Robin TRAMA
PhD

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Calgary

About me

I've been playing soccer since I am a kid, and I started climbing a few years ago. I've always been passionate about sports to the point of making it my field of study.
I recently started to supervise students. Mentoring and seeing them becoming independent is one of the most satisfying part of my current position.
I also have a geeky side, and I never thought it would help me so much when dealing with data processing, signal analysis, and statistics.
Being environmentally aware, I am trying to limit my carbon footprint by using eco-friendly transportation and adopting a zero-waste lifestyle.

Key words : Vibrations, Wavelet analysis, SPM

Education:

2012 – 2017: Université Claude Bernard Lyon 1, France
BSc and **MSc** in Training and Performance Optimisation (Kinesiology)
2018 – 2021: Inter-University Laboratory of Human Movement Biology, France
PhD on **soft-tissue vibrations** in sport and their effects on the musculoskeletal system

Work experiences:

2017 – 2021: FUI Vibrinov (French and European funds)
Testing sport equipment (shoes, floors, rackets) in collaboration with French companies such as **Gerflor**, **Babolat**, **Natural Grass**, and **Hoka One One**.

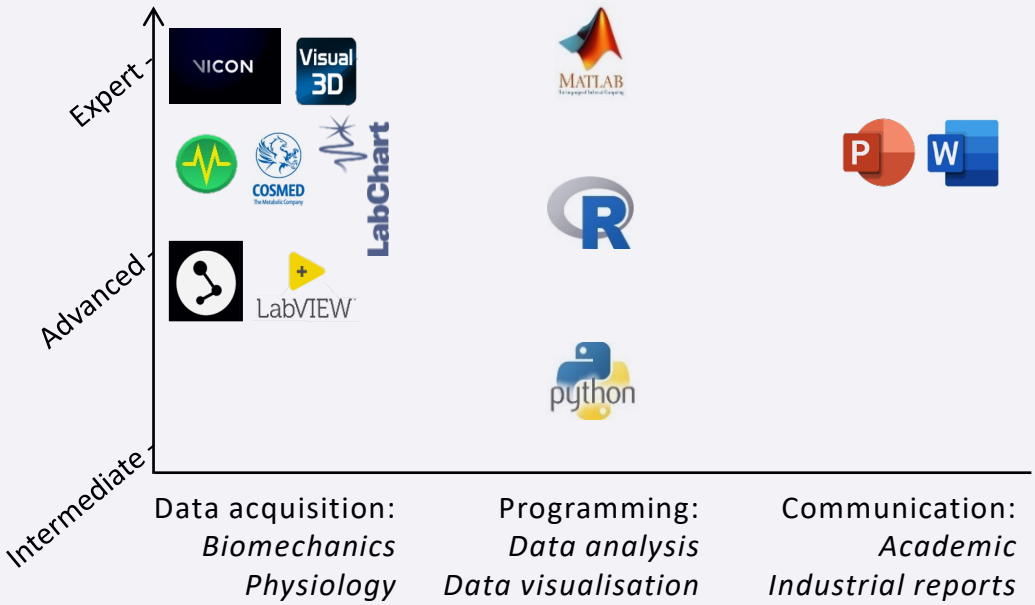
Current work and research interests:

Sept 2021 - now: Human Performance Lab, Calgary, Canada
Postdoctoral Research Associate
I'm working closely with industry (Sport Insight) to test various sport equipment (shoes, apparels, floors) and evaluate their effects on vibrations, performance, and fatigue using wearable (accelerometers, GPS, pressure insoles) and laboratory (gas analyzer, motion capture) technologies.
My tasks consist in writing the project proposal to collaborate with various sport companies (**Adidas**, **Under Armour**, **Keen**, **Sport Court**), supervising or performing the data collection, analysing them and making statistics, and writing the technical report for the company.
In a near future, I would like to develop automatic performance profiling of sprint data obtained with GPS watches.

