Distinguished University Professorship Lecture
Professor Yoram Koren
March 27, 2012
Provost Hanlon's Remarks

Good afternoon. I'm Phil Hanlon, provost and executive vice president for academic affairs. It's a pleasure to welcome you to this afternoon's distinguished university professorship lecture by Professor Yoram Koren.

The distinguished university professorships are the highest professorial title awarded by the University of Michigan. These lectures provide an opportunity to come together and celebrate exemplary scholarship, teaching, and service. In doing so, we re-affirm our commitment to rigorous research, thoughtful inquiry, and sharing knowledge with the larger world.

Today we honor Professor Koren, who is the James J. Duderstadt Distinguished University Professor of Manufacturing and also the Paul G. Goebel Professor of Mechanical Engineering. He excels as a researcher and teacher and is the architect of highly successful collaborations with industry and government. We are pleased to recognize his contributions in each of these spheres.

Professor Koren is an acclaimed researcher, a pioneer manufacturing for the 21st Century. He has received international recognition for his path-breaking contributions to flexible automation, robotics, and reconfigurable manufacturing. The world of manufacturing has changed dramatically in the past thirty years and Professor Koren has been in the forefront of that change.

Today, we see computer controlled manufacturing processes as normal. They are efficient, reduce errors and speed production. Why would you do it any other way? But this was not always the norm. Pioneering work by Professor Koren, including his 1973 computerized real-time adaptive control for a milling machine and his 1983 book, *Computer Control of Manufacturing Systems*, pushed industry to adopt new ways of working. A testament to the key role Professor Koren has played in these advances is the fact that the 1983 book is still considered one of the best in the field.

In letters supporting Professor Koren's nomination, colleagues from across the country noted that his current work on the personalized production paradigm will help manufacturers respond to situations in which proximity and delivery times are critical. This work contributes to the ability of the state and the nation to compete effectively in today's global manufacturing environment.

Professor Koren's work in robotics is fueled by the real world problems he observes and his imaginative responses to them. His mechanical snake robot can maneuver in difficult spaces, such as inside collapsed buildings. He has also developed robots with inflatable arms that can be deployed in hostile or confined spaces. This work

has garnered the attention of CNN and other media and increased public interest in rehabilitation robotics.

Professor Koren excels at teaching as well. Former students wrote glowing letters about his teaching, recalling the clarity of his presentations and the deep knowledge they gained in his courses. A number of them report that twenty or more years after graduating, they keep his books within reach of their desks because they consult them regularly.

Current students have responded to Professor Koren's interest in rehabilitation robotics. In his capstone course in mechanical engineering, they have picked up on his enthusiasm for improving people's lives. Under his tutelage, students have developed elevating wheelchairs that give seated people the same reach as someone standing up and a hand-operated paraplegic exercise bike. Students place great value on his courses and speak of how it broadens their understanding of engineering. It's easy to see why one of Professor Koren's colleagues wrote that he "envied the students who are educated by Yoram".

Professor Koren's has published four books and more than 270 articles and holds fourteen patents. Yet many of his colleagues consider his work at the Engineering Research Center for Reconfigurable Manufacturing Systems to be his *magnum opus*. His energetic and effective leadership there forged interdisciplinary collaborations that enrich scholarship and teaching. This work also shaped industrial development by putting new ideas into practice.

These contributions to engineering have been recognized with numerous awards including the Gold Medal of the Society of Manufacturing Engineers, the William T. Ennor Manufacturing Technology Award from the American Society of Mechanical Engineers, and the M. Eugene Merchant Manufacturing Medal given jointly by these two organizations. In 2004 he was elected to the National Academy of Engineering, the highest honor in the discipline.

In every aspect of his work, Professor Koren proceeds with intelligence, creativity, and deep respect for others. He represents the best in research, teaching, and service. We are pleased and proud to name him the James J. Duderstadt Distinguished University Professor of Manufacturing.