

IHMC Board of Directors Meeting Minutes
Wednesday, October 7, 2015
8:30 a.m. CST/9:30 a.m. EST Teleconference Meeting

Roll Call	Chair Ron Ewers
Chair's Greetings	Chair Ron Ewers

Action Items

1.Approval of June 8, 2015 Minutes	Chair Ron Ewers
2.Review and Approval of 2015 Financial Statements	Audit Chair Dick Baker

Chief Executive Officer's Report

1. Update on Pensacola Expansion	Dr. Ken Ford
2. Research Update	Dr. Ken Ford
3. Federal Legislative Update	Dr. Ken Ford
4. State Legislative Update	Dr. Ken Ford

Other Items

Adjournment

IHMC Chair Ron Ewers called the meeting to order at 8:30 a.m. CST. Directors in attendance included: Dick Baker, Carol Carlan, Bill Dalton, Ron Ewers, Eugene Franklin, Jon Mills, Mort O'Sullivan. Alain Rappaport, Jim Reeves, and Gordon Sprague. Also in attendance were Ken Ford, Sharon Heise, Row Rogacki, Phil Turner, Alan Ordway, and Julie Sheppard.

Chair Ewers welcomed and thanked everyone who dialed in this morning and noted as a matter of housekeeping, that the next Board meeting is an 8:30 am central time teleconference meeting scheduled for Monday, December 7. He asked that everyone note this meeting date on your calendar and more information will be forthcoming.

With those comments, Chair Ewers moved directly into the meeting asking for a discussion and approval of Action Item 1, the June 8, 2015 minutes. A motion was made by Director Baker and seconded by Director Franklin to approve the minutes and this passed unanimously.

Chair Ewers then introduced Action Item 2, the 2015 Audited Financial Statements and asked Director Dick Baker, Chair of the Finance and Audit Committee to discuss the Financials and the 2015 Audited Financial Statements that were in the Board packet. Director Baker discussed the September financials and the audit noting that once again IHMC received an exceptional external audit and commended IHMC Controller Ronnie Armstrong and his staff. A motion was made by Director Baker and seconded by Director Sprague to approve the 2015 External Audit and this motion carried unanimously. Chair Ewers thanked Director Baker.

Chair Ewers concluded the business agenda for the meeting and asked Dr. Ford to provide his report. Dr. Ford thanked Chair Ewers and all the Board members participating in this telephone board meeting. He began his report by offering honors and kudos to Dr. Jerry Pratt who was inducted into the Florida Inventor's Hall of Fame this past Friday evening October 3rd in Tampa, noting that Jerry joins an august group of inventors that includes the likes of Thomas Edison. Dr. Ford mentioned that Jerry was one of seven people inducted into the Hall at this ceremony in Tampa hosted by the National Academy of Inventors and notable others in this most recent group of inductees included famed automaker Henry Ford and scientist Robert Grubbs, winner of the 2005 Nobel Prize in chemistry. He added that Jerry, his wife Megan and their two children, Jerry's parents, Sharon and Row and Nancy and he made up a group at the event celebrating this achievement.

Dr. Ford then turned to Research noting that on the federal budget we were all fortunate that the possible Federal government shutdown on October 1 did not occur and that IHMC is hopeful that research budgets will be stable or increase as there seems to be bipartisan support for R&D at this point in time. He added that IHMC researchers have had a very successful summer since our last meeting, bringing in just shy of \$13 million in new research with another \$670K pending. Dr. Ford mentioned that Federal agencies have clearly been pressing hard to finalize awards before fiscal year 2015 ended on 30 September adding that he would mention a few important new IHMC research endeavors.

Dr. Ford began by mentioning that he was now pleased to report that Dr. James Allen, in partnership with the University of Rochester, has received a substantial award from the Defense Advanced Research Projects Agency (DARPA) and its Communicating with Computers program. Just to recap briefly, Dr. Ford stated that this effort aims to accelerate progress towards natural, two-way communication between people and computers in which the machine is more than merely a receiver of commands and in which a full range of natural modes is tapped during interaction, including language, gesture and facial or other expressions. He added that the driving idea behind the IHMC-led approach is that essentially all human-machine communication can be modeled effectively as collaborative problem solving, and the research team is now developing a model of such human-machine problem solving to form a general theory of communication. He noted that IHMC research scientists Dr. Lucian Galescu and Dr. Choh Man Teng are collaborating with James Allen in IHMC's \$5 million portion of the overall project.

Dr. Ford continued his research report telling the Board that similarly, Dr. Jerry Pratt and the IHMC robotics team have now received a \$2 million award from NASA Johnson Space Center to produce and support open-source whole-body control and walking algorithms, as well as diagnostics algorithms, for the NASA JSC Valkyrie humanoid robot. He suggested that this effort has potential for broad impact on the state-of-the-art since NASA is providing Valkyrie robots to multiple research organizations as a common research platform, and such a proliferation of IHMC and NASA research technology could transform the field of humanoid robotics building on the results of the DARPA Robotic Challenge.

