

# CHEICK TIDIANE BA

Ph.D. student in Computer Science  
at Università degli studi di Milano Statale

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## SHORT BIO

Hardworking and people-oriented Ph.D. student in Computer Science at Università degli studi di Milano Statale. Research and programming activities have led to several projects and publications, mainly in the fields of big data analysis, network analysis, bioinformatics. My experience as a teaching assistant, private tutor and volunteer developed my teaching and training skills.

## EXPERIENCE

### Ph.D. student in Computer science

Computer Science department - Università degli Studi di Milano Statale

Nov. 2020 - Now    Milan, Italy

- Research on temporal network modeling and big data mining
- Supervisor: Prof. Sabrina Gaito (CONNETS lab, ex NPTLab)

### Teaching assistant

Master degree Data Science and Economics at Department of Economics, Management, and Quantitative Methods - Università Degli Studi di Milano Statale

Sept. 2020 - Dec. 2020    Milan, Italy

- Practice lecture: graph analysis and visualization with Python, networkx, Gephi. Theoretical lessons: data retrieval, crawling systems

### Research assistant (type B)

Computer Science department - Università degli Studi di Milano Statale

May 2020 - Nov. 2020    Milan, Italy

- Supervisor: Prof. Gian Paolo Rossi (CONNETS lab, ex NPTLab)

## EDUCATION

### Master degree in Computer science - 110/110 cum laude

Computer Science department - Università degli Studi di Milano Statale

March 2020    Milan, Italy

### Bachelor's degree in Computer science for digital communication - 106/110

Computer Science department - Università Degli Studi di Milano Statale

October 2017    Milan, Italy

## SKILLS

### Best soft skills

Hard working    ●●●●●●  
Problem solving    ●●●●●●  
Teamwork    ●●●●●●  
Training & teaching    ●●●●●●

### Best hard skills

Python    ●●●●●●  
HTML/CSS/Javascript    ●●●●●●  
PHP    ●●●●●●  
SQL    ●●●●●●  
Java    ●●●●●●  
Swift    ●●●●●●  
R    ●●●●●●

### Languages

English (C2)    French (A2)    Italian (C2)

## FRAMEWORKS

### Machine learning

Keras, Tensorflow, Weka, Scikit-learn and multi-class sklearn

### Big data analysis and management

Spark and graphX, MongoDB, PostgreSQL and Oracle DBMS.

### Data analysis

Python libraries (statsmodels, scipy, pandas, sqlite3), Excel.

### Web & Mobile development

HTML/CSS/Javascript, AngularJS, PHP, nodeJS, mariaDB.  
Android Studio and Java, Xcode and Swift

### Network analysis

networkX, igraphs. Spark graphX and graph-Frames

# PROJECTS

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## Methodologies for financial group data analysis

- Design of new methodologies for customer segmentation and behavioral-centric financial group risk analysis.

*Technologies: Apache Spark, Python*

## Twitter sentiment analysis

- Classifier for sentiment in Tweets with different neural network architectures (convolutional and recurrent LSTM/GRU with attention) and frameworks (Keras, scikit-learn) working on a Kaggle dataset.

*Technologies: Python, MongoDB, LaTeX*

## Evolution of an online social network

- Supervised learning methods for link prediction a decentralized online social network. I improved prediction performance with a novel methodology, relying on text-based features (using LDA models for user similarity).

*Technologies: Python, MongoDB, Jupyter Notebook*

## Indoor positioning Library

- Design and development of indoor positioning library in Java. The library relies on data from the camera, inertial sensors, and Bluetooth beacon to locate a smartphone. The library was used in an Android application for indoor navigation.

*Technologies: Java, Android, PHP*

## Distributed system for sensor data

- A system composed of a REST server, a client for each sensor, an admin UI. Clients create mesh networks and coordinate themselves to aggregate sensor data: the result is stored on the server, for admin monitoring.

*Technologies: Java*

## The NBA on Youtube

- Analysis of the interaction network for users commenting on the NBA's Youtube account. Focus on interaction networks and sentiment analysis in comments.

*Technologies: Python*

## LEGO AR Tools

- Development of an Augmented Reality App for the visualization of instructions for Lego models. The project was realized for iOS platforms. Collab. with another student.

*Technologies: Swift, XCode, NodeJs (REST server)*

## Rumor Tracker

- Rumor detection tool for Twitter posts. The tool implemented a clustering-based method for the extraction of topics from a stream of tweets.

*Technologies: Python, MongoDB, LaTeX*

## Unipred-Web

- Design and development of a web interface for the integration and prediction of bio-molecular networks. I helped with web UI and database design and development, APIs.

*Technologies: HTML/CSS/JS, AngularJs, Cytoscapejs, NodeJs (REST server), Git, LaTeX, MariaDB*

# PUBLICATIONS

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## Journal Articles

- Perlasca, Paolo, Marco Frasca, Cheick Tidiane Ba, Jessica Gliozzo, et al. (2020). "Multi-resolution visualization and analysis of biomolecular networks through hierarchical community detection and web-based graphical tools". In: *PloS one* 15.12, e0244241.
- Perlasca, Paolo, Marco Frasca, Cheick Tidiane Ba, Marco Notaro, et al. (2019). "UNIPred-Web: a web tool for the integration and visualization of biomolecular networks for protein function prediction". In: *BMC bioinformatics* 20.1, pp. 1-19.

## Conference Proceedings

- Ba, Cheick Tidiane, Matteo Zignani, et al. (2020). "The Effect of Cryptocurrency Price on a Blockchain-Based Social Network". In: *International Conference on Complex Networks and Their Applications*. Springer, pp. 581-592.
- Ba, Cheick Tidiane, Elena Casiraghi, et al. (2018). "A Graphical Tool for the Exploration and Visual Analysis of Biomolecular Networks". In: *International Meeting on Computational Intelligence Methods for Bioinformatics and Biostatistics*. Springer, pp. 88-98.