

IHMC Board of Directors Meeting Minutes
September 10, 2012

Roll Call
Chair's Greetings

Chair Glenn Sturm
Chair Glenn Sturm

Action Items

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| 1. Approval of June 11, 2012 Minutes | Chair Glenn Sturm |
| 2. Appointment of Board Member Alain Rappaport | Chair Glenn Sturm |
| 3. Executive Compensation Plan | Chair Glenn Sturm |
| 4. Fundraising Committee Update | Chair Glenn Sturm |

Chief Executive Officer's Report

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| 1. Research Update | Dr. Ken Ford |
| 2. Federal Legislative Update | Dr. Ken Ford |
| 3. Ocala Building Update | Dr. Row Rogacki |

Other Items
Adjournment

IHMC Chair Glenn Sturm called the meeting to order at 8:30 am CST. Directors in attendance included: Dick Baker, Carol Carlan, Ron Ewers, Eugene Franklin, Chris Hart, Hal Hudson, Jon Mills, Eric Nickelsen, Jim Reeves, Ray Russenberger, Gordon Sprague, Glenn Sturm and Hal White. Also in attendance were Ken Ford, Sharon Heise, Row Rogacki, Alan Ordway, Ronnie Armstrong, and Julie Sheppard.

Chair Sturm welcomed everyone attending today in person and thanked the Board members who dialed in this morning. He announced that a quorum of the Board was present to conduct business:

“Welcome to everyone and thank you to those of you who have dialed in this morning. I know it seems summer has flown by and we were just here in June, but it has been a busy summer at IHMC and in the research world.

“I would like to welcome Jon Mills to his first IHMC Board meeting. Welcome Jon, we are delighted to have you on the IHMC Board and we are look forward to getting better acquainted with you at our Ocala meeting.

“As a matter of housekeeping, we have our next meeting scheduled in person in Ocala for January 17 and 18. However, due to Dr. Ford's travel schedule in Asia in January, we need to move this meeting to Tuesday January 29. We will have a dinner in Ocala on Monday evening January 28 with the meeting from 8 to 12 on Tuesday January 29. I apologize for any inconvenience and hope that with this large amount of notice, this will work for the Board.

“With those comments, I would like to move directly into our meeting.”

Chair Sturm introduced Action Item 1, the approval of the June 11, 2012, Minutes. Director Sprague moved to accept and Director Reeves seconded. There being no discussion, the motion carried unanimously.

Chair Sprague then introduced Action Item 2, a discussion on the nomination of Dr. Alain Rappaport to the IHMC Board. He explained that Dr. Rappaport is a distinguished scientist, medical doctor and entrepreneur who served for 7 years on the IHMC Science Advisory Council and asked the Directors to refer to the agenda item attachment for more detail on Dr. Rappaport. Director Franklin moved that Alain Rappaport be appointed to the IHMC Board and Director Reeves seconded the motion. The motion carried unanimously. Chair Sturm asked Dr. Ford to extend a warm welcome to Dr. Rappaport and invite him to the next Board of Directors' meeting.

Chair Sturm then introduced Action Item 3 regarding Dr. Ford's Executive Compensation Plan, explaining that as everyone recalls, in June the Board stepped back and took some additional time to assess Dr. Ford's compensation structure and that all were in agreement that Dr. Ford has done an outstanding job at IHMC and that the Board wanted to ensure that he was adequately compensated. He explained that after looking at the various options and considering the non-profit nature of IHMC, we have restructured this proposed compensation increase agenda item to include the next and 4th phased increase of the 5-year compensation schedule adopted by the Board in June of 2005. In addition, the proposal is that the Board purchase, over the next 5 years, a Flexible Premium Life Insurance Policy with a Qualified Long-Term Life Insurance Rider or an Annuity that would issue in the name of Dr. Ford and become his personal policy for the purpose of future long-term care. The cost to the organization would be \$10,000 each year of the next 5 years (total cost of \$50,000) and this policy would be included in the compensation structure of Dr. Ford's salary. He explained that he had asked Dr. Ford to evaluate several plans and annuities to allow him to select the product that most fits his needs. Chair Sturm mentioned that if this motion were to pass, this would provide the Board time to do a more comprehensive compensation plan review for the future and that there would be only one additional increase remaining in the original compensation plan adopted in 2005.

