Max Hartwig

hartwig.max@googlemail.com
+49 171 109 3029 · Innsbruck, Austria
www.max-hartwig.com



PROFILE

Sports scientist with experience in biomechanical research, clinical study coordination and elite sport. Combines quantitative analysis and Python development with a passion for working with people. Curious, open to dialogue and thorough when turning measurement data into clear scientific conclusions.

PROFESSIONAL EXPERIENCE

Junior Test & Data Analysis Assistant
06/2025 - 07/2026

Microgate Srl, Bolzano, Italy

- Made a substantial contribution to the post-processing pipeline for IMU-based jump detection and estimation of jump parameters, now used in the ProMove app for the GykoPro sensor.
- Designed and conducted a master's study with 30 participants and 780 paired jumps, comparing the fixed algorithm against OptoJump and a force plate.
- Established repeatable measurement procedures and analysed sensor data using Python with extensive AI support; checked results against reference measurements and movement patterns.
- Contributed to product development and demonstrations, explaining technical concepts clearly to coaches, athletes, researchers and commercial partners.

Strength & Conditioning and Rehabilitation Intern
06/2024 - 09/2024

SC Paderborn 07, 2. Bundesliga, Germany

- Supported a full pre-season in professional football, helping the performance team plan and deliver strength and conditioning sessions.
- Analysed Catapult GPS data for load management, interpreting results in the context of training content and individual requirements.
- Supported performance testing, including lactate sampling and cardiopulmonary exercise testing; worked closely with players, coaches and medical staff.

Clinical Research Intern
10/2023 - 03/2024

OSIOS Clinic & University Hospital Bonn, Germany

- Coordinated participants and testing appointments for a clinical prehabilitation project across two institutions and documented research procedures.
- Collected and analysed surface EMG and force-plate measurements; supported standardised testing and coordination within an interdisciplinary team.

Founding Team, Operations & Sales
06/2020 - 12/2020

PopUp Camps GmbH, Hamburg, Germany

- Managed customer communications, bookings and logistics for multi-day outdoor experiences within a small founding team.
- Helped improve booking processes and found practical solutions for participants and operations as circumstances changed.

EDUCATION

10/2024 - 08/2026
MSc Sport Science, final grade 1.5
University of Innsbruck, Austria
Master's thesis: Validation of a post-processing algorithm for jump detection and estimation of jump parameters: comparison with the optoelectronic OptoJump system and a force plate.

2021 - 2024
BSc Sport and Performance, final grade 1.5
German Sport University Cologne, Germany
Specialisation in football. Bachelor's thesis: Effects of hypoxic training on endurance performance parameters in women: a systematic review.

01/2023 - 08/2023
ERASMUS: Sport Management and Performance
Norwegian School of Sport Sciences, Oslo
25 ECTS; sport marketing, performance management, performance enhancement and anti-doping.

09/2019 - 01/2021
Economics and Social Sciences (PPE)
Free University of Bozen-Bolzano, Italy
Three semesters before switching to sport science.

SELECTED PROJECTS

IMU Jump Analysis and Validation
Microgate, master's thesis, 2025-2026
- Substantially co-developed jump detection and parameter estimation, now used in ProMove for GykoPro.
- Developed using a separate dataset (>2,000 jumps); subsequent master's validation without retraining the model.
- Python and scikit-learn: signal checks, random forest correction, bias, MAE, ICC and Bland-Altman comparisons.

Inertia Showcase: Feedback for Flywheel Training
Microgate & Lite, 2025
- Contributed to iOS and web prototypes for the Lite Inertia system, focusing on user-oriented feedback.
- Worked with 400 Hz Bluetooth data and C++ analysis of velocity, power, force and movement phases.

SKILLS & WORKING APPROACH

Collaboration
- Product demonstrations and clear communication
- Participant support; coordination across research, technology and applied sport

Testing and Research
- Biomechanics, study design, sensor validation, reference comparisons and error analysis
- Study coordination and documentation

Data and Development
- Python: pandas, NumPy, scikit-learn; sensor analysis, visualisation and quantitative validation
- Extensive AI-assisted development; personal responsibility for methodological decisions and verification of results
- Project experience with Swift/iOS, C++, Bluetooth and web prototypes

Measurement Systems
- GykoPro IMU, OptoJump, OptoGait and Witty systems
- Force plates, surface EMG and Catapult GPS

LANGUAGES & SPORT

German: native; English: fluent; Italian: basic.

Active road cyclist, including the Ötztaler Radmarathon and Dreiländergiro; former FIS alpine ski racer (2016-2021), DSLV Level 2 ski instructor. More than ten years of tennis; involvement in youth football in Hamburg (2013-2017); many years of personal experience as a sports club member.