Skills & Areas of expertise:

- ☑ Vibrations, 3D kinematics, force-power-velocity profiling, EMG, $\dot{V}O_2$
- ☑ Signal analysis (wavelet transforms, time-frequency analysis)
- ☑ Statistics (SPM) and artificial intelligence (CNN, LSTM)
- ☑ Literature investigation and synthesis
- ☑ Experimental protocol design
- ☑ Scientific, technical & industrial report writing

Softwares:



Articles in international peer-reviewed journals

Accepted

16) M-C Play*, R. Trama*, G. Y Millet, C. Hautier, M. Giandolini, J. Rossi. Soft Tissue Vibrations in Running: A Narrative Review. Sports Medicine – Open. X(XX), 1-15, https://doi.org/10.1186/s40798-022-00524-w (IF: 6.77 ; Q1)

15) R. Trama, Y. Blache, F. Hintzy, J. Rossi, G. Y Millet, C. Hautier (2022). Does neuromuscular fatigue generated by mountain ultra-marathon modify foot-ground impact and soft-tissue vibrations during running? European Journal of Sport Science. X(XX), 1-9, https://doi.org/10.1080/17461391.2022.2093649 (IF: 4.05; Q1)

14) R. Trama, C. Hautier, Y. Blache, W. Bertucci, X. Chiementin, F. Hintzy (2022). Intra-cycle analysis of muscle vibration during cycling. Sports Biomechanics, X(XX), 1-13, https://doi.org/10.1080/14763141.2022.2083010 (IF: 2.83; Q2)

13) Y. Blache, I. Rogowski, M. Degot, R. Trama, R. Dumas (2022). Uncertainty analysis and sensitivity of scapulothoracic joint angles to kinematic model parameters. Medical & Biological Engineering & Computing (IF: 2.60; Q2)

12) P. Read, R. Trama, S. Racinais, S. McAuliffe, J. Klauznicer, M. Alhammoud (2022). Angle specific analysis of hamstrings and quadriceps isokinetic torque identify residual deficits in soccer players following ACL reconstruction: a longitudinal investigation. Journal of Sports Sciences, https://doi.org/10.1080/02640414.2021.2022275 (IF: 3.34; Q2)

11) S. Schlatter, A. Guillot, L. Schmidt, M. Mura, R. Trama, F. Di Rienzo, M. Lilot, U. Debarnot (2021). Combining proactive transcranial stimulation and cardiac biofeedback to substantially manage harmful stress effects. Brain Stimulation, https://doi.org/10.1016/j.brs.2021.08.019 (IF: 8.96; Q1)

10) R. Trama, C. Hautier, Y. Blache (2021). fctSnPM: Factorial ANOVA and post-hoc tests for Statistical nonParametric Mapping in MATLAB. Journal of Open Source Software, 6(63), 3159, https://doi.org/10.21105/joss.03159 (no IF; indexed)

9) R. Trama, C. Hautier, R. Souron, T. Lapole, A. Fouré, Y. Blache (2021). Is accelerometry an effective method to assess muscle vibrations in comparison to ultrafast ultrasonography? IEEE Transactions on Biomedical Engineering, Vol 68, No. 4, pp. 1409-1416. 10.1109/TBME.2020.3035838 (IF: 4.24; Q1)

8) Q. Zhang, B. Morel, R. Trama, C. Hautier (2021). Influence of Fatigue on the Rapid Hamstring/Quadriceps Force Capacity in Soccer Players. Frontiers in Physiology, Vol 12, pp. 35. 10.3389/fphys.2021.627674 (IF: 3.37; Q1)

7) R. Trama, C. Hautier, Y. Blache (2020). Input and Soft-Tissue Vibration Characteristics during Sport-Specific Tasks. Medicine & Science in Sports & Exercise, Vol. 52, No. 1, pp. 112–119. 10.1249/MSS.0000000000002106 (IF: 4.03; Q1)

6) Q. Zhang, F. Pommerell, A. Owen, R. Trama, C. Martin, C. Hautier (2020). Running patterns and force-velocity sprinting profiles in elite training young soccer players: A Cross-Sectional Study. European Journal of Sport Science, pp. 1-25. 10.1080/17461391.2020.1866078 (IF: 2.78; Q2)

