

IHMC Board of Directors Meeting
Minutes
July 19, 2010
Pensacola, Florida
8:30 a.m. Central Time

Roll Call
Chair's Greetings

Action Items

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| 1. Approval of January 29, 2010 Minutes | Chair Dick Baker |
| 2. Election of Chair and Co-Chair | Chair Dick Baker |
| 3. Adopt Meeting Schedule for 2010-2011 | Chair Dick Baker |
| 4. Appointment of 2010-2012 Board
Committees and Chairs | Chair Dick Baker |

Discussion Items

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| 1. Fiscal Update and External Audit | Chair Dick Baker |
| 2. Fundraising Committee Update | Chair Dick Baker |

Chief Executive Officer's Report Dr. Ken Ford

Other Items

Adjournment

IHMC Chair Dick Baker called the meeting to order at 8:30 a.m. central time. Directors in attendance included: Dick Baker, Carol Carlan, K.C. Clark, Bill Dalton, Ron Ewers, Eugene Franklin, Hal Hudson, Eric Nickelsen, Tico Perez, Jim Reeves, Glenn Sturm, and Hal White. Also in attendance were Ken Ford, Sharon Heise, Julie Sheppard, and Alan Ordway.

After a brief welcome, Chair Baker informed the Board that we had a quorum present to conduct business. Chair Baker welcomed the Board and thanked everyone who attended the dinner the previous evening. Chair Baker also announced to the Board that NASA has awarded Dr. Ford the Distinguished Public Service award, which will be formally announced in August by NASA Administrator, Charles Bolden. Chair Baker explained how prestigious this award is and named several famous people who have received this in the past and speaking for the Board how pleased everyone is with such an honor being bestowed on Dr. Ford.

Chair Baker then asked for a motion to approve the January 29, 2010 Board minutes. Director Reeves made a motion and Director Franklin seconded and after no discussion, the motion to accept the January minutes passed unanimously.

Chair Baker introduced Agenda Item 2 calling for the Election of Board Chair and Co-Chair. Vice Chair Jim Reeves was nominated by Dick Baker as Chair and Glenn Sturm was nominated for Vice Chair. The nominations were made into a motion by Director Carlan and seconded by Director Ewers. No other nominations were received. The motion to elect Jim Reeves Chair and Glenn Sturm Vice Chair passed unanimously.

Chair Baker thanked the Board for the opportunity to serve and passed the gavel to Chairman Reeves. Chair Reeves thanked the Board for the vote of confidence and introduced Agenda Item 3, regarding the adoption of a meeting schedule for 2010-2011. Chair Reeves suggested a proposed meeting schedule to include 4 scheduled meetings to be held as follows: a teleconference 8:30 a.m. CST: Monday, October 18, 2010; an in-person meeting: Thursday/Friday, January 20-21, 2011, in Ocala; a teleconference 8:30 a.m. CST: Monday, April 11, 2011 and an in-person meeting: Sunday/Monday, June 19-20, 2011, Pensacola. The suggested schedule was moved and seconded and passed unanimously.

Chair Reeves then introduced Agenda Item 4 and made the following appointments to IHMC Committees for 2010-2012.

Executive Committee: Chair Jim Reeves, Dick Baker, Carol Carlan, Bill Dalton, Ron Ewers and Glenn Sturm.

Finance and Audit Committee: Chair: Dick Baker, Carol Carlan, Gene Franklin and Eric Nickelsen.

Fundraising Committee: Chair: Glenn Sturm, KC Clark, Ron Ewers, Hal Hudson, Tico Perez, Jim Reeves, Ray Russenberger and Gordon Sprague.

Vision Committee: Chair: Jim Reeves, Carol Carlan, and Dick Baker.

IHMC Intellectual Property Committee: Chair: Ray Russenberger, Glenn Sturm and Hal White.

Chair Reeves asked for a motion to approve his 2010-2012 appointments. A motion was made by Director Baker and seconded by Director Hudson to approve the slate of appointments. The motion carried unanimously.

Director Reeves then turned to Director Baker for the Finance and Audit report. Director Baker informed the Board that he has regularly been reviewing the monthly financials with Ronnie Armstrong, IHMC Comptroller and has been involved in the initial meetings with the Auditors. Chair Baker discussed the financials with the Board in detail and

expressed his appreciation for the excellent status of the IHMC financials and commended the work of Ronnie Armstrong in making this review easier.

Chair Reeves then discussed fundraising and charged Vice Chair Sturm with coordinating and IHMC fundraising strategy. Vice Chair Sturm explained that as a new board member he was excited to accept this challenge and to engage the Board on this issue. He outlined several strategies he believed could be effective and asked permission from the Board to engage a fundraiser and work with staff to negotiate an agreement with a desired outcome and reporting back to the Board at the October meeting on a new fundraising initiative. A motion was made by Chair Reeves and seconded by Director Baker.

Chair Reeves thanked Vice Chair Sturm for his willingness to take on this responsibility. Chair Reeves then asked CEO Ford for his report.

Dr. Ford thanked Chair Reeves for the opportunity to provide his report. He began his remarks by commenting that he would be remiss if he did not thank Chair Baker for his 2 years of wonderful service as IHMC Board Chair. He mentioned