



Francesca Brunetti

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Gender: Female Date of birth: 5 Jan 1998 Nationality: Italian

EDUCATION AND TRAINING

[Nov 2022 – Current]	<p>Ph.D. student in Infectious Diseases, Microbiology, Legal Medicine and Public Health Sciences</p> <p>Sapienza University of Rome</p> <p>City: Rome Country: Italy </p> <p>38th Ph.D. cycle</p> <p>Ph.D. theme: Innovative modelling, statistical and/or bioinformatic approaches in the study of infectious disease and public health</p> <p>Supervisor: Prof. Maria Pia Conte</p> <p>Co-Supervisor: Dr. Karel Břinda</p> <p>Venue: Computational Microbiology Lab (Microbiology section), Department of Public Health and Infectious Diseases, Sapienza University of Rome</p>
[Sep 2020 – Jul 2022]	<p>MSc in Bioinformatics</p> <p>Tor Vergata University of Rome</p> <p>City: Rome Country: Italy Final grade: 110 with honours / 110</p> <p>Thesis project: "<i>Genotypic characterization of Staphylococcus aureus strains from patients affected by atopic dermatitis</i>"</p> <p>Thesis Advisors: prof. Maria Pia Conte, Dr. Massimiliano Marazzato</p> <p>Thesis Internship duration: 9 months (October 2021 - July 2022)</p> <p>Venue: Computational Microbiology Lab (Microbiology section), Department of Public Health and Infectious Diseases, Sapienza University of Rome</p> <p>Area: Genomics, Microbiology</p>
[Sep 2016 – Oct 2019]	<p>BSc in Bioinformatics</p> <p>Sapienza University of Rome</p> <p>City: Rome Country: Italy Final grade: 110 with honors / 110</p> <p>Thesis project: "<i>Characterization of the Nasal Microbiota in children with chronic nasal inflammation: role of adenoid hypertrophy and allergic rhinitis</i>"</p> <p>Thesis Advisors: prof. Maria Pia Conte, Dr. Massimiliano Marazzato</p> <p>Thesis Internship duration: 6 months (May - October 2019)</p> <p>Venue: Computational Microbiology Lab (Microbiology section), Department of Public Health and Infectious Diseases, Sapienza University of Rome</p> <p>Area: Metagenomics, Microbiology</p> <p>--</p> <p>BSc entirely held in English.</p>

PHD EXPERIENCE - RE-RESEARCH PERIOD ABROAD

[Nov 2023 – Nov 2024]	<p>Research period at INRIA centre at Rennes University</p> <p>Supervisor: Dr. Karel Brinda (Genscale team)</p> <p>Institute: INRIA centre at Rennes University, Rennes (France)</p>
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Activities:

- Tackling the challenge of comprehensive and rapid searchability across publicly available sequencing data, scaling such searches to portable devices for biological applications
- Definition of a methodology for k-mer search across million-genome bacterial collections on portable devices using phylogenetic compression, to address specific biological questions.

UNDERGRADUATE RE-SEARCH EXPERIENCE

[Jan 2020 – Apr 2021]

Training Experience in Computational Microbiology

Venue: Computational Microbiology Lab (Microbiology section), Department of Public Health and Infectious Disease, Sapienza University of Rome

Tutor: Dr. Massimiliano Marazzato

Themes: Application of bioinformatic techniques for the analysis of microbial organisms.

Gained Experience: NGS analyses starting from raw data; Genome assembly; Characterization of single microorganisms (WGS analysis) or/and microbial communities (16S Metagenomics analysis); Comparative genomics; Pangenomics analysis.

GRANTS

[Nov 2023 – Jan 2024]

PhD students mobility grant - D.R. 1505/2023

Funding institution: Sapienza University of Rome

Duration: 3 months (November 2023 - January 2024)

Host institution: [INRIA centre](#) at Rennes University, Rennes (France)

Supervisor: Dr. [Karel Brinda](#) ([Genscale](#) team)

Details about the activity can be found in the 'PhD Experience – Research Period Abroad' section.

[Nov 2023 – Nov 2024]

"Avvio alla ricerca" research grant - D.R. 1074/2023

Funding institution: Sapienza University of Rome

Duration: 1 years (November 2023 - November 2024)

Brief description: Definition of pangenome-based workflow for identifying potential discriminatory markers for the individual species belonging to the BCC, leveraging all available genomes in public databases.