Director Reeves made a motion to approve the fourth-year slated salary increase and the selection by Dr. Ford of a long-term care plan or annuity of \$10,000 for each of the next 5 years. The motion was seconded by Director Nickelsen. Director Carlan thanked Ken for his service and commended the Board on the approach to Dr. Ford's compensation. The motion was unopposed and passed unanimously to implement the fourth-year salary increase and provide Dr. Ford the ability to select a long-term care plan or annuity for \$50,000, payable in increments of \$10,000 in each of the following five years. Chair Sturm thanked the Board and congratulated Dr. Ford on his fine performance.

Chair Sturm then updated the Board on fundraising, explaining that there were a number of potential opportunities being explored and that he was reaching out to more select groups for higher amounts of funding. He added that he hoped to be able to call on other

Board members to assist him on this. Director Nickelsen commented that he saw more and more recognition of the importance of human cognition and that as such there should be more appreciation for IHMC and what this organization can accomplish. Chair Sturm concluded his remarks by stating that he would be continuing to update the Board on this issue.

Chair Sturm then informed the Board that this concluded the action items and turned to Dr. Ford to provide his report.

Dr. Ford thanked Chair Sturm for the opportunity to provide this report and informed the Board that much has happened since our last meeting in June. He reported that since our last board meeting in June 2012, IHMC has received a number of new awards totaling \$6.5 million in funding, and that while we discussed some of these as pending last June, he would highlight just a very few not yet discussed.

Dr. Ford explained that IHMC was excited to have been selected to participate in the Defense Advanced Research Projects Agency's (DARPA) Robotics Challenge, which promotes innovation in robotics technology for disaster relief operations, particularly in circumstances where the safety risks are too great to allow timely and effective human response, and that during this effort, Dr. Jerry Pratt and the IHMC robotics team will be examining novel approaches to human-machine teamwork to perform disaster response with a humanoid robot. He stated that typical disaster scenarios in urban environments are particularly challenging because of rubble, obstacles, loose ground, closed doors, ladders and other complex features and that humanoid robots are well-suited to these environments because they have the same mobility advantages we as humans do, and they can use vehicles and tools designed for human use. He mentioned that funding for this project amounts to a little more than \$2 million and that the best robotics teams in the country are engaged in the competition and we expect stiff competition. He mentioned that IHMC is also a partner on another team in the competition led by NASA.

Dr. Ford also reported that Dr. Anil Raj has received an additional \$944K from a motorsports firm to continue development of a novel information display that will augment driver performance during training and racing via a wearable tactile interface. He stated that during the first 18 months of this effort, Anil and his team integrated sensory augmentation technologies into a cooling shirt worn under a driver's protective racing suit to encode driver cues for time gain or loss per lap, steering angle, shift points and traction, and that during the next 12 months, IHMC will implement additional cues identified by cognitive task analysis and other knowledge engineering techniques derived from previous demonstration results and driver interviews. Dr. Ford explained that Dr. Robert Hoffman will be instrumental in providing knowledge elicitation expertise during this time, and we are hopeful that the outcomes of this effort will be applied to Carrera Cup, V8 Supercar, Formula 3 and other racing leagues.

Continuing his report, Dr. Ford reported that IHMC has \$9.7M in pending new funding working its way through award process. He explained that while contracting details are still being finalized, Dr. Yorick Wilks has been funded by the VA, jointly with the James

A. Haley Veterans' Hospital in Tampa, to develop a Companion, or digital "buddy," to interact full-time with seriously disabled polytrauma veterans so as to assist them in everyday living and reduce their dependence upon traditional caregivers. IHMC's role will focus primarily on the language understanding capability of Companions, such that they can converse with a veteran, reach out to the Internet for information, and establish a rapport based on the Companion's knowledge of the veteran's own life, interests, habits and needs. He mentioned that a key issue to be explored is whether we can develop dialogue agents capable of forming positive long-term relationships with a user, offer the user demonstrable benefit, and that in this case, we will create a specialized Home Companion for a TBI veteran whose state and symptoms would benefit from frequent monitoring through conversation and the transmission of vital and timely information to the patient's physician in the Tampa VA's special purpose Polytrauma Transitional Rehabilitation Program. He concluded by stating that IHMC believes this showcase application will meet a real-world medical need, and will create a Companions prototype capable of monitoring and adapting to a patient's emotional state well beyond the basic task of extracting symptom descriptions from conversations.