Dr. Ford continued on to mention that among previously pending awards that are now finalized, Dr. Niranjani Suri has received funding from the Army Research Laboratory to explore, experiment with and otherwise leverage intelligent systems technology from the AI community to address US Army challenges of information management, soldier interfaces and warfighter decision making. In the course of this effort, he added that Niranjani will extend IHMC's powerful agile computing framework, which opportunistically discovers and exploits available computational resources by incorporating key intelligent systems capabilities, such as natural language understanding, as an additional modality for understanding social networks and detecting influence in foreign cultures. He concluded his discussion of this project mentioning that this work is just now beginning, and numerous IHMC researchers and staff will contribute to this \$5 million, 5-year project.

Dr. Ford mentioned that Dr. Alberto Cañas has begun a new collaboration with the Doolittle Institute to develop a concept map-based knowledge model on Technology Transfer, which will be embedded in the Doolittle Institute's website. He informed the Board that as they may recall from our last board meeting, the Doolittle Institute is a recently established not-for-profit organization chartered with fostering collaboration between industry, academia and government, primarily in support of finding innovative solutions, and IHMC Associate Director Row Rogacki is detailed there as deputy director. He added that the long-term goal of the concept mapping effort is to enhance the Air Force Research Laboratory's technology transfer potential by exploring creative strategies for transferring AFRL Munitions Directorate technologies to commercial markets.

Dr. Ford also mentioned that Dr. Matt Johnson recently began a new funded collaboration with NASA's Ames Research Center and Northrop Grumman to demonstrate the feasibility of autonomous airport surface operations, specifically autonomous "Tugs," or towing vehicles that can reposition aircraft. He stated that currently, aircraft depend upon their engines and human-driven towing vehicles during departure or arrival ground operations — a domain where there is potential to improve ground movement efficiency, reduce environmental impact and increase economic benefit through intelligent integration of autonomy technology. During this effort, he suggested that Matt will use his unique coactive design approach to analyze autonomous vehicle capabilities and limitations, the human involved in providing decision support, and the normal airport ground operations with which the vehicle will interact. He added that the resulting analysis will inform design of the towing vehicle's autonomous capability, the human-vehicle interface, and the interaction patterns necessary to safely operate on an active tarmac in concert with other vehicles.

Continuing his research report, Dr. Ford added that together with small business partner Aqru Research and Technology LLC, Dr. Bill Clancey has been awarded a small business technology transfer project by the Air Force Research Laboratory Human Effectiveness directorate to perform modeling and simulation for design, development, testing and evaluation of autonomous multi-agent systems. He stated that this effort is

intended to provide risk reduction for the integration of autonomous systems with manned systems, ensuring interoperability and incorporating a construct for human-machine teaming and trust mentioning that Bill's role will be to perform work analysis of human-autonomous system operations in the air combat domain, and to extend the Brahms work practice design modeling and simulation framework as a testbed for mixed manned and unmanned operations in contested airspace.

Dr. Ford also mentioned that IHMC has increasingly been looking to pursue collaborations with the private sector, and Dr. Anil Raj has done just that with recent funding from Axxess Global Sciences LLC to conduct the first of a planned series of pilot studies with human research participants to investigate the effects of an orally administered, novel food grade ketone formulation on circulating serum ketone levels and cognitive performance over time. He added that this is an important area of research since high ketone levels can significantly improve physical performance, and it stands to reason that ketogenic supplementation can improve cognitive performance, mood and perceived mental energy as well.

Dr. Ford also mentioned that Dr. Robert Hoffman has been funded by U.S. Cyber Command to evaluate the impact of network mapping tools, or tools that discover devices on a network and their connectivity, on situational awareness during cyberspace operations. In this effort, he added that Robert will be defining and implementing a research protocol for the analysis of human activity in cyber networks, including perception and "sensemaking" under conditions of uncertainty regarding cyber network structure and that as part of this, Robert will develop and evaluate metrics to inform a Campaign of Experimentation to assess networking mapping tools, with an ultimate goal of analyzing a number of software tools that are designed to support the visualization of networks, and thus help make such tools truly usable and useful to the cyber warrior.

Finally, since the last meeting, Dr. Ford commented that he has been heavily involved in organizing Blue Sky meetings for NASA, the Air Force Research Laboratory, and others adding that several from IHMC will be heading out to Jackson Hole to lead a Blue Sky meeting for the Air Force Research Laboratory and that Director Glenn Sturm will be the host for this meeting.

Turning to recruiting, Dr. Ford mentioned that Dr. Guillaume Phillippe Brat is newly appointed as an IHMC Research Associate coming to IHMC from Carnegie Mellon University where he is a Principal System Scientist. He added that Dr. Brat will be working out of NASA's Ames Research Center in Silicon Valley, where he will lead the Robust Software Engineering Group in the Intelligent Systems Division mentioning that Dr. Brat holds a PhD in Electrical and Computer Engineering from the University of Texas.

