BRIAN KIM

PT, PhD Candidate

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PROFILE

Collaborative, detail-oriented PhD candidate in medicine with focuses on biomedical imaging and deep learning. Passionate about improving the communication and landscape of advanced musculoskeletal imaging for improved clinical translation.

EMPLOYMENT HISTORY

Tutor
The University of Sydney
2023 – Present | Contract

Assistance was provided for clinical teaching units for the Doctor of Physiotherapy's anatomy units, Master's musculoskeletal physiotherapy (PHTY5204) and undergraduate sports (PHTY4226) units, managing the units' Canvas pages and addressing student queries in forums.

Physiotherapist
Mater Clinic Physiotherapy
2023 – 2024 | Part time

I managed a predominantly sports orthopaedic caseload, closely connected with the North Sydney Orthopaedic and Sports Medicine Centre. Providing physiotherapy services through data-driven rehabilitation, I monitor high performance by incorporating force/torque-time variables into clinical practice.

Research Assistant & Tutor
Australian Catholic University
2022 – Present | Contract

I developed the doctoral research team's data cleaning processes and provided expert advice on study design for reliability studies and randomised controlled trials. Shortly after, I was identified as an engaging and influential tutor, so I began facilitating weekly tutorials and workshops for introductory biostatistics (BMSC100), biological foundations (BIOL121, BIOL125) and sports injury rehabilitation (EXSC346) units.
Achievements

- Received the highest tutor student evaluation results (/5) for biological foundations for three consecutive semesters (Median individual score: 4.83; Median unit score: 4.56) and biostatistics (Median individual score: 4.80; Median unit score: 4.56).
- Proactively produced technical documentation for the setup of new brain oxygenation and biomechanics devices, resulting in a 7% improvement of joint angle detection accuracy.

Physiotherapist
Physioworks Health Group
2021 – 2023 | Full time

Working under two of Australia's specialist musculoskeletal physiotherapists, I progressed through the graduate program and was responsible for provision of physiotherapy and rehabilitation services across multiple clinics and head physiotherapist of a premier division football club.

Achievements

- Managed the clinic's highest new-graduate workload of regularly seeing fifteen patients per day in addition to regular letter and report writing to doctors, employers, and insurance companies.
- Liaised with multidisciplinary healthcare teams in a sporting setting as head physiotherapist for Pakenham Football Club, including a network of Melbourne's most reputable sports physicians.
- Used adaptable communication skills to successfully collaborate with clients across surgical units on their concerns, expectations, treatment plans and medical reports.

Teaching Associate

Monash University
2018 – 2021 | Contract

I was a Peer Assisted Study Sessions (PASS) Leader for first-year physiotherapy units. I collaborated with unit coordinators to discuss learning outcome difficulties of present cohorts before creating weekly worksheets that focused on physiotherapy theory, human anatomy, and research methods.

EDUCATION

Doctor of Philosophy (Faculty of Medicine and Health)
The University of Sydney
2023 – Present
Thesis title: *Deep learning applications in magnetic resonance imaging of the rotator cuff.*
Supervisors: Prof James M Elliott, Dr Marnee J McKay, Dr Ziba Gandomkar, Dr Kenneth A Weber II, Prof Amee L Seitz.

Achievements

- **NSLHD-NORTH Foundation Grants Program** (2023) – $15,000 – Lead Investigator: Original funding for longitudinal trial investigating operative outcomes of muscle quality in the rotator cuff.
- **University of Sydney Postgraduate Award** (2023 - 2026): A scholarship awarded to students of exceptional research potential for the duration of their postgraduate studies.
- **Beryl & Jack Jacobs Travel Award** (2023) - $8,218: Supported by the Kolling Institute to assist and learn at Northwestern University's Musculoskeletal Biomotion Laboratory in 2024.

Bachelor of Physiotherapy (Honours)
Monash University
2017 – 2020
GPA: 3.688, WAM: 85.000

Achievements

- **Monash University Anatomy Prize** (2020): Finished the course with the highest cohort cumulative score for anatomy assessments.
- **Constance Read Memorial Prize** (2020): Achieved Monash Physiotherapy's highest four-year cumulative scores across all theory- and research-based assessments.
- **Monash University First-Year Physiotherapy Prize** (2017): Attained the highest aggregate score across all practical, anatomy, theory, and research units of first year.
- **Monash University Second-Year Physiotherapy Prize** (2018): Maintained the highest aggregate course score in second year.
- **Sir John Monash Scholarship for Excellence** (2017): Placed within the top ten international applicants across all courses at Monash University who completed Australian secondary education.
- Spearheaded independent research proposal and thesis applications as part of the Research Mentorship Program, formerly known as Physiotherapy Advanced – Research (Honours).