5) Q. Zhang, R. Trama, A. Fouré, C. Hautier (2020). The Immediate Effects of Self-Myofacial Release on Flexibility, Jump Performance and Dynamic Balance Ability. Journal of Human Kinetics, Vol. 75, No. 1, pp. 139–148. 10.2478/hukin-2020-0043 (IF: 1.66; Q3)

4) R. Trama, Y. Blache, C. Hautier (2019). Effect of rocker shoes and running speed on lower limb mechanics and soft tissue vibrations. Journal of Biomechanics, Vol. 82, pp. 171–177. 10.1016/j.jbiomech.2018.10.023 (IF: 2.32; Q3)

3) P. Balducci, Saboul. D, R. Trama (2019). Monitoring heart rates to evaluate pacing on a 75-km MUM. Journal of Sports Medicine and Physical Fitness, Vol. 59, No. 7. 10.23736/S0022-4707.18.08861-8 (IF:1.43; Q4)

2) P. Balducci, M. Clémençon, R. Trama, C. Hautier (2017). The Calculation of the Uphill Energy Cost of Running from the Level Energy Cost of Running in a Heterogeneous Group of Mountain Ultra Endurance Runners. Asian Journal of Sports Medicine, Vol. 8, No. 1. 10.5812/asjsm.42091 (IF: 1.22; Q3)

1) P. Balducci, M. Clémençon, R. Trama, Y. Blache, C. Hautier (2017). Performance Factors in a Mountain Ultramarathon. International Journal of Sports Medicine, Vol. 38, No. 11, pp. 819-826. 10.1055/s-0043-112342 (IF: 2.45; Q2)

Submitted

17) R. Trama, J.W. Wannop, E. Smith, D.J. Stefanyshyn: The influence of midsole horizontal and vertical deformation on soft tissue vibrations and bone acceleration during running. Journal of Biomechanics

Technical reports (confidential)

19) J.W. Wannop, R. Trama, Y. Denis, A. Vogel, D.J. Stefanyshyn (2022). The Influence of Rocker Geometry on Walking Biomechanics. Sport Insight – Keen Inc.

18) R. Trama, L. Gavoille, J.W. Wannop, D.J. Stefanyshyn (2022). The Influence of Midsole Rocker Geometry on Running Performance and Biomechanics. Sport Insight - Adidas Advanced Creation

17) J.W. Wannop, R. Trama, E. Smith, D.J. Stefanyshyn (2022). The influence of Shift footwear on running performance and biomechanics. Sport Insight - Adidas Future Team.

16) J.W. Wannop, R. Trama, D.J. Stefanyshyn (2022). Traction Patterns Comparison of Global Soccer Cleats. Sport Insight - Under Armour.

15) J.W. Wannop, R. Trama, D.J. Stefanyshyn (2022). Kinematic and Kinetic Comparison of Global Soccer Cleats. Sport Insight - Under Armour.

14) J.W. Wannop, M. Esposito, R. Trama, D.J. Stefanyshyn (2022). Traction Pattern Comparison of Global Football Cleats. Sport Insight - Under Armour.

13) J.W. Wannop, M. Esposito, R. Trama, D.J. Stefanyshyn (2022). Kinematic and Kinetic Comparison of Global Football Cleats. Sport Insight - Under Armour.

12) J.W. Wannop, R. Trama, E. Smith, D.J. Stefanyshyn (2022). 4dFWD Specialization. Sport Insight - Adidas Innovation.

11) J.W. Wannop, R. Trama, R. Crawford, Z. Barrons, M. Esposito, D.J. Stefanyshyn (2021). Influence of Prototype Apparel on Muscle Vibrations, Running and Jumping Performance. Sport Insight - Adidas Future Team.

10) J.W. Wannop, R. Crawford, R. Trama, Z. Barrons, C. Clermont, D.J. Stefanyshyn (2021). Evaluation of Techfit Prototypes. Sport Insight - Adidas Future Team.

9) J. Gouillon, R. Trama (2021). Differences in impacts induced by the Orono Biomechanical Surface Tester in Top 14 rugby fields. FUI Vibrinov – Natural Grass

8) R. Trama, J. Gouillon, Y. Blache, C. Hautier (2021). Influence of rugby field composition on impacts and lower-limbs vibrations during rugby movements. FUI Vibrinov – Natural Grass

7) R. Trama, Y. Blache, C. Hautier (2020). Effect of the integration of dampening solution in tennis racket, an in-lab study of vibration propagation. FUI Vibrinov – Babolat.

