity models)

All developed tools have then been deployed into a Decision Support System in a production setting.

APR 2015 – JUN 2015 – Udine, Italy
EMPLOYEE AT RESEARCH AND DEVELOPMENT DEPARTMENT – Gap s.r.l.u.

Development of an enterprise-wide data warehouse for the company, currently employed in a production setting, and of the related ETL processes.
Tools: Perl, Pentaho Data Integration, PostgreSQL, MySQL, Microsoft SQL Server, Oracle

EDUCATION AND TRAINING

NOV 2016 – MAR 2020

PHD, DATA SCIENCE – University of Udine

XXXII cycle of the PhD course at the University of Udine.
Dissertation title: *Temporal information in data science: An integrated framework and its applications*
Supervisors: *Prof. Angelo Montanari, Prof. Guido Sciavicco, M.Sc. Enrico Marzano*

cum laude

FEB 2019 – JUN 2019

VISITING STUDENT – University of Western Australia

Study period abroad as a visiting student at the University of Western Australia, in Perth, to carry out research on issues related to text natural language processing and text formalization.

OCT 2012 – MAR 2015

JOINT MASTER'S DEGREE IN INTERNATIONAL COMPUTER SCIENCE – University of Udine / Alpen Adria Universität

Dissertation title: *A data warehouse for a contact center with multiple channels and skills*
Supervisors: *Prof. Angelo Montanari and Prof. Johann Eder*

110/110 cum laude

OCT 2009 – OCT 2012

BACHELOR'S DEGREE IN COMPUTER SCIENCE – University of Udine

Dissertation title: *Database normalization based on hypergraph decomposition*
Supervisor: *Prof. Nicola Vitacolonna*

110/110 cum laude

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C1	C2	C1
GERMAN	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Python (Pandas Numpy Scikit-learn Seaborn Keras) | C | Java | Perl | Haskell | SQL | R | Unix Shell | PostgreSQL | MS SQL Server | MySQL | Oracle | Eclipse IDE | WEKA Data Mining Suite | Pentaho Data Integration | Pentaho Business Intelligence | Pentaho Report Designer | JasperReports | Kaldi | Microsoft office(WordExcel Powerpoint Outlook) | GLPK GNU Linear Programming Kit | Keras | PyTorch

PROJECTS

JUN 2016 – JAN 2019

Active Speech and Learning Analytics System

Funded LR 3/2015 art. 33 Regione Friuli Venezia Giulia (Rank 12).
Developer. Designed in 2015, Speech Analytics process embeddable in a Learning Analytics Cycle for Multi Service Contact Center. Cooperation with University of Udine and University of Ferrara.

JAN 2014 – JUN 2016

Active Contact System - Analytics and Decision Architecture

Funded POR FESR 2007/2013 legge 47/78 Regione Friuli Venezia Giulia (Rank 13).
Developer. Designed in 2012, Decision Support System for a multi service contact center, based on data warehouse and machine learning analytics processes. Cooperation with University of Udine, University of Ferrara and researchers of the University of Murcia.

HONOURS AND AWARDS

Best paper award

ICIST conference, Vilnius, Lithuania

Best presentation award

ACMLC 2017 conference, Singapore

Best graduate of the academic year

year 2013-2014, master degree in international computer science (LM-18)

TEACHING ACTIVITIES

2020 – 2020

Filosofia del Digitale, Master Course

University of Udine

- Business intelligence
- Data warehousing

2020 – 2020

Data Management for Big Data

University of Trieste

- Data Warehousing
- Business Intelligence
- NoSQL database systems
- Text analytics
- Time series analysis

2018 – 2019

Databases

University of Udine
Main Professors: Nicola Vitacolonna, Angelo Montanari

- SQL language
- PostgreSQL DBMS

2018 – 2018

Advanced Database Systems

University of Udine
Main Professor: Nicola Vitacolonna

- PostgreSQL system catalog
- Query planning and optimization
- Management of temporal data
- Data mining with PostgreSQL and Weka

PUBLICATIONS

Learning How to Monitor: Pairing Monitoring and Learning for Online System Verification