PROFESSIONAL RESEARCH/PUBLICATIONS (submitted & accepted)

2024

- **B Kim**, Z Gandomkar, MJ McKay, AL Seitz, EO Wesselink, B Cass, AA Young, JM Linklater, J Szajer, K Subbiah, JM Elliott, KA Weber. Developing a convolutional neural network for automated multi-tissue segmentation of the shoulder. Investigative Radiology. *Submitted.*
- MJ McKay, KA Weber, EO Wesselink, …, **B Kim**, …, DM Walton, LR Wishart, JM Elliott. The MuscleMap Consortium: Enhancing AI model efficacy for MRI analysis through open-source, data-driven methodology. Mayo Clinic Proceedings. *Submitted.*
- **B Kim**, DA Opar, PJ Tofari, N Maniar, SJ Cormack, B Horsely, RG Timmins, DS Carmichael, JT Hickey. Establishing the validity of low sample rates for assessing isometric rate of force/torque development. Journal of Applied Physiology. *Submitted.*
- M Anthis, S Gourd, **B Kim**, JD Ruddy, R Whitely, RG Timmins, N Maniar, JT Hickey, DA Opar. The Fragility Index of risk factors for hamstring strain injuries. Journal of Orthopaedic and Sports Physical Therapy. *Accepted.*

2020

- R Painter S Rahman, **W Kim**, A Frazer, J Tallent, A Pearce, D Kidgell. High-Volume Light-Load Strength Straining, but Not Low-Volume Heavy-Load Strength Training Increases Corticospinal Excitability. Journal of Science and Medicine. *Accepted.*

PRESENTATIONS (selected)

- Sports Medicine Australia (SMA) Conference 2024. 'Developing an automated multi-tissue segmentation model for the shoulder'.
- Shoulder and Elbow Surgeons Australia (SESA) Biennial Closed Conference 2024. 'Developing an automated multi-tissue segmentation model for the shoulder'.
- Faculty of Medicine and Health HDR Conference 2024. 'Developing an automated multi-tissue segmentation model for the shoulder'.
- Royal North Shore Hospital Scientic Staff Council (SSC) and Postgraduate Research Student Society (PReSS) inaugural Research Forum 2024. 'Developing an automated multi-tissue segmentation model for the shoulder'. **Speaker and Chair.**
- Northwestern University Feinberg School of Medicine 2024. **Invited international speaker.**
- Faculty of Medicine and Health HDR Conference 2023. 'Fattening the Odds: Automated Fat Infiltration for Shoulder Surgery Success'. **Finalist.**
- SydneyMSK Annual Scientific Meeting 2023. 'Developing a deep learning model for automated multi-muscle segmentation of the shoulder'. **Speaker.**
- SydneyMSK Annual Scientific Meeting 2023. 'Muscle fat Infiltration after rotator cuff repair: A study protocol'. **Speaker.**

PROFESSIONAL MEMBERSHIPS

- Member of Australian Physiotherapy Association, Sport & Exercise National Group
- Member of Statistical Society Australia
- Member of Neuro-Musculoskeletal Research Collaborative

LEADERSHIP & ACTIVITIES

Journal Reviewer
Various dates
- Orthopaedic Journal of Sports Medicine (2023 – Present)
- American Journal of Sports Medicine (2023 – Present)
- Musculoskeletal Science and Practice (2021 – 2023)
- British Journal of Sports Medicine (2021 – 2022)

Chief Editor
Postgraduate Research Student Society – The University of Sydney & Northern Sydney Local Health District
2023 – Present
- Migrated society newsletter designs to university-recommended platforms.
- Drafted the society's constitution for a successful application to the University of Sydney Union.

Research Supervisor
Kolling Institute – Neuromuscular Imaging Research Laboratory
2023 – Present
- Technical supervisor for MD student research projects building deep learning models for automated quadriceps muscle segmentation.