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## RESEARCH INTERESTS

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I am an enthusiast young researcher fascinated by bioinformatics, biology-applied computer science, microbiology, metagenomics, data analysis and Next Generation Sequencing. I am interested in biological-relevant data manipulation strategies and in the development of computational solutions address biologically relevant challenges. I am also interested in microbiome research, specifically oriented to human-associated microbial communities. My current research focuses on the characterization of viruses in the human microbiome.

## WORK EXPERIENCE

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- Current position **Ph.D. Student in Biomolecular Sciences**  
*Centre for Integrative Biology (CIBIO) – University of Trento*  
I am working at the Laboratory of Computational Metagenomics (P.I. **Dr. Nicola Segata**). My project is mainly focused on the metagenomics-based characterization and discovery of viruses associated with cystic fibrosis.
- 2014 - 2016 **Student Internship | Laboratory of Computational Metagenomics**  
*Centre for Integrative Biology (CIBIO) – University of Trento*  
During my internship and thesis, I worked on the development of computational methods for microbial identification and tracking from metagenomics data. Here I developed MetaMLST, a software enabling *in silico* MLST-analysis without the need for cultivation.  
**SUPERVISOR** | Dr. Nicola Segata  
**AREAS** | Python, problem solving, scientific programming and bioinformatics
- 2015 May-Sep **iGEM Team Member | CIBIO, University of Trento**  
With the project “*Solar pMFC: a microbial fuel cell with a light driven Escherichia coli engine*”, we aimed to product electricity through a genetically modified *E. coli* strain. We presented our project at the 2015 **International Genetic Engineering Competition** in Boston (MA), and were nominated for the “Best Project in the Energy Track” award.  
**SUPERVISORS** | Prof. Sheref Mansy, Dr. Cristina del Bianco Prof. Olivier Jousson  
**AREAS** | Bioinformatics, Computational Genomics, Web Development
- 2012 - 2013 **Software Analyst and Developer | G.E.C. SpA**  
*Gestione Esazioni Convenzionate – Cuneo (Italy)*  
Junior backend programmer for G.E.C. SpA, a large tax collection company. As a member of the ICT office, I developed software to handle the production, calculation and elaboration of taxes data, invoices and payment solutions. I worked in PHP and SQL.  
**SUPERVISOR** | Maurizio Nannini

- 2010 Sep-Dec **Instructor | City of Roccavione – Cuneo (Italy)**  
Teaching activity for a series of basic computer-usage lessons, aimed to elderly with little or no experience. MS Office Suite, use of Internet and e-mail, Multimedia and Social Networks. (40 hrs, 50 people)
- 2009 Oct-Feb **Instructor | Istituto Tecnico Industriale “M. Delpozzo” – Cuneo (Italy)**  
Basic Linux: *fundamentals of the most popular Open Source Operating System. A hands-on linux course from the GUI to the Bash* (35 hrs, 2 classes of 25 people)
- 2009 Jun-Aug **Intern | G.E.C. SpA**  
*Gestione Esazioni Convenzionate – Cuneo (Italy)*  
Analysis, development and deployment of a web-based intranet and related web-software.  
SUPERVISOR | Maurizio Nannini
- 2008 Jul-Aug **Intern | City of Cuneo – Data Elaboration Bureau – Cuneo (Italy)**  
Development of on-LAN client-server software for the City Central Library.  
SUPERVISOR | Corrado Ambrogio  
AREAS | Windows Server management, VB.NET programming

## EDUCATION

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- 2014 - 2016 M.Sc. in **CELLULAR AND MOLECULAR BIOTECHNOLOGY – 110** / 110 with honours  
*Centre for Integrative Biology (CIBIO), University of Trento, Italy*  
**Other activities:** Students Representative, iGEM 2015 Team member  
**Thesis:** Identification, Discovery and Characterisation of Viruses in the Human Microbiome  
ADVISOR | Dr. Nicola Segata
- 2010 - 2014 B.Sc. in **COMPUTER SCIENCE – 101** / 110  
*Department of Engineering and Information Science (DISI), University of Trento, Italy*  
Interdisciplinary programme in **COMPUTATIONAL BIOLOGY**  
**Merit Scholarship** awarded by the University of Trento (2014)  
**Thesis:** A computational metagenomic pipeline for cultivation-free bacterial strain typing  
ADVISOR | Prof. Enrico Blanzieri  
SUPERVISORS | Dr. Nicola Segata, Prof. Olivier Jousson
- 2005 - 2010 High School Diploma: **INDUSTRIAL TECHNICIAN, COMPUTER SPECIALIST – 100** / 100  
*Istituto Tecnico Industriale “M. Delpozzo” – Cuneo, Italy*  
**Final Project:** A real-time end-to-end cryptography system with dsPIC microcontrollers  
**Merit Scholarships:** Young Piedmontese Excellences (2009), Carelli-Masante Merit Prize (2008)  
**Other activities:** Students Representative (2007-2010)

## PUBLICATIONS

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- 2017 F. Asnicar, S. Manara, M. Zolfo, D. T. Truong, M. Scholz, F. Armanini, P. Ferrretti, V. Gorfer, A. Pedrotti, A. Tett and N. Segata. **Studying Vertical Microbiome Transmission from Mothers to Infants by Strain-Level Metagenomic Profiling** – *mSystems*, 2 e00164-16.

