

Gridgen Helps Wright Brothers Fly Again

Orville and Wilbur Wright would be amazed! Their Wright Flyer is taking off again. And Gridgen is there to help. By interweaving cutting-edge technology of today and historical data from the brothers' efforts, the Wright Again project hopes to engage the next generation of scientists and engineers in a virtual laboratory on the Internet.

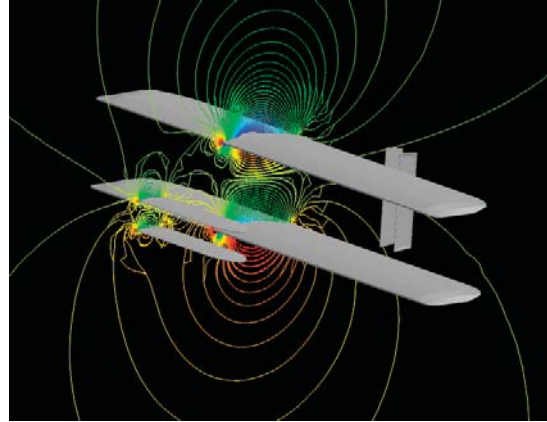
Working closely with the High Performance Computing, Education, and Research Center (HPCERC) at the University of New Mexico and NASA Ames Research Center's Fluid Mechanics Laboratory, project directors Jani Macari Pallis, Ph.D., who is CEO of Cislunar Aerospace, Inc. and Karen Elinich, Director of Education and Technology at The Franklin Institute hope to reach the next generation of engineers and aviation scientists with an ongoing website as virtual lab.



Airfoil #12 - the Wright Brother's original airfoil model from The Franklin Institute.

Via a web-based curriculum developed by Dr. Pallis and The Franklin Institute, students will follow the course of Wilbur and Orville's travails from their early interests as children, to the early disappointments in 1901 until the successful flight of December 17, 1903. The virtual environment substitutes computer codes for wind tunnel and flight facilities. Students can reproduce the Wright Brothers' wind tunnel test and see flow details the two brothers never imagined.

When Dr. Pallis began the Wright Again project, she knew the tool she needed was Gridgen. "I use it and love it," she stated. "It is the perfect tool to use for this project." Dr. Pallis was able to use the blueprints of the 1903 Wright Flyer from the Smithsonian to create a surface for Gridgen to generate a grid. "We are just beginning the airfoil grids and the Wright Flyer grids,"



Pressure plots near the center of the 1903 Wright Flyer. Cislunar Aerospace.

explains Pallis. "Then we'll add the biplane's uprights and the engine."

All together, there are approximately 50 surviving airfoils of simple shapes from the 1901 wind tunnel tests at the Franklin Institute. Differing CFD codes, each with its own grid requirements, could have made the project particularly complex, but Gridgen's versatility made it easy to use a variety of CFD codes.

Wright Again allows children to use very simple mathematics to expose the differences in theory then and now. According to Pallis, the project will provide the concepts and unparalleled educational value in the process. Currently, a dozen teachers a day are signing up to participate. The Wright Again curriculum is free to everyone. Additional activities include building a replica of the Wrights' toy helicopter and experiencing a history lesson on "Success, Failure, and Perseverance."

Please visit Wright Again online at www.wrightagain.com for more information. Dr. Pallis can be contacted at deke@cislunar.com and Ms. Elrich can be contacted at kelinich@fi.edu. Wright Again is sponsored by the National Business Aviation Association, Cislunar Aerospace, The Franklin Institute, HPCERC, and NASA Ames Research Center.

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App Sheet—Wright Again

Reprinted from the *Focal Point Fall 2002*

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