6) R. Trama, T. Le Solliec, Y. Blache, C. Hautier (2020). Influence of reduced horizontal surface on heel impacts and lower-limbs vibrations and activations during simulated basketball movements. FUI Vibrinov – Gerflor.

5) R. Trama, Y. Blache, C. Hautier (2019). Influence of new trail-shoe design on heels impact and lower-limbs vibrations and activations. FUI Vibrinov – HOKA One One.

4) R. Trama, T. Le Solliec, Y. Blache, C. Hautier (2019). Effect of the integration of dampening solution in tennis shoe on heel impacts and lower-limbs vibrations during tennis game. FUI Vibrinov – Babolat.

3) R. Trama, Y. Blache, C. Hautier (2018). Effect of the integration of dampening solution in floor construction on heel impacts, lower-limbs vibrations during sport-specific tasks. FUI Vibrinov – Gerflor

2) R. Trama, Y. Blache, C. Hautier (2018). Effect of the integration of dampening solution in tennis racket on upper-limbs vibrations and comfort perception during tennis game. FUI Vibrinov – Babolat.

1) R. Trama, Y. Blache, C. Hautier (2017). Influence of rocker shoe design on heels impact and lower-limbs vibrations and activations. FUI Vibrinov – HOKA One One.

Congress abstracts

Accepted

1) R. Trama, C. Hautier, Y. Blache. (2019). Sport-related impact classification through a convolutional neural network. Computer Methods in Biomechanics and Biomedical Engineering, Vol. 22, No. sup1, pp. 267–269. 10.1080/10255842.2020.1714908 (IF: 1.5; Q3)
2) R. Trama, T. Le Solliec, Y. Blache, C. Hautier. Heel Impact, Tibial Shock and Soft Tissue Vibrations in young basketball players: influence of movements and court construction. Congrès de la

Société de Biomécanique 2021. Computer Methods in Biomechanics and Biomedical Engineering (Accepted but published yet).

Oral communications

1) R. Trama, T. Le Solliec, Y. Blache & C. Hautier. (2021). Impact au sol et vibrations des tissus mous des membres inférieurs en tennis : comparaison avec des mouvements standardisés. 2eme colloque international: Le tennis dans la société de demain, Dijon, France (visioconference).
2) R. Trama, Y. Blache, C. Hautier. (2017). Muscle Tuning Paradigm. Effet de la vitesse de course. Association des Chercheurs en Activités Physiques et Sportives (ACAPS), Dijon, France.
3) R. Trama, A. Fouré, Y. Blache, C. Hautier. (2019). Does accelerometer measure muscle vibrations? European Congress of Sport Science (ECSS), Prague, Czech Republic.
4) R. Trama, C. Hautier, Y. Blache. (2019). Sport-related impact classification through a convolutional neural network. Société de Biomécanique, Poitiers, France.

Vulgarization

1) R. Trama, Y. Blache, C. Hautier. (2020). Comparaison de moyennes en une et deux dimensions : la cartographie statistique paramétrique (SPM) pour tous. Blog de la Société de Biomécanique : https://www.biomecanique.org/index.php/fr/blog/179-outils-comparaison-de-courbes-et-de-cartes-la-cartographie-statistique-parametrique-spm-pour-tous et Blog de l'Association des Chercheur en Activité Physique et Sportive (ACAPS) : https://www.acaps.asso.fr/comparaison-de-moyennes-en-une-et-deux-dimensions-la-cartographie-statistique-parametrique-spm-pour-tous/

Grants

1) University of Calgary. Postdoctoral Fellowship. Eyes High program – 50 000 CAD (2 years)
2) University of Calgary. Postdoctoral Fellowship. NSERC CREATE Wearable Technology Research and Collaboration (We-TRAC) Training Program (Project No. CREATE/511166-2018) – 50 000 CAD (2 years)
3) University of Lyon. PhD. FUI Vibrinov. 90 000 EUROS (3 years).