

# Giada Carminati

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## SKILLS

### LANGUAGES

C++ • C • Shell Scripting • Python  
MATLAB (some exposure)

### TOOLS

UNIX/Linux • MySQL • SciPy Stack  
Natural Language Processing (NLTK)  
Flask • Bootstrap • jQuery  
L<sup>A</sup>T<sub>E</sub>X • ROOT

## EDUCATION

### UNIVERSITY OF BOLOGNA

PH.D. IN PHYSICS

May 2010 | Bologna, Italy

M.Sc. IN PHYSICS

(5-year degree equivalent to B.S. + M.Sc.)

Oct 2005 | Bologna, Italy

## COURSEWORK

### COURSERA

- Machine Learning

### GRADUATE

- Advanced C++ and Object-oriented  
Programming

- Computer Networks

- Advanced Numerical and Computer  
Methods for Particle Physics

### UNDERGRADUATE

- Probability and Statistics

- Numerical Methods

- Data Analysis for Physics

- Unix Tools and Scripting

- C++ and Object-oriented  
Programming

## EXPERIENCE

### INSIGHT DATA SCIENCE FELLOW

Sep 2014 | Palo Alto, CA

- Created *WhoDoesMyHair.com*, a web application to recommend the highest rated hair stylists in hair salons.
- Utilized Python and MySQL to parse, store and query the Yelp Academic Dataset.
- Built custom recommendation engine applying the Python Natural Language Processing toolkit (NLTK) and the Stanford Named Entity Recognizer (NER).
- Deployed interactive front-end with Flask, Bootstrap and jQuery, hosted on AWS.

### UNIVERSITY OF CALIFORNIA, IRVINE POSTDOCTORAL RESEARCHER

2010 – 2014 | Irvine, CA

- Designed an innovative online software trigger to detect neutrino particles coming from the core of the Sun for a physics experiment in Japan.
- Coordinated the software engineering team in Japan for installation and integration of the trigger in the online data acquisition system.
- Developed C++ algorithms to trigger and reconstruct physics events, including data cleaning and data selection using maximum likelihood methods.
- Created software in C++ and bash script to monitor online network performance of the trigger system and to detect disruptions in data acquisition.
- Designed C++ software using statistical analysis based on linear regression techniques to validate neutrino oscillation models.
- Developed graphical software in C++ and ROOT (object-oriented C++ framework for high energy physics) to visualize trigger algorithm performance.
- Co-authored 22 peer-reviewed journal articles with a total of 480 citations and presented findings at 4 international conferences.

### UNIVERSITY OF BOLOGNA AND INFN RESEARCH ASSISTANT

2005 – 2010 | Bologna, Italy

- Created, developed and maintained *MUPAGE*: a novelty Monte Carlo simulation software package in C++ to simulate particles produced in the atmosphere and arriving on an underwater neutrino telescope.
- Mass-produced and analyzed Monte Carlo events for an astrophysics experiment in France, using C++ and ROOT.
- Performed graphical and statistical analysis based on linear regression to constrain astrophysics models for particle acceleration in the universe, using C++ and ROOT.
- Co-authored 11 peer-reviewed journal articles with a total of 206 citations and presented findings at 2 international conferences.

### NIKHEF VISITING RESEARCH ASSISTANT

2008 – 2009 | Amsterdam, The Netherlands

- Designed a classification algorithm in C++ and ROOT to distinguish between different particles.