Dr. Ford also reported that Dr. Wilks has been selected to lead a significant project under DARPA's Deep Exploration and Filtering of Text program, which seeks to harness the power of natural language processing technology to extract from text implicitly expressed, actionable information that might not be readily apparent to humans. He explained that this would be in partnership with the University of Albany and the University of Florida, and that IHMC will be developing an algorithm for deep and robust analysis and understanding of multi-party conversations, including those that are only partially and inaccurately transcribed, and likely to contain obscure and even defective language. He mentioned that IHMC's unique approach will make explicit a conversation's dynamics, for example critical topic shifts, such that a speaker's beliefs and intentions can be modeled and forecasted. Our algorithm will be applicable to both English and foreign language conversations, Chinese and Farsi for example, and one-sided conversations, by which we mean two-party conversations where one party's utterances are unavailable. He stated that in the end, the goal is to provide intelligence analysts with the capability to efficiently investigate orders of magnitude more documents with a significantly deeper understanding of the underlying content of dialogues, well beyond surface word forms. He concluded by discussing the funding for this project, which should be approximately \$3.5 million. But as IHMC is still in the contracting phase, we are uncertain about the exact amount.

And finally, Dr. Ford mentioned that the IHMC robotics team has been selected for a large multidisciplinary award under the National Robotics Initiative, which aims to accelerate the development and use of robots that will work beside, or cooperatively with, people. He indicated that this has been a central tenet of IHMC's biologically-inspired robotics research all along and that this work will be focused on advancing the state of the art in humanoid avatar robots through basic research in the areas of bipedal walking control, path planning through complex terrain, and multi-sensory tele-presence interfaces. He relayed that IHMC's goal is to develop a humanoid avatar robot system that can act as a physical proxy, projecting a person's presence to a remote location to

perform useful work and that there is clearly much in this research that will be complementary to that done under the DARPA robotics challenge. He said there is no doubt both projects will benefit such that their whole will be much greater than the sum of their parts. Dr. Ford continued by explaining that multiple federal agencies participate in the National Robotics Initiative, including the National Science Foundation, NASA, the National Institutes of Health and the U.S. Department of Agriculture, and as IHMC's project will be sponsored by NASA, it will focus on demonstrating the feasibility of using human-humanoid avatar robot teams for co-exploration of hazardous environments such as those encountered during the exploration of planetary surfaces and the building of space colonies. He said funding for this project should be slightly more than \$5.7 million.

Dr. Ford then turned to new hires. He said IHMC has joined with Tulane to hire Dr. Brent Venable, a computer scientist who has relocated from the University of Padua in Italy, and that IHMC is pleased to report that Brent has begun employment and she will be splitting time between New Orleans and Ocala. Dr. Ford mentioned the hire of Carl Wernicke as a Senior Writer, explaining that Carl retired from 33 years in the publishing industry, the last 15 as the editorial writer for the Pensacola News Journal and will be now working half-time on newsletters and other important news stories for both Ocala and Pensacola, and that we hope to have the next newsletter out shortly. Dr. Ford also mentioned that Gail Dorsey has joined our research administration staff full time in July as a Research, Financial and Compliance Analyst. He said Gail has worked as an independent CPA over the last ten years, with various businesses and not-for-profit organizations in different capacities and that her background in auditing, finance/accounting and tax adds an overall balance and depth to the sponsored research office.

Dr. Ford also said that in the upcoming week, IHMC would be hosting the Science Advisory Council in Pensacola, on September 16 and 17, and that this council is a real group of science and technology luminaries and that through various social interactions and a many research briefings, IHMC looks to the Science Advisory Council to lend IHMC expertise in steering toward emerging research trends. He explained that this group of scientists and engineers, from a range of disciplines and backgrounds, are leaders in government, corporate and academic arenas and the last time this group was together was in February 2010 in Ocala. He mentioned that at the meeting, IHMC would honor the memory of the late Dave Waltz, a member of this group from its inception and who will be terribly missed.

Dr. Ford then asked Associate Director Row Rogacki to discuss Ocala happenings. Row mentioned the summer camps and facilities updates happening in Ocala.

Dr. Ford thanked Row and mentioned that the IHMC external auditors, Saltmarsh, Cleveland & Gund, were here throughout the summer conducting their audit work. He mentioned that we are expecting to have a draft audit report by the end of September for review by the Finance and Audit Committee and that IHMC is not expecting any significant issues arising.

Dr. Ford then discussed IHMC outreach. He said we were pleased to host a reception for the Workforce Florida Board of Directors and regional boards that met in Pensacola, including about 90 guests and our own Chris Hart, who is the Executive Director of Workforce Florida. He mentioned that many of the guests toured the robot lab and came away excited about the work being done at IHMC.

