

Carmichael Ong

Research Engineer

Bioengineering

Bio

ACADEMIC APPOINTMENTS

- Research Engineer, Bioengineering

Publications

PUBLICATIONS

- **Simulation-guided design of exotendons to reduce the energetic cost of running.** *bioRxiv : the preprint server for biology*
Stingel, J., Bianco, N., Ong, C., Collins, S., Delp, S., Hicks, J.
2026
- **A model of the cerebellum generates gait adaptations in a reflex-based neuromusculoskeletal model during split-belt walking.** *Journal of neuroengineering and rehabilitation*
Fleischmann, S., Shanbhag, J., Miehl, J., Wartzack, S., Ong, C., Eskofier, B. M., Koelewijn, A. D.
2025
- **A model of the cerebellum generates gait adaptations in a reflex-based neuromusculoskeletal model during split-belt walking.** *bioRxiv : the preprint server for biology*
Fleischmann, S., Shanbhag, J., Miehl, J., Wartzack, S., Ong, C., Eskofier, B. M., Koelewijn, A. D.
2025
- **AddBiomechanics Dataset: Capturing the Physics of Human Motion at Scale.** *Computer vision - ECCV ... : ... European Conference on Computer Vision : proceedings. European Conference on Computer Vision*
Werling, K., Kaneda, J., Tan, T., Agarwal, R., Skov, S., Van Wouwe, T., Uhrich, S., Bianco, N., Ong, C., Falisse, A., Sapkota, S., Chandra, A., Carter, et al
2025; 15146: 490-508
- **PATIENT-SPECIFIC CARTILAGE PRESSURES ARE RELATED TO OSTEOARTHRITIS PROGRESSION AND DISEASE SEVERITY**
Gatti, A. A., Marusich, K. R., Ong, C., Chu, C. R., Esrafilian, A., Delp, S., Gold, G. E., Kogan, F., Chaudhari, A.
ELSEVIER SCI LTD.2025
- **AddBiomechanics Dataset: Capturing the Physics of Human Motion at Scale**
Werling, K., Kaneda, J., Tan, T., Agarwal, R., Skov, S., Van Wouwe, T., Uhrich, S., Bianco, N., Ong, C., Falisse, A., Sapkota, S., Chandra, A., Carter, et al
edited by Leonardis, A., Ricci, E., Roth, S., Russakovsky, O., Sattler, T., Varol, G.
SPRINGER INTERNATIONAL PUBLISHING AG.2025: 490-508
- **Personalizing the shoulder rhythm in a computational upper body model improves kinematic tracking in high range-of-motion arm movements.** *Journal of biomechanics*
Maier, J. N., Bianco, N. A., Ong, C. F., Muccini, J., Kuhl, E., Delp, S. L.
2024; 176: 112365
- **A Neural Network Model for Efficient Musculoskeletal-Driven Skin Deformation** *ACM TRANSACTIONS ON GRAPHICS*
Han, Y., Chen, Y., Ong, C., Chen, J., Hicks, J., Teran, J.
2024; 43 (4)

- **Muscle-driven simulations and experimental data of cycling.** *Scientific reports*
Clancy, C. E., Gatti, A. A., Ong, C. F., Maly, M. R., Delp, S. L.
2023; 13 (1): 21534
- **OpenSense: An open-source toolbox for inertial-measurement-unit-based measurement of lower extremity kinematics over long durations.** *Journal of neuroengineering and rehabilitation*
Al Borno, M., O'Day, J., Ibarra, V., Dunne, J., Seth, A., Habib, A., Ong, C., Hicks, J., Uhlrich, S., Delp, S.
2022; 19 (1): 22
- **Deep reinforcement learning for modeling human locomotion control in neuromechanical simulation.** *Journal of neuroengineering and rehabilitation*
Song, S., Kidzinski, L., Peng, X. B., Ong, C., Hicks, J., Levine, S., Atkeson, C. G., Delp, S. L.
2021; 18 (1): 126
- **Predicting gait adaptations due to ankle plantarflexor muscle weakness and contracture using physics-based musculoskeletal simulations.** *PLoS computational biology*
Ong, C. F., Geijtenbeek, T. n., Hicks, J. L., Delp, S. L.
2019; 15 (10): e1006993
- **OpenSim: Simulating musculoskeletal dynamics and neuromuscular control to study human and animal movement.** *PLoS computational biology*
Seth, A., Hicks, J. L., Uchida, T. K., Habib, A., Dembia, C. L., Dunne, J. J., Ong, C. F., DeMers, M. S., Rajagopal, A., Millard, M., Hamner, S. R., Arnold, E. M., Yong, et al
2018; 14 (7): e1006223
- **OpenSim: Simulating musculoskeletal dynamics and neuromuscular control to study human and animal movement** *PLOS COMPUTATIONAL BIOLOGY*
Seth, A., Hicks, J. L., Uchida, T. K., Habib, A., Dembia, C. L., Dunne, J. J., Ong, C. F., DeMers, M. S., Rajagopal, A., Millard, M., Hamner, S. R., Arnold, E. M., Yong, et al
2018; 14 (7)
- **Introduction to NIPS 2017 Competition Track** *NIPS'17 COMPETITION: BUILDING INTELLIGENT SYSTEMS*
Escalera, S., Weimer, M., Burtsev, M., Malykh, V., Logacheva, V., Lowe, R., Serban, I., Bengio, Y., Rudnicky, A., Black, A. W., Prabhumoye, S., Kidzinski, L., Mohanty, et al
edited by Escalera, S., Weimer, M.
2018: 1–23
- **Learning to Run Challenge: Synthesizing Physiologically Accurate Motion Using Deep Reinforcement Learning** *NIPS'17 COMPETITION: BUILDING INTELLIGENT SYSTEMS*
Kidzinski, L., Mohanty, S. P., Ong, C. F., Hicks, J. L., Carroll, S. F., Levine, S., Salathe, M., Delp, S. L.
edited by Escalera, S., Weimer, M.
2018: 101–20
- **Learning to Run Challenge Solutions: Adapting Reinforcement Learning Methods for Neuromusculoskeletal Environments** *NIPS'17 COMPETITION: BUILDING INTELLIGENT SYSTEMS*
Kidzinski, L., Mohanty, S., Ong, C. F., Huang, Z., Zhou, S., Pechenko, A., Stelmasczyk, A., Jarosik, P., Pavlov, M., Kolesnikov, S., Plis, S., Chen, Z., Zhang, et al
edited by Escalera, S., Weimer, M.
2018: 121–53
- **Simulation-Based Design for Wearable Robotic Systems: An Optimization Framework for Enhancing a Standing Long Jump** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
Ong, C. F., Hicks, J. L., Delp, S. L.
2016; 63 (5): 894-903
- **A Simple Method for Amplifying RNA Targets (SMART)** *JOURNAL OF MOLECULAR DIAGNOSTICS*
McCalla, S. E., Ong, C., Sarma, A., Opal, S. M., Artenstein, A. W., Tripathi, A.
2012; 14 (4): 328-335
- **Ligation with Nucleic Acid Sequence-Based Amplification** *JOURNAL OF MOLECULAR DIAGNOSTICS*
Ong, C., Tai, W., Sarma, A., Opal, S. M., Artenstein, A. W., Tripathi, A.