[Jun 2021 – Oct 2021]

Undergraduate research grant

Funding institution: Sapienza University of Rome

Duration: 6 months (May - October 2021)

Supervisor: prof. Anna Teresa Palamara

Venue: Computational Microbiology Lab (Microbiology section), Department of Public Health and Infectious Disease, Sapienza University of Rome

Activities: Application of bioinformatic techniques for the analysis of microbial organisms.

Gained Experience: NGS analyses starting from raw data; Genome assembly; Characterization of single microorganisms (WGS analysis) or/and microbial communities (16S Metagenomics analysis); Comparative genomics; Pangenomics analysis.

PEER REVIEW ACTIVITIES

[May 2023 – Current]

Peer reviewer for Ecotoxicology and Environmental Safety

[Dec 2023 – Current]

Peer reviewer for PLOS Computational Biology

SUPPLEMENTARY TEACHING ACTIVITIES

[Nov 2022 – Current]

Laboratory sessions for Dentistry and Dental Prosthodontics students

Theme: Introduction to Computational microbiology and its applications

Activity: Laboratory sessions held for the students from the "*Microbiology and Hygiene*" course (MED/07), MSc in Dentistry and Dental Prosthodontics, Sapienza University of Rome

Course teacher: Prof. Maria Pia Conte, Associate professor

[Nov 2022 – Current]

Laboratory sessions for Biotechnology students

Theme: Introduction to Computational microbiology and its applications

Activity: Laboratory sessions held for the students from the "*General microbiology, microbial biotechnology and elements of medical microbiology I*" course (MED/07), BSc in Biotechnology, Sapienza University of Rome

Course teacher: Prof. [Catia Longhi](#), Associate professor

PROJECTS

[Jan 2021 – Jun 2021]

MSc Bioinformatics website development

Aim: Development of the new [official website](#) for the MSc in Bioinformatics, [Tor Vergata](#) University of Rome.

Supervisor: prof. Andrea Cabibbo, Tor Vergata University of Rome

PUBLICATIONS

[2024]

[Women Skin Microbiota Modifications during Pregnancy](#)

<https://doi.org/10.3390/microorganisms12040808>

Microorganisms

Giulia Radocchia[†], **Francesca Brunetti**[†], Massimiliano Marazzato, Valentina Totino, Bruna Neroni, Giulia Bonfiglio, Antonietta Lucia Conte, Fabrizio Pantanella, Paola Ciolli, Serena Schippa

[†]These authors share first authorship

[XIV Seminar - PhD Day. Eppure si muovono: does people mobility enhance global health? Organized by the Italian National Institute of Health and Sapienza University of Rome. November 6, 2023 Abstract book](#)

[2023]

Roma: Istituto Superiore di Sanità, 2023 ([ISTISAN Congressi 23/C5](#))

Abstract book - Edited by Stefania Bocci, **Francesca Brunetti**, Claudia Chiovoloni and Luca Maddaloni

[2023]

[Atopic dermatitis-derived Staphylococcus aureus strains: what makes them special in the interplay with the host](#)

<https://doi.org/10.3389/fcimb.2023.1194254>

Frontiers in Cellular and Infection Microbiology, 13:1194254

Antonietta Lucia Conte[†], **Francesca Brunetti**[†], Massimiliano Marazzato, Catia Longhi, Linda Maurizi, Giammarco Raponi, Anna Teresa Palamara, Sara Grassi, Maria Pia Conte

[†]These authors share first authorship

[2023]

[Genotypic and Phenotypic Characterization of Escherichia coli Isolates Recovered from the Uterus of Mares with Fertility Problems](#)

<https://doi.org/10.3390/ani13101639>

Animals (Basel), 13(10):1639

Francesca Paola Nocera, Linda Maurizi, Angelo Masullo, Mauro Nicoletti, Antonietta Lucia Conte, **Francesca Brunetti**, Luisa De Martino, Carlo Zagaglia, Catia Longhi

[2022] [Allergic rhinitis, microbiota and passive smoke in children: A pilot study](#)

<https://doi.org/10.1111/pai.13621>

Pediatric Allergy and Immunology, 33 Suppl 27(Suppl 27):22-26

Giulia Brindisi, Massimiliano Marazzato, **Francesca Brunetti**, Giovanna De Castro, Lorenzo Loffredo, Roberto Carnevale, Bianca Cinicola, Anna Teresa Palamara, Maria Pia Conte, Anna Maria Zicari