- 2017 M. Zolfo, A Tett, O Jousson, C Donati and N Segata. **MetaMLST: multi-locus strain-level bacterial typing from metagenomic samples** – *Nucleic Acids Res* (2017) 45 (2): e7.
- 2016 C. Donati, M. Zolfo, D. Albanese, D. T. Truong, F. Asnicar, V. Iebba, D. Cavalieri, O. Jousson, C. De Filippo, C. Huttenhower and N. Segata. **Uncovering oral *Neisseria* tropism and persistence using metagenomic sequencing** – *Nature Microbiology* 1, Article: 16070.
- 2016 M. Scholz, D. Ward, E. Pasolli, T. Tolio, M. Zolfo, F. Asnicar, D. T. Truong, A. Tett, A. L. Morrow and N. Segata. **Strain-level microbial epidemiology and population genomics from shotgun metagenomics** – *Nature Methods* 13, 435–438.
- 2016 D. V. Ward, M. Scholz, M. Zolfo, D. H. Taft, K. R. Schibler, A. Tett, N. Segata and A. L. Morrow. **Metagenomic Sequencing with Strain-Level Resolution Implicates Uropathogenic *E. coli* in Necrotizing Enterocolitis and Mortality in Preterm Infants** – *Cell Reports* 14: 12. 2912-2924.

## AWARDS AND CONFERENCES

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- 2015 - Sep **iGEM 2015 Gold Medal:** For the fulfillment of the prescribed gold requirements in the iGEM competition. Additionally, our project was nominated among the top three projects of the Energy Track. [2015 Giant Jamboree, Boston, MA]
- 2015 - Jun **Travel Award: Symbiomes: Systems Biology of Host-Microbes Interactions:** Short talk and poster. Travel grant from the European Science Foundation (EFS) [Pultusk, Poland]

## CONFERENCES (ATTENDED)

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- 2014 - Sep **3S Biology Summer School:** Systems, Synthetic and Semantic Biology [Trento, Italy]
- 2014 - Feb The Microbiota: human-microbial interactions, recent studies and therapies [Trento, Italy]
- 2009 - Sep Orientation pre-university course organized by the **Scuola Normale Superiore di Pisa** and the **University of Trento**. [Rovereto, Italy. Access upon national selection]
- 2009 - May **6<sup>th</sup> congress “Crescere tra le righe”.** Debates and round tables about mass media and journalism organized by the **Permanent Young-Publishers Observatory**. [Siena, Italy. Access upon national selection]

## LANGUAGES

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Italian	Mother tongue
English	Professional working proficiency, oral and written 2006 – <i>Semi-Intensive English</i>   <i>Concorde International School, Canterbury (UK)</i> 2007 – <i>Semi-Intensive English</i>   <i>EAC language centre, Edinburgh (UK)</i> 2009 – <i>Cambridge P.E.T. Exam</i> – <b>98</b> / 100
French	Limited working proficiency
Japanese	Elementary proficiency

## COMPUTER SKILLS

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Languages	Python, C/C++/mikroC, PHP, Bash, SQL, Java, Javascript, HTML 5, Assembly (Intel / AT&T, Microchip), Visual Basic .NET, R, O’Caml, Ruby
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Software skills Experience with Linux and Windows OS. Everyday use of various Bioinformatics Software  
Generally, I love to experience with new software packages.

## OTHER SKILLS

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Basic molecular biology-lab training acquired as part of my B.Sc. and M.Sc. Good social and Team-Leading skills acquired in the following roles:

- Vice President of two NPOs: "RagionevolMente" (since 2015) and "Parole con le Ali" (2010-2013)
- Students Representative at the Centre for Integrative Biology (CIBIO), University of Trento (2015)
- Team Leader of a small group of programmers responsible for the creation of a prototype web-app for Trento's Science Museum (MUSE) (2013)
- Administrator of an online roleplaying community, counting more than 50 people (2013)

## OTHER ACTIVITIES

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2015 - Present **Vice President | Non-Profit Organization "RagionevolMente"**

I am a co-founder of RagionevolMente: a small non-profit active in scientific communication that organizes events to communicate Science to the public. RagionevolMente encourages the communication of sciences and fosters the access to scientific information.

2014 - Present **Partners Support Volunteer | TEDx Trento**

I am currently a volunteer for TEDx Trento, a conference held yearly that aims to spread ideas, experiences, advances in research, examples of creativity, social activism and non-conventional thinking.

2015 - 2016 **Students Representative | CIBIO Council, University of Trento**

2012 - 2014 **Administrator and Lead Programmer | Star Trek Federation RPG**

I developed and managed the software platform of an online gaming community based on the Star Trek saga, involving more than 50 people.

2010 - 2013 **Vice President | Non-Profit Organization "Parole con le Ali" – Cuneo**

"Parole con le Ali" was a non-profit organization promoting the connection between schools and workplaces with training projects and workshops in schools.

## LINKS

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- [Laboratory of Computational Metagenomics](#), CIBIO (University of Trento)
- [iGEM UniTN 2015 project](#) "Solar pMFC: a microbial fuel cell with a light-driven *E. coli* engine", presented at the 2015 iGEM Giant Jamboree in Boston, MA
- [RagionevolMente](#): a Non-Profit Organization for scientific communication