Pioneering vision earns inaugural IEEE award

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Linos J. Jacovides, an engineer whose visionary development of electric drives and systems set the foundation for the technologies that power today’s electric and hybrid vehicles, is the first recipient of the IEEE Transportation Technologies Award. IEEE is the world’s largest technical professional association.

Jacovides is a professor of electrical and computer engineering in the Michigan State University College of Engineering.

Six IEEE societies combined to present the award to Jacovides for pioneering contributions to the analysis and design of electromechanical systems and power electronics for transportation applications. The award sponsors are IEEE’s Industry Applications Society, Industrial Electronics Society, Microwave Theory and Techniques Society, Power Electronics Society, Power & Energy Society, and Vehicular Technology Society.

The award was presented at the 2014 IEEE Transportation Electrification Conference and Expo in Dearborn, Mich., on June 17.

Jacovides’ innovations span more than 40 years and include the development of a 1,000-horsepower induction motor drive and a 4,000 horsepower generator for locomotives. He and his team also introduced automotive electronic systems including exhaust oxygen sensors, micromechanical accelerometers, fuel injectors, electric power steering and permanent magnet motors for propulsion. The design tools he developed during the 1970s are still in use for producing drives for today’s electric/hybrid vehicles.

An IEEE fellow, Jacovides retired as director of Delphi Research Labs in 2007. He is a fellow of the Society of Automotive Engineers (SAE) and a member of the National Academy of Engineering.

Presentation remarks by IEEE Past President Peter Staeckers at the 2014 recognition ceremony, June 17, 2014, Dearborn, Mich. --
It is an honor to be here today, representing the IEEE Board of Directors to present the IEEE Transportation Technologies Award. This is one of a number of IEEE Technical Field Awards that recognize significant advances in the fields of interest to the IEEE – and in this case, transportation systems.

This year is the inaugural presentation of the award, and today we recognize IEEE Fellow Dr. Linos J. Jacovides, for pioneering contributions to the analysis and design of electromechanical systems and power electronics for transportation applications.

It may not be appreciated by many that electric vehicles have undergone several cycles of development in the industry, and particularly at GM, the first occurring in the 1960s. Dr. Jacovides was instrumental in the engineering of these early electric vehicles. Many of the important electrical challenges concerning operation and control of such vehicles were met during these early generations which predated modern EVs by as much as four or five decades.

Years before the EV1, Dr. Linos J. Jacovides was the lead engineer for the Electrovair project at GM in the early 1970s.

He built the drive motor for the Electrovair, producing the template for modern drivetrain electrification. In doing so he developed computer code to aid his design, and an updated version of that computer model facilitates the design of electric drives in modern-day hybrid and electric vehicles.

In 1985, Dr. Jacovides was elevated to the executive level and became head of GM Research’s Electrical and Electronics Engineering Department in 1988, a department that was one of the foremost research groups in the industry at that time.

In this capacity, Dr. Jacovides directed 80 automotive researchers working in wireless communications, microelectronics, engine, and vehicle controls. Together, they led the company—and the automotive industry—in transforming automobiles and the industry through the utilization of on-board electronics.

He worked tirelessly to develop systematic approaches to the design of safety critical systems. Not only are these techniques still in use, but they have formed the basis for international safety systems design and validation efforts.

This has always been a key element of Dr. Linos J. Jacovides’ work—the desire to build not only for vehicle performance, but for the safety and well-being of the person that will be using it. IEEE’s mission, advancing technology for the benefit of humanity, is defined daily by Dr. Jacovides’ pioneering work and passion.

Following his retirement in 2007, Dr. Linos J. Jacovides was asked to bring his extensive abilities to bear as a member of and leader within the U.S. National Research Council and the U.S. Transportation Research Board. And, repeating past performance, he has already made many contributions as the board and council assess emerging vehicular technologies.

Jacovides has achieved a rare recognition of double Fellow Grade membership of both SAE and IEEE, and is a member of the National Academy of Engineering. I should also add for the benefit of this audience that he served as 1990 President of IAS.

Our world is the richer for his long and distinguished career of innovation, initiative, and leadership.

It is my great pleasure to welcome Dr. Linos J. Jacovides, inaugural recipient for 2014 of the IEEE Transportation Technologies Award.