Dr. Ford also informed the Board that Dr. Jena Hwang joined IHMC Ocala in September of this year as a Research Associate working with Dr. Bonnie Dorr commenting that Dr. Hwang holds a BS in Computer Science from Calvin College and a Masters and PhD in Linguistics from the University of Colorado Boulder and recently completed a one-year

post doc at the Center for the Study of Indigenous Languages. He added that Jena specializes on semantics and syntax and has a great deal of experience in software engineering and she comes to IHMC with very high recommendations and expectations.

Turning to facilities, Dr. Ford stated that the construction on the new building continues to progress but the work is behind schedule due to a variety of causes including material delivery delays. He added that the “dry-in” of the structure should be completed within the next month allowing an increase in trades and manpower in order to accelerate the construction and that currently the majority of the steel and concrete work are completed, and the mechanical ductwork system is being installed and that the mechanical boiler, chillers, and emergency generator are in place. He commented that the masonry, metal stud framing, sheathing installation are currently underway and will be followed by the window installation with completion of the building trending toward April 2016.

Discussing facilities in Ocala, Dr. Ford mentioned that while planning to renovate the first floor in the facility, everyone might recall that we had found unacceptably high radon levels and that since then, IHMC has installed a number of countermeasures, some rather extensive. He stated that he is now able to report that radon levels are all below 4.0 including the trouble spots of the restrooms and that we will continue to work to improve radon levels but are pleased to have seen the levels continue to decrease.

Turning his focus to education and outreach, Dr. Ford stated that as all of you know, our education and outreach activities are a matter of great important and some pride to everyone at IHMC. He added that over the years, we have conducted many such programs with Science Saturdays and the Evening Lecture Series being perhaps the premier elements and adding that Ursula is doing a great job coordinating IHMC’s educational programs in both Ocala and Pensacola. He mentioned that the Ocala Science Saturday report for the 2014-2015 school year was completed and was sent to all sponsors and that the Pensacola report is in the works and should be completed by year-end. He stated that in both Ocala and Pensacola, we’re now gearing up for Science Saturdays to start again mentioning that Ocala Science Saturdays began with Oceanography on Sept. 12, presented by Deidre Boodoo of Rasmussen College and Pensacola began on Sept. 26, with Mathemagic, presented by Jerry Pratt. He added that in both Pensacola and Ocala, we have recruited new high school students to replace the high school volunteers who graduated in June and that we are expecting a great turnout this fall and have many returning sponsors.

Dr. Ford continued his report stating that the Evening Lectures also continue to be very successful with standing room crowds and waiting lists in both locations and that we have had a wonderful kick-off to the Fall season in both locations adding that in Ocala, Dr. David Diamond gave a fascinating talk on Cholesterol that alternately surprised, annoyed, and delighted one of the largest audiences we have ever had in Ocala and that in addition to the live audience, over 7,300 people have already watched the lecture on over the web. He commented that in Pensacola, the first talk of the fall season was Brian Shul, noting that Brian became perhaps the best known SR-71 pilot after having survived terrible burns as a consequence of being shot down in Vietnam after over 200 combat

missions and that this was certainly an inspirational talk, adding that if you have not seen it, watch it at our website.

He continued on noting that this month's talk in Ocala by Larry Arnn will discuss Winston Churchill as a Defender of Constitutionalism, stating that Larry is the President of Hillsdale College and we expect a large crowd. In Pensacola, he mentioned that our next Evening Lecture will be Shirley Pomponi and IHMC's own Bill Clancey jointly presenting their talk, "Telepresence and Robotics, New Paradigms for Exploration of Inner and Outer Space." He stated that the Evening Lectures have become a key part of the cultural and educational scene in both Ocala and Pensacola.

Mentioning the Ocala Robotics Camp. Dr. Ford informed the Board that all three sessions of the Robotics Camp went well and that the lunchtime lectures and the "lunch with a research scientist" sessions were highlights adding that each ranked very highly by students, tied with the robots themselves as the best things about camp. He mentioned that almost all the students who attended our first-ever intermediate camp said that this camp was "more fun" than introductory camp and that this is a great result, as it shows that with continued exposure, interest continues to grow.

Dr. Ford concluded his report by informing the Board how much everyone at IHMC appreciates their service on the Board and their continued support of IHMC and its important work. He thanked Chair Ewers for the opportunity to present to the Board.

Chair Ewers thanked Ken and asked the Board for any other items of business and hearing none, he adjourned the meeting and thanked everyone who dialed in.

The IHMC October 7 Board meeting concluded at 9:25 CST.

Respectfully Submitted,

Julie Sheppard
IHMC Corporate Secretary