

Matteo Brucato

RESEARCH ASSISTANT, PH.D. CANDIDATE · DATA AND INFORMATION MANAGEMENT

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Summary

Graduate research assistant at the University of Massachusetts, Amherst. Pursuing a Ph.D. in Computer Science in the College of Information and Computer Sciences, Database & Information Management Lab, advised by **Prof Alexandra Meliou** and **Prof Azza Abouzied** (NYU Abu Dhabi).

Research Interests

Data management, information retrieval, and natural language processing.

Education

UMASS AMHERST

Amherst, MA, USA

PH.D. IN COMPUTER SCIENCE

2013 - 2018 (expected)

- Advisor: Alexandra Meliou
- Co-Advisor: Azza Abouzied (NYU Abu Dhabi)

UNIVERSITY OF BOLOGNA

Bologna, Italy

M.S. IN COMPUTER SCIENCE

2011 - 2013

- Summa cum laude
- Thesis Advisor: Danilo Montesi
- Thesis: *Temporal Information Retrieval*

UNIVERSITY OF BOLOGNA

Bologna, Italy

B.S. IN COMPUTER SCIENCE

2008 - 2011

- Summa cum laude
- Thesis Advisor: Danilo Montesi
- Thesis: *Mobile systems for patient-reported outcomes*

EXCHANGE PROGRAMS

ÅRHUS UNIVERSITY

Århus, Denmark

EXCHANGE PROGRAM DURING M.S., COMPUTER SCIENCE

Jan - Jun 2013

- Advisor: Christian S. Jensen

UC RIVERSIDE

Riverside, CA, USA

EXCHANGE PROGRAM DURING B.S., COMPUTER SCIENCE

Sep - Jun 2011

- Advisor: Vassilis J. Tsotras

Publications

- **M. Brucato**, J. F. Beltran, A. Abouzied, A. Meliou
Scalable Package Queries in Relational Database Systems
VLDB 2016: 42nd International Conference on Very Large Data Bases, New Delhi, India, pages 576–587, 2016
Best paper nominee, invited journal paper at “Best of VLDB 2016”
- **M. Brucato**, A. Abouzied, and A. Meliou
Improving Package Recommendations through Query Relaxation
Data4U 2014: First International Workshop on Bringing the Value of “Big Data” to Users, at *VLDB 2014: 40th International Conference on Very Large Data Bases*, Hangzhou, China, pages 13–18, 2014
- **M. Brucato**, R. Ramakrishna, A. Abouzied, A. Meliou
PackageBuilder: From Tuples to Packages
VLDB 2014: 40th International Conference on Very Large Data Bases, Hangzhou, China, pages 1593–1596, 2014
- K. Fernandes, **M. Brucato**, R. Ramakrishna, A. Abouzied, A. Meliou
PackageBuilder: Querying for packages of Tuples
SIGMOD 2014: ACM SIGMOD International Conference on the Management of Data, Snowbird, UT, USA, pages 1613–1614, 2014
- **M. Brucato**, D. Montesi
Metric Spaces for Temporal Information Retrieval
ECIR 2014: 36th European Conference on Information Retrieval, Amsterdam, the Netherlands, pages 385–397, 2014

- **M. Brucato**, L. Derczynski, H. Llorens, K. Bontcheva, C. S. Jensen
Recognising and Interpreting Named Temporal Expressions
RANLP 2013: Recent Advances in Natural Language Processing, Hissar, Bulgaria, pages 113–121, 2013

Honors & Awards

2016	Best paper nomination and invited journal paper in “Best of VLDB 2016”	<i>Amherst, MA, USA</i>
2013	M.S. with Honors , University of Bologna	<i>Bologna, Italy</i>
2013	Merit Scholarship , awarded to 0.2% of all students of the University of Bologna	<i>Bologna, Italy</i>
2012	Research Scholarship , University of Bologna	<i>Bologna, Italy</i>
2012	Merit Certificate , University of Bologna	<i>Bologna, Italy</i>
2012	Complimentary AAAI Membership , Stanford Online AI Course	<i>Stanford, CA, USA</i>
2011	B.S. with Honors , University of Bologna	<i>Bologna, Italy</i>
2011	Merit Certificate , University of Bologna	<i>Bologna, Italy</i>
2010	Merit Certificate , University of Bologna	<i>Bologna, Italy</i>
2010	Exchange Scholarship , University of Bologna	<i>Bologna, Italy</i>

Professional Experience

INDUSTRY

IBM Watson

T. J. Watson Research Center, Yorktown Heights, NY, USA

RESEARCH INTERN, WATSON HEALTH

Jun - Aug 2016

- Worked under the supervision of **Shilpa Mahatma** (manager) and **Yajuan Wang** (mentor) on “*conceptual queries*”.

CINECA

Casalecchio di Reno, Bologna, Italy

SOFTWARE ENGINEERING INTERN

Jun - Oct 2012

- Responsible for developing and managing a data warehouse and analytics system for a nationwide videoconferencing system.
- Duties included generating aggregated data and analytics, deployed through usable interfaces to let decision makers understand usage and performance of the videoconferencing system.

Maggiore Hospital

Bologna, Italy

SOFTWARE DEVELOPER (VOLUNTEER)

2011 - 2013

- Co-developed software to help the Emergency Room visit their patients using portable ultrasound technology.
- Software deployed on medical tablets to help doctors collect patient’s information on the field.
- The collected data was then used to make better informed decisions in the Emergency Room.


