

PROMOTION RECOMMENDATION
The University of Michigan
Division of Kinesiology

Daniel P. Ferris, assistant professor of kinesiology, Division of Kinesiology, and assistant professor of biomedical engineering, College of Engineering, is recommended for promotion to associate professor of kinesiology, with tenure, Division of Kinesiology, and associate professor of biomedical engineering, without tenure, College of Engineering.

Academic Degrees:

B.S.	1992	University of Central Florida, Mathematics Education
M.S.	1994	University of Miami, Exercise Physiology
Ph.D.	1998	University of California, Berkeley, Human Biodynamics
Post-Doc	1998-00	University of California, Los Angeles, Neurophysiology
Post-Doc	2000-01	University of Washington, Bioengineering

Professional Record:

2001 to present	Assistant Professor, Movement Science, Division of Kinesiology, University of Michigan
2001 to present	Assistant Professor, Biomedical Engineering, School of Engineering, University of Michigan
2005 to present	Adjunct Assistant Professor, Physical Medicine and Rehabilitation, School of Medicine, University of Michigan

Summary of Evaluation:

Teaching—Dr. Ferris teaches at the undergraduate and graduate levels. He revised the required undergraduate biomechanics course and developed a new upper-level undergraduate course on locomotor biomechanics using problem-based learning. He developed a new graduate class on neuromotor mechanics that attracts students from across campus as well as our own Kinesiology students. Students describe his courses as demanding but fair and note that he devotes considerable time outside of class to meeting with and helping students understand course materials. Dr. Ferris has a particular talent for mentoring graduate students, serving as mentor for four of his own Ph.D. students and on the committees of numerous other students in Kinesiology and across campus. He has mentored at least 25 UROP students from 6 different units on campus. Many of his students have been co-authors on papers with him.

Research—Dr. Ferris studies the basic principles governing how humans produce and adapt locomotion. He uses a combination of techniques from biomechanics, neurophysiology, and robotics to address both basic science and applied rehabilitation issues. In particular, his work is exciting because he has been developing pneumatically powered orthoses that are unique in design and that have demonstrated their value in mechanistic studies; they hold promise for intervention in spinal cord and stroke patients. The quality of Dr. Ferris' work has enabled him to generate an outstanding track record of external funding and to establish a solid record of publishing his papers across a variety of disciplines. He collaborates with faculty from across campus and outside of the University in addition to attracting very strong students to his research group.

Recent and Significant Publications:

- Ferris DP, Louie, M and Farley, CT (1998) Running in the real world: Adjusting leg stiffness for different surfaces. *Proceedings of the Royal Society of London: Biological Sciences*, 265:989-994.
- Ferris DP, Liang K and Farley CT (1999) Runners adjust leg stiffness for their first step on a new running surface. *Journal of Biomechanics*, 32:787-794.
- Ferris DP, Aagaard P, Simonsen EB, Farley CT and Dyhre-Poulsen P (2001) Soleus-H-reflex gain in humans walking and running under simulated reduced gravity. *Journal of Physiology*, 530:167-180.
- Ferris DP, Gordon KE, Beres-Jones JA and Harkema SH (2004) Muscle activation during unilateral stepping occurs in the non-stepping limb in humans with clinically complete spinal cord injury. *Spinal Cord*, 42:14-23.
- Huang HJ and Ferris DP (2004) Neural coupling between upper and lower limbs during recumbent stepping. *Journal of Applied Physiology*, 97:1299-1308.
- Sawicki GS, Gordon KE and Ferris DP (2005) Powered lower limb orthoses: Applications in motor adaptation and rehabilitation. *Proceedings of the IEEE 9th International Conference on Rehabilitation Robotics*, 206-211.
- Ferris DP, Gordon KE, Sawicki GS and Peethambaran A (2005ePub) An improved powered ankle-foot orthosis using proportional myoelectric control. *Gait and Posture*, in press.
- Gordon KE, Sawicki GS, and Ferris DP (2005ePub) Mechanical performance of artificial pneumatic muscles to power an ankle-foot orthosis. *Journal of Applied Physiology*, in press.

Service—Dr. Ferris’s service contributions can only be described as outstanding for an assistant professor. Within Kinesiology he has served on the Graduate Committee and the Computer Disk Space Committee since 2002. He supervised our IT staff while our Administrative Manager was on leave in 2003. He chaired a faculty search committee in 2004 and is currently co-chairing another. He regularly gives lectures in colleagues' classes and speaks to groups of prospective students/parents during Campus Day events, in the Health Sciences Scholars Program, and to other groups on campus. He has served on several committees within national and international research societies, regularly reviews manuscripts for a host of journals, and has reviewed grant applications for private foundations and federal agencies (NIH, NSF, VA).

Comments from External Reviewers:

Reviewer A

“I believe he is a rising star in the field of human locomotor mechanics and that he will continue to have a productive career.”

Reviewer B

“I consider Dan to be one of the most creative [of his generation] scientists in the area of biomechanics of locomotion. One of his most unique features is his ability to understand and integrate neural control principles with fundamental mechanics of human motion...this combination of insight and expertise is rare.”

Reviewer C

"His work has been recognized by many and has made an influence in the scientific community as indicated, for example, with his runner-up prize in the Promising Young Scientist competition of the International Society of Biomechanics." "...he is clearly ahead of most scientists at a comparable time in their careers."

Reviewer D

"At the University of Michigan, Dr. Ferris has been innovative in developing a powered lower limb exoskeleton that can be used for both basic and translational research on motor coordination... Various workers have tried to do this with mixed success. Dr. Ferris' has significant advantages, including the simulation of muscles with compliant characteristics. These devices are apparently still under development, but the data so far look very promising."

Reviewer E

"He has made significant scientific scholarly contributions in the field of locomotor adaptation, demonstrates substantial experience in teaching and research, high quality in his professional development, and excellent potential for continued creative contribution to the field of Kinesiology."

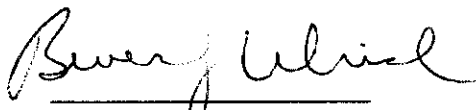
Reviewer F

"Taken overall while the total number of publications is not unusually high for an applicant at this stage in his career the quality, range and depth are truly outstanding and reflect the output of a thoughtful rigorous and innovative scientist."

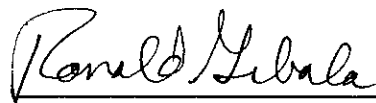
Summary of Recommendation.

Dr. Ferris has demonstrated his passion and dedication to excellence in teaching, research, and service to his students at the undergraduate and graduate levels, his colleagues, and to his profession. He has worked tirelessly to develop an important line of research in the biomechanics of human locomotion and adaptation that has both basic and clinical science implications. He has generated significant external funding for his work and for his students. He is, by all accounts, an excellent teacher and goes well beyond what is expected to serve his community. We have no doubt that he will continue to grow his well-rounded profile as an excellent member of the faculty at the University of Michigan.

It is with the support of the Executive Committee of the College of Engineering and the Division of Kinesiology, that we recommend Daniel P. Ferris for promotion to associate professor of kinesiology, with tenure, Division of Kinesiology, and associate professor of biomedical engineering, without tenure, College of Engineering.



Beverly D. Ulrich, Dean
Division of Kinesiology



Ronald Gibala, Interim Dean
College of Engineering

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