Dr. Ford discussed that our summer programs had been successful in terms of student outreach and that IHMC Pensacola hosted the 3rd year of Tech Connect, which trained high school students in Java programming, had them lunching with IHMC scientists to discuss research careers, touring IHMC labs, seeing robotics demonstrations and assisting with Pensacola's new MESS Hall, established downtown by Megan and Jerry Pratt. He explained that the MESS Hall is a hands-on science museum for kids. In Ocala, Dr. Ford mentioned that IHMC put 60 youth through a summer Robotics camp as Row mentioned in his Ocala comments.

Dr. Ford mentioned that the upcoming fall Lecture Series had started and that this next round of lectures promises to be quite interesting. He explained that in Pensacola, we start off this coming Thursday, September 13, with a timely lecture by Dr. Steve Squyres on "Roving Mars: Spirit, Opportunity and the Exploration of the Red Planet." He said Steve was the principal investigator for wildly successful Mars Exploration Rovers project and is playing a key role with the current Mars rover, Curiosity. He added that on October 18, Roy Baumeister will talk on "Willpower: Self-Control, Decision Fatigue, and Energy Depletion," and on November 14 we will enjoy a lecture by the well-known Virginia farmer Joel Salatin — his entertaining talks and books are very popular — and IHMC anticipates this one will fill up within a couple days of its announcement. Dr. Ford mentioned that the fall series in Pensacola ends on December 12 with a lecture by NYT best-selling author Gary Taubes, "Why We Get Fat: And What to Do About It."

He then mentioned that the Ocala lecture series began last week with the Hattie Dorsey talk on "Growing for the Future: Building a viable and sustainable community," explaining that IHMC had another full house. He added that on October 31, the prominent cardiologist and NYT best-selling author Dr. William Davis will speak in Ocala. He said Davis' talk, "Wheat: The UNhealthy Whole Grain," should stimulate substantial discussion and interest. He said that on November 27, Charlie Kennel will return to IHMC with a lecture titled, "NASA at Mid-life: The Future of Human Space Exploration," and that the Ocala Fall Season will conclude on December 18 with Wes Huntress's lecture "Roving the Solar System: Looking for Signs of Life." He informed that Board members that, as always, please let him know if anyone is interested in meeting any of these speakers and that he would be happy to facilitate that.

Dr. Ford then turned to Science Saturdays. He said that in Ocala the series began again this past weekend with Sharon Heise doing an experiment on flight with paper airplanes and that in Pensacola, it begins this next weekend with Electronic Circuits. He mentioned that upcoming topics this fall include paper chromatography, chemistry, Jello lenses and lasers, secret codes and cardboard automata and that IHMC is looking forward to another successful season.

Dr. Ford then turned to the federal arena. He said that the federal legislative environment continues to be highly uncertain and that with the specter of sequestration and \$1.2 trillion in automatic across-the-board spending cuts looming, no one has a firm idea of the long-term implications for federal agency missions and the broader economy as a whole. He mentioned that within the Department of Defense alone, \$500 billion in cuts are scheduled, and while it is not clear how these will trickle down over time, no one is optimistic about the consequences. He added that one thing we do know is that a deal has been struck for a continuing resolution or stop-gap spending measure, which in the absence of a Fiscal Year 2013 budget would continue to fund existing programs from October 2012 through March 2013 and that once again it appears a government shutdown has been averted, clearing the way for other battles. He mentioned that on the state level, IHMC is cautiously optimistic regarding this year's budget outlook, but certainly we will know more as we move through session, which starts in the spring and that we would provide an update at our January meeting.

Dr. Ford concluded his report mentioning that the fall looks busy, with numerous trips to Washington, D.C., for Defense Science Board meetings and several Blue Sky workshops and that he would be in Abu Dhabi in October and Ireland in November for Board meetings. He said he had a long Asia trip scheduled at the end of December and beginning of January for several promising IHMC partnerships in Singapore and Malaysia. He then took an opportunity to thank everyone for their faithful service on the IHMC Board of Directors, adding that he truly appreciates all the time and commitment. Dr. Ford then thanked Chair Sturm for the opportunity to provide this report.

Chair Sturm thanked Dr. Ford for his report and then asked the Board if there were additional items to come before the Board. With no additional comments, Chair Sturm adjourned the formal meeting at 9:20 a.m.

Respectfully submitted,
Julie Sheppard, Corporate Secretary