ACADEMIA

Database and Information Management Lab, University of Massachusetts

Amherst, MA, USA

RESEARCH ASSISTANT

Sep 2013 - present

- Working with **Prof Alexandra Meliou** and **Prof Azza Abouzied** (NYU Abu Dhabi) to create  **Package Builder**, a system that extends query engines to support the generation of *packages*, i.e., collections of tuples with global properties that are true of the entire collection.
- Technical paper at VLDB 2016; workshop paper and demo paper at VLDB 2014; undergraduate research poster at SIGMOD 2014.
- Project website: packagebuilder.cs.umass.edu.
- DB Lab website: dbgroup.cs.umass.edu.

Design Technology Lab, NYU Abu Dhabi

Abu Dhabi, UAE

VISITING PH.D. CANDIDATE

Mar - May 2016

AMPLab, UC Berkeley

Berkeley, CA, USA

VISITING PH.D. STUDENT

May - Aug 2015

- Worked on extensions to Package Builder to identify ideal packages by example, under NYU Summer internship.

Data-Intensive Systems Lab, Århus University

Århus, Denmark

VISITING M.S. STUDENT

Jan - Jun 2013

- Worked on M.S. thesis on *Temporal Information Retrieval* under the supervision of **Prof Christian S. Jensen**.
- Actively collaborated with researchers within the group.
- Published two papers in main international conferences in the fields of NLP and IR.

Database Lab, UC Riverside

Riverside, CA, USA

UNDERGRADUATE RESEARCH INTERN (VOLUNTEER)

Jan - Jun 2013

- Worked closely with a Ph.D. candidate and **Prof Vassilis J. Tsotras** on query optimization techniques for query result diversification.
- Developed a query parser for a SQL-like diversification query language.
- Devised and developed a query optimizer to select optimal diversification query plans.
- Developed client/server technology to issue and evaluate diversification queries.

Professional Service & Leadership

Lab Tzar

Amherst, MA, USA

UMASS AMHERST DATABASE LAB

2014 - 2015

- Coordinated weekly discussion seminar, including invited talks and paper readings, for the UMass Amherst Database Research group (~10 Ph.D. students and faculty), and webmaster duties.

Student Seminar Leader

Amherst, MA, USA

UMASS AMHERST DATABASE LAB

Fall 2015

- Organized and coordinated a weekly discussion seminar among Ph.D. and M.S. students in the UMass Amherst Database Research group to foster research collaborations, exchange of ideas, group discussions, and group cohesion.

Guest Editorial Board

2014 - 2015

- *Information Processing and Management*, special issue on *Time and Information Retrieval*, Elsevier, 2014/2015.

External Review Committee

2013 - 2015

- SIGMOD 2015
- VLDB 2015
- RANLP 2013

Teaching & Mentoring

Teaching Assistant

Undergraduate Database Systems (CS 345)

UMASS AMHERST

Fall 2015

- Responsible for occasional lectures, project advising, office hours, homework and project grading.

Research Mentor

Graduate student Sandhya Sankaranarayanan

UMASS AMHERST

Fall 2015

- Sandhya and I worked together on extending the package query language PaQL.

Research Mentor

Undergraduate student Kevin Fernandez (now M.D. Candidate at Albert Einstein College of Medicine)

UMASS AMHERST

Spring 2014

- Kevin and I worked together on evaluation techniques for package queries. This work was invited to present at the ACM SIGMOD 2014 Undergraduate Research Poster Competition.

Research Mentor

Graduate student Rahul Ramakrishna

UMASS AMHERST

2013 - 2014

- Rahul and I worked together on interface abstractions for package queries. Our work was demonstrated at VLDB 2014.

Talks

INDUSTRY

Conceptual Queries for Multiple Data Sources

Austin, TX, USA

IBM WATSON

Aug 2016

Package Queries: From Tuples to Packages

Berkeley, CA, USA

BERKELEY LABS

Jul 2015

ACADEMIA

Scalable Package Queries in Relational Database Systems

New Delhi, India

VLDB 2016

Sep 2016

- Slides: packagebuilder.cs.umass.edu/papers/scalable-paql-presentation-share.pdf

Package Queries: From Tuples to Packages

Berkeley, CA, USA

AMPLAB, UC BERKELEY

Jun 2015

Improving Package Recommendations through Query Relaxation

Hangzhou, China

VLDB 2014

Sep 2014

- Slides: packagebuilder.cs.umass.edu/papers/package-recomm-slides-web.pdf

Metric Spaces for Temporal Information Retrieval

Amsterdam, the Netherlands

ECIR 2014

Apr 2014

Metric Spaces for Temporal Information Retrieval

Bologna, Italy

UNIVERSITY OF BOLOGNA

Dec 2013

Metric Spaces for Temporal Information Retrieval

Århus, Denmark

ÅRHUS UNIVERSITY

Jan 2013

Main Coursework

Graduate

- Approximation Algorithms
- Advanced Algorithms
- Advanced Database Systems
- Machine Learning
- Information Retrieval
- Artificial Intelligence
- Theory of Computation

Undergraduate

- Algorithms and Data Structure
- Databases
- Operating Systems
- Software Engineering
- Functional Programming

Online Courses

- Introduction to Artificial Intelligence @ www.ai-class.com. Top 5% of the class with a score of 99.6%.
- Artificial Intelligence: Programming a Robotic Car @ www.udacity.com. Completed with Highest Distinction.

Technical Skills

Programming Python, Java, C/C++, Scheme, Pascal, Assembly

Data Science Tools Scipy, Numpy, Scikit-Learn, Matplotlib, Gnuplot, Matlab, Mathematica, \LaTeX

Database PostgreSQL, MySQL, SPARQL

Admin UNIX, Shell scripting

Web Django (Python), Node.JS, Javascript, AngularJS, JQuery, HTML5, CSS, XML, XSLT

Languages English, Italian

Societies

2014 **ACM SIG**, Member

2012 **AAAI**, Complimentary Membership

References

Available upon request.