2020
A. Brunello, D. Della Monica, A. Montanari, A. Urgolo
Collection: Proceedings of the 2nd OVERLAY Workshop @ BOSK 2020

Temporal Information in Data Science: An Integrated Framework and its Applications

2020
A. Brunello, A. Montanari, E. Marzano, G. Sciavicco
PhD Thesis: University of Udine, 2020

Effectiveness Evaluation Without Human Relevance Judgments: A Systematic Analysis of Existing Methods and of Their Combinations

2020
K. Roitero, A. Brunello, G. Serra and S. Mizzaro
Journal: Information Processing & Management

Towards Stochastic Simulations of Relevance Profiles

2019
K. Roitero, A. Brunello, J. Urbano and S. Mizzaro
Collection: Proceedings of the 28th ACM International Conference on Information and Knowledge Management (CIKM)

Pairing Monitoring with Machine Learning for Smart System Verification and Predictive Maintenance

2019
A. Brunello, D. Della Monica, A. Montanari
*Collection: Proceedings of the 1st OVERLAY Workshop @ AI * IA*

Synthesis of LTL Formulas from Natural Language Texts: State of the Art and Research Directions

2019
A. Brunello, A. Montanari, M. Reynolds
Journal: LIPIcs, Vol. 147, TIME 2019

Assessing the Role of Temporal Information in Modelling Short-Term Air Pollution Effects Based on Traffic and Meteorological Conditions: A Case Study in Wrocław

2019
A. Brunello, J. Kamińska, E. Marzano, A. Montanari, G. Sciavicco, T. Turek
Journal: ADBIS 2019 - New Trends in Databases and Information Systems

Multiobjective Evolutionary Feature Selection and Fuzzy Classification of Contact Centre Data

2019
A. Brunello, F. Jiménez, E. Marzano, A. Montanari, G Sánchez, G. Sciavicco
Journal: Wiley - Expert Systems

J48SS: A Novel Decision Tree Approach for the Handling of Sequential and Time Series Data

2019
A. Brunello, E. Marzano, A. Montanari, G. Sciavicco
Journal: MDPI - Computers

Interval Temporal Logic Decision Tree Learning

2019
A. Brunello, G. Sciavicco, I. E. Stan
Collection: Logics in Artificial Intelligence - JELIA 2019

An Event-Based Data Warehouse to Support Decisions in Multi- Channel,Multi-Service Contact Centers

2019
A. Brunello, P. Gallo, E. Marzano, A. Montanari, N. Vitacolonna
Journal: IGI Global - Journal of Cases on Information Technology

An Original Approach to Positioning with Cellular Fingerprints Based on Decision Tree Ensembles

2019
A. Viel, A. Brunello, A. Montanari, F. Pittino
Journal: Taylor & Francis - Journal of Location Based Services

Reproduce and Improve: An Evolutionary Approach to Select a Few Good Topics for Information Retrieval Evaluation

2018
K. Roitero, M. Soprano, A. Brunello, S. Mizzaro
Journal: ACM - Journal of Data and Information Quality

Towards Semi-Automatic Human Performance Evaluation: the Case Study of a Contact Center

2018
A. Brunello, F. Jiménez, E. Marzano, J. Palma, G. Sánchez, G. Sciavicco
Journal: IOS Press - Intelligent Data Analysis

J48S: A Sequence Classification Approach to Text Analysis Based on Decision Trees

2018
A. Brunello, E. Marzano, A. Montanari, G. Sciavicco
Collection: Information and Software Technologies - ICIST 2018

A Novel Decision Tree Approach for the Handling of Time Series

2018
A. Brunello, E. Marzano, A. Montanari, G. Sciavicco
Collection: Lecture Notes in Artificial Intelligence - MIKE 2018

An Original Approach to Positioning with Cellular Fingerprints Based on Decision Tree Ensembles

2018
A. Viel, A. Brunello, A. Montanari, F. Pittino
Journal: Springer - Progress in Location Based Services 2018

Decision Tree Pruning via Multi-Objective Evolutionary Computation

2017
A. Brunello, E. Marzano, A. Montanari, G. Sciavicco
Journal: International Journal of Machine Learning and Computing