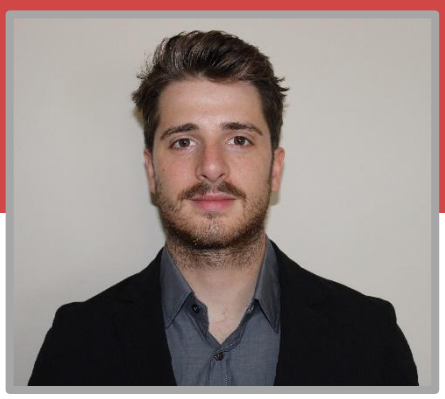
Filippo Biagi



Profile

After earning a degree in Materials Engineering, I decided to focus my attention on the world of polymers, particularly on the study of recycling processes for sports equipment, textiles, fibers, and everything related to multi-layered materials.

Personal info

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filippo.biagi4@gmail.com

Via Unità d'Italia, 155
41058 Vignola (MO)
Italy

27.03.1992

Languages

- Italiano
- Inglese (B2)
- Portoghese (A2)

Computer skills

- Solidworks
- MS Office 365
- Cosmo RS
- Cura

Education

Master's Degree in Materials Engineering
Department of Engineering "Enzo Ferrari" - University of Modena and Reggio Emilia
September 2018 – April 2021
Modena – Italy

Erasmus+ study: Sept 2019 – Feb 2020
Universidade de Aveiro
Aveiro – Portugal

Thesis Title: "Innovative process for recycling mountain bike helmet plastics, through selective dissolution and separation by triboelectric effect and UV-NIR"
Internship: DICAM – University of Bologna
Graduation grade: 107/110

Bachelor's Degree in Energy Engineering DIN - University of Bologna
Sept 2012 – Mar 2018
Bologna – Italy

Work experiences

PhD STUDENT
Department of Civil, Chemical, Environmental and Materials Engineering – DICAM, University of Bologna
November 2023 – Present
Bologna – Italy

Main activities:
•Development of recycling processes, design for recycling, and life cycle assessment (LCA) of end-of-life footwear through selective dissolution and rebonding.
•Development of recycling processes for sports equipment, including helmets, ski boots, masks, gloves, etc., and textiles, using Air-Lay, rebonding, triboelectric separation, and selective dissolution.

RESEARCH FELLOW
Department of Civil, Chemical, Environmental and Materials Engineering – DICAM, University of Bologna
June 2023 – November 2023
Bologna – Italy

Main activities:
• Development and optimization of the leather footwear recycling process through hydrolysis in an alkaline environment.

RESEARCH FELLOW
Department of Engineering "Enzo Ferrari" - University of Modena and Reggio Emilia
June 2022 – June 2023
Modena – Italy

Main activities:
• VIVI PLASTIC FREE: Design and development of bio-based plastics from waste products of the wine production chain.

Equipment skills

- DSC
- TGA
- FT-IR
- Dynamometer
- GPC
- Injection Molding
- 3D Printing
- Extrusion

DESIGN AND QUALITY CONTROL
ATK Bindings
September 2021 – June 2022
Fiorano, MO – Italy

Main activities:
• Quality control on all components
• Release testing on ski bindings
• Design
• 3D prototyping via resin and FDM printing

Publications and other achievements

Articles

"*Mechanical recycling of thermoplastic polyurethanes (TPU) from end-of-life ski-boots and Techno_Economic Analysis (TEA) of the recycling processes*". A. Nanni, L. Crosetta, G. La Fauci, F. Biagi, M. Parisi, D. Colombo, M. Colonna. Sustainable Chemistry and Pharmacy 33 (2023) 101059.
Manuscript Number: SUSCP-D-22-01153

«Mechanical recycling of foam from end-of-life mattresses by AIR-LAY method: process optimization for the production of new mattresses and comparison with rebonding recycling process». G. Liberati, A. Nanni, M.F. Parisi, F. Biagi, L. Barbaresi, L. Querci, S. Ceccarelli, M. Regazzi, A. Bonoli, M. Colonna.

«Valorization of winery by-products as bio-fillers for biopolymer-based composites». F. Biagi, A. Giubilini, P. Veronesi, G. Nigro, M. Messori.
Polymers 2024, 16, 1344.

Patents

Filing Date: 24/05/2021
Priority Number: 102021000013448
"Method for Recycling Sports Helmets"
The invention refers to a process for recycling protective helmets, which allows for the separation of all the components that make up the helmets and recycling them with high efficiency.

Patent Application
Submission Date: 20/06/2023
Application Number: 102023000012663
"Method for Recycling Winter Sports Equipment"
The present invention refers to a method for recycling winter sports equipment used for sliding on snow-covered surfaces, such as skis and/or snowboards, and equipped with a multilayer structure made up of multiple components glued together.

Participation in Projects

RE-SKIBOOT: Development of a ski boot recycling system. This is a project in partnership with Warrant Group and Dalbello for the European LIFE program, named LIFE19 ENV/BG/000059.

IMPACTO: Recycling system for bicycle and motorcycle helmets that allows for the recovery of expanded polymers without disassembling the product through chemical processes.

RE-SHOES: Selection and recovery of worn-out shoes and production waste to obtain secondary raw materials for the production of new RECYCLED SHOES. LIFE – ID: 101074529

Mattress Recycling in collaboration with HERA.

Textile/Leather Recycling: Polyamides, polyester, elastane, wool, cotton, through selective dissolution processes and/or mechanical recycling.

Conference Participation

30 years of INSTM: Past, Present, and Future of the Consortium
Bressanone (BZ), 22-25 January 2023
Poster Presentation: “Eco-sustainable Biofillers from By-products of the Wine Production Chain for Reducing Plastic in Vineyards and Wineries.” Biagi F, Giubilini A, Messori M

BESTMEDGRAPE International Conference - Academia-Industry Cooperation for Agrifood By-product Valorization Through Innovative Commercial Health Products
Rome, 26 May 2023, Arancera of the Botanical Gardens
Oral Presentation: “Eco-sustainable Biofillers from Wine By-products for the Reduction of Plastic in the Vineyard and in the Cellar.” Biagi F, Giubilini A, Messori M

International Congress on Science and Skiing
Austria, Saalbach-Hinterglemm, 18-22 March 2023
Oral Presentation: “A Novel Method for Dynamic Testing of Skis.” Colombo D, Berti G, Crosetta L, Parisi M F, Biagi F, La Fauci G, Brugo T M, Colonna M
Oral Presentation: “Recycling Process for More Sustainable Winter Sport Equipment.” Colombo D, Berti G, Crosetta L, Parisi M F, Biagi F, La Fauci G, Nanni A, Colonna M

ISSS 2024
Kranjska Gora, Slovenia, 10-16 March 2024
Oral Presentation: “Recycling Processes for More Sustainable Safety Sport Equipment.” Biagi F, Colombo D, Crosetta L, Parisi M F, La Fauci G, Nanni A, Colonna M

Other activities

- Co-supervisor and Mentor of Graduate Students