# Samuele Gould

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#### **Education:**

2019 – Present Project Title: Description:	University of Bologna, PhD student Patient-Specific Spinal Surgery for Severe Scoliosis Musculoskeletal modelling (OpenSim) to create patient-specific scoliotic spine models and simulate surgical correction.
2014 – 2019	<b>University of Sheffield, Master of Engineering</b> (MEng Mechanical Engineering with Biomechanics with a Year in Industry, grade 1 <sup>st</sup> )
Master Thesis:	Investigating the characteristics of child femur models used in computational car crash tests.
Relevant Modules:	Solid Biomechanics (79%), Fluid Biomechanics (61%), Finite Element Techniques (63%), Anatomy and Physiology for Engineers (83%), Biomechanics of Musculoskeletal System (68%), Sports Engineering (66%), Biomechanics of Human Movement (83%)
2010 – 2013	The Archbishop's School, Canterbury
A level: GCSE:	Mathematics (A), Biology (A), Physics(B), Chemistry(B), Italian(C) 13 subjects A* - C including Mathematics (A), English Language (B), Additional Science (A), Italian (A*)

#### **Engineering experience:**

2017 – 2018	<ul> <li>CERN:</li> <li>Thermal finite element analysis models and simulations for new collimator design</li> <li>Feasibility and comparative studies</li> <li>Proposal, presentation, and reports of the designs and results</li> </ul>
2016 – 2017	<ul> <li>Extracurricular project, Sheffield Bionics society - Assistive Devices</li> <li>Started a new team with the collaboration of a lecturer at the university, aims to compete at Cybathlon</li> <li>I established the organisational structure, completed society administration, and build links between the society and the Engineering Faculty</li> <li>Organised and chaired meetings; decide the society's direction and culture.</li> <li>Started to design an exoskeleton</li> </ul>
Summer 2017	<ul> <li>INSIGNEO placement, FEA of a prosthetic socket</li> <li>I built a simplified model of human skin in ABAQUS</li> <li>Ran finite element simulations of skin-socket contact</li> <li>Literature review of soft tissue material properties data</li> <li>Reported and presented the results</li> </ul>
2014 – 2016	<ul> <li>Extracurricular project, Simurq student society - Human Powered Aircraft</li> <li>Interdisciplinary, international team, to design and build a human-powered aircraft to compete in British Human Powered Flying Club Championship</li> <li>2014 - 2015 transmission team, designed a belt drive mechanism, 3D printing pullies, computer aided design (SolidWorks) of gear housing</li> <li>2015 - 2016 transmission team leader, ran weekly meetings, coordinated team, and taught wing construction</li> <li>Develop a method to construct stronger, lighter propeller skin</li> <li>Autumn 2016 Project Leader</li> <li>Organised the health and safety requirements, team organisation, presentation of the project, and ran the laboratory inductions.</li> </ul>

# Skills:

#### Software:

- Microsoft Office
- Computer Aided Design (SolidWorks)
- Finite Element Analysis (Ansys, Workbench & APDL; ABAQUS)

## Soft Skills:

- Leadership
- Problem solving
- $\circ$  Organisation
- Communication
- Project management
- $\circ$  Presentations

# Scientific awards and grants:

o Sheffield University - IMechE Best Project

# **Scientific Publications and Conferences:**

## **Publications (Peer-reviewed journal)**

Gould, S.L., Cristofolini, L., Davico, G. and Viceconti, M., 2021. Computational modelling of the scoliotic spine: A literature review. International Journal for Numerical Methods in Biomedical Engineering, 37(10), p.e3503.

#### Conferences

Podium Presentation: European Society of Biomechanics 2022, Porto, Portugal, Determination of a lumped-parameter model of the intervertebral joint from an experimental dataset

## **Extracurricular Activities & Interests:**

European Representative on the International Students Committee (ISC) Student member of the European Society of Biomechanics Student member of the Virtual Physiological Human Institute Traveling Sports: Casually fencing, football, bouldering, squash, ski

I hold a full and clean driving licence.

- Computational Fluid Dynamics (Ansys, Workbench)
- Musculoskeletal Modelling (OpenSim, GUI & API)
- MatLab
- Medical image processing (3DSlicer, Mimics)

# English (native speaker)

Languages:

Italian (B2)