[2022] [Genetic Diversity of Antimicrobial Resistance and Key Virulence Features in Two Extensively Drug-Resistant *Acinetobacter baumannii* Isolates](#)

<https://doi.org/10.3390/ijerph19052870>

International Journal of Environmental Research and Public Health, 19(5):2870

Massimiliano Marazzato, Daniela Scribano, Meysam Sarshar, **Francesca Brunetti**, Silvia Fillo, Antonella Fortunato, Florigio Lista, Anna Teresa Palamara, Carlo Zagaglia, Cecilia Ambrosi

CONFERENCES AND SEMINARS

[6 Mar 2025] **Oral presentation at DSB 2025** Pisa, Italy

Role: Speaker

Event: DSB 2025

Title: "Optimized K-mer Matching For Million-Genome Collections On Laptops"

Language: English

[29 Nov 2024] **Oral presentation at SeqBIM 2024** Rennes, France

Role: Speaker

Event: [SeqBIM 2024](#)

Title: "Optimized K-mer Matching For Million-Genome Collections On Laptops"

Language: English

Link to the abstract: <https://inria.hal.science/hal-04842871/document>

[22 Feb 2024] **Poster presentation at DKM Department Days** Rennes

Role: Poster presenter

Event: Annual meeting of the department of Data and Knowledge management ([DKM](#)), Institut de Recherche en Informatique et Systèmes Aléatoires ([IRISA](#))

Title: "High-throughput bacterial epidemiology with global phylogenetically compressed genomic indexes"

Language: English

[6 Nov 2023] **Scientific staff / Chair at PhD Day 2023** Rome, Italy

Role: Scientific staff / Chair

Event: PhD Day 2023 (XIV edition) - "Eppur si muovono: does people mobility enhance global health?"

Organizers: Italian National Institute of Health and Sapienza University of Rome

Theme: The PhD Day represents a traditional event in the activities of the PhD in Advances in infectious diseases, microbiology, legal medicine and public health sciences. The focus of this edition will be on how movements of people and animals have shaped the evolution and actual distribution of human populations, impacted global health, as well as represented the primordial and actual answer to the need of freedom.

[22 Sep 2023 – 24 Sep 2023] **Oral presentation at ICBRA 2023** Barcelona, Spain

Role: Speaker

Event: 10th International Conference on Bioinformatics Research and Applications ([ICBRA 2023](#))

Title: *"Accurate differentiation of Burkholderia cepacia complex species: an updated pangenomic study"*

Theme:

-Introduction to the *Burkholderia cepacia* complex (BCC) and the issues associated with their identification.

-Description of our research work concerning the development of a novel identification strategy for BCC species

Language: English

[13 Jul 2023] **Oral presentation at Inria Centre at Rennes University** Rennes, France

Role: Speaker

Event: Symbiose seminar held at INRIA Centre at Rennes University (GenScale)

Title: *"Atopic dermatitis-derived Staphylococcus aureus strains: what makes them special in the interplay with the host"*

Theme: Presentation of our recent research work concerning the genomic characterization of *S. aureus* strains isolated from atopic dermatitis patients

Language: English

[25 May 2023] **Attendance at national conference** Rome, Italy

Role: Attendee

Event: 1st Conference on Artificial and Natural Intelligence ("*1° Convegno su Intelligenza Artificiale e Naturale*", [IAN 2023](#))

Themes: Novel applications of Artificial Intelligence (AI) and ethical considerations

Language: English

Organizers: Advanced School in Artificial Intelligence and AI2Life

[Nov 2022 – Dec 2022] **Attendance at seminar**

Role: Attendee

Event: Virtual seminar series "Sapienza soft skills training for young researchers"

Themes:

-Scientific calculation tools and Big data

-Research data management and storage

Language: Italian/English

[10 Nov 2019] **Invited Talk** Rome, Italy

Role: Invited Speaker

Event: Seminar series held for the Bioethics students (a.y. 2019-2020), BSc in Bioinformatics, Sapienza University of Rome

Title: *"Mitochondrial donation, why not?"*

Theme: Ethical evaluation of mitochondrial donation techniques

Language: English

Organizer: Elisabetta Sirgiovanni, Assistant Professor

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

French

LISTENING B1 READING B1 WRITING B1

SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1

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