Stanford

Marianne Black

Postdoctoral Research Fellow, Radiological Sciences Laboratory

Bio

BIO

Dr. Marianne Black is a Postdoctoral Fellow in Radiology in the IMMERS (Incubator for Medical Mixed and Extended Reality), BMR (Body Magnetic Resonance) and JOINT (Joint and Osteoarthritis Imaging with Novel Technology) groups. Dr. Black currently works with with Drs. Brian Hargreaves, Bruce Daniel and Garry Gold. Her postdoctoral research is focused on imaging to detect and treat musculoskeletal disease. She is developing immersive mixed reality tools to improve surgical outcomes in orthopaedics.

Dr. Black's PhD research under Drs. Marc Levenston, Brian Hargreaves and Garry Gold focused on the application and development of novel methods and analysis techniques for quantitative knee imaging using MRI and CT. Her work included leading a study measuring quantitative MRI parameters of ACL-injured subjects, and her analysis methods that built upon Dr. Hargreaves group's previous analysis methods showed the ability to differentiate ACL-injured and healthy cartilage as early as 3-months post-surgery. Prior to attending Stanford, she completed her MASc at the University of British Columbia in Biomedical Engineering under Dr. Dave Wilson. Dr. Black's research studied the effect of wedge and slope in medical opening high tibial osteotomy on joint kinematics and tibiofemoral joint contact pressure. She also co-founded Arbutus Medical during this time, which develops orthopaedic medical devices for low-resource hospitals.

STANFORD ADVISORS

- Brian Hargreaves, Postdoctoral Faculty Sponsor

PATENTS

- Marianne Black, Michael Cancilla, Lawrence Buchan, Elise Huisman, Jeremy Kooyman. "United States Patent 10405937 DRILL COVER AND CHUCK MECHANISM", ARBUTUS MEDICAL INC, Sep 10, 2019

Publications

PUBLICATIONS

- **The prevalence of femoroacetabular impingement anatomy in Division 1 aquatic athletes who tread water** *Journal of Hip Preservation Surgery*
  Langner, J. L., Black, M. S., MacKay, J. W., Hall, K. E., Safran, M. R., Kogan, F., Gold, G. E.
  2020; 0: 1-9

- **Rapid volumetric gagCEST imaging of knee articular cartilage at 3 T: evaluation of improved dynamic range and an osteoarthritic population.** *NMR in biomedicine*
  Watkins, L. E., Rubin, E. B., Mazzoli, V., Uhlrich, S. D., Desai, A. D., Black, M., Ho, G. K., Delp, S. L., Levenston, M. E., Beaupré, G. S., Gold, G. E., Kogan, F.
  2020: e4310

- **Smooth Ride: Low-Pass Filtering of Manual Segmentations Improves Consensus** *Bildverarbeitung für die Medizin*
  Maier, J., Black, M. S., Hall, M. E., Choi, J., Levenston, M. E., Gold, G. E., Fahrig, R., Eskofier, B., Maier, A.
  2019: 86-91

- **The effect of wedge and tibial slope angles on knee contact pressure and kinematics following medial opening-wedge high tibial osteotomy** *CLINICAL BIOMECHANICS*
  Black, M. S., d'Entremont, A. G., McCormack, R. G., Hansen, G., Carr, D., Wilson, D. R.
  2018; 51: 17–25

- **Five-minute knee MRI for simultaneous morphometry and T2 relaxometry of cartilage and meniscus and for semiquantitative radiological assessment using double-echo in steady-state at 3T.** *Journal of magnetic resonance imaging : JMRI*
  Chaudhari, A. S., Black, M. S., Eijgenraam, S., Wirth, W., Maschek, S., Sveinsson, B., Eckstein, F., Oei, E. H., Gold, G. E., Hargreaves, B. A.
  2018; 47 (5): 1328–41

- **Comparison of Different Approaches for Measuring Tibial Cartilage Thickness** *JOURNAL OF INTEGRATIVE BIOINFORMATICS*
  Maier, J., Black, M., Bonaretti, S., Bier, B., Eskofier, B., Choi, J., Levenston, M., Gold, G., Fahrig, R., Maier, A.
  2017; 14 (2)

- **Making Safe Surgery Affordable: Design of a Surgical Drill Cover System for Scale.** *Journal of orthopaedic trauma*
  Buchan, L. L., Black, M. S., Cancilla, M. A., Huisman, E. S., Kooyman, J. J., Nelson, S. C., O#Hara, N. N., O#Brien, P. J., Blachut, P. A.
  2015; 29 Suppl 10: S29–32