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Award Abstract #0948066

Engaging Industry Personnel in the CASA Enterprise

NSF Org: [EEC](#)
[Div Of Engineering Education and Centers](#)

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Program Manager: Stephan P. Nelson
EEC Div Of Engineering Education and Centers
ENG Directorate For Engineering

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Investigator(s): Theodore Djaferis djaferis@ecs.umass.edu (Principal Investigator)
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NSF Program(s): EEC Innovation Awards

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Program Element Code(s): 7960

ABSTRACT

Project Summary

The Collaborative Adaptive Sensing of the Atmosphere (CASA) Center is one of the 15 currently funded NSF Engineering Research Centers. CASA was established in 2003 with a vision to revolutionize our ability to observe, understand, predict and respond to weather hazards. We proposed to realize this vision by creating Distributed Collaborative Adaptive Sensing (DCAS) networks that sample the atmosphere where and when end-user needs are greatest. Since 2003 CASA has made significant contributions to basic research, technology innovation and system integration and has begun to demonstrate the power of the proposed concept. One of the major accomplishments of CASA is the design, construction, deployment and operation of the IP1 test bed in Oklahoma. This prototype

4-node radar network is allowing us to test our hypotheses and validate our results. Research is progressing on all fronts and so is the further development and expansion of this prototype network. Our hope is that our work will pave the way for industry and the government to adopt the concept and install a large number of interconnected networks of small radars across the nation, coast-to-coast, providing unprecedented ability to observe, forecast, warn, and respond to hazardous weather events.

Our research and development plan going forward is described in detail in the 2009 Annual Report. Industry has already played a fundamental role in the establishment and evolution of CASA with industrial partners and the Industry Advisory Board supporting our activities in a variety of ways. This special funding opportunity will allow us to engage industry in more direct, effective and innovative ways in the CASA enterprise. In particular, it will give us the opportunity to bring industrial personnel on the campuses to work closely with academic researchers and students on research projects and our test beds. It will also allow us to bring industrial processes and practices into the classroom. We propose to hire a full-time Research Engineer and several part-time Professors of Practice and Innovation as described below:

Research Engineer: Hire a Research Engineer who will work as part of the CASA team to enhance the future development and expansion of our IP1 test bed. This will enable the direct transfer of modern industrial practices and knowhow into CASA designs and operations.

Professors of Practice and Innovation: Hire several industry experts who can: 1) educate academic researchers and students on how to successfully transfer technology to the marketplace; 2) provide instruction in state-of-the-art industrial principles and practices that support CASA research and educational activities in systems engineering; and 3) help establish systems engineering academic offerings.

Intellectual Merit: The addition of the Research and Engineer and the Professors of Practice and Innovation will play a vital role in both CASA's research and educational activities. The close interaction of experienced industry personnel with faculty and students will improve the development of our test beds, enhance the development of our academic offerings and assist with the translation of our prototype test beds for government and industry use.

Broader Impacts: CASA is poised to make fundamental contributions to the observation, forecasting, warning and response to hazardous weather events. This work can potentially have a very significant positive impact on society by protecting lives, minimizing injuries and improving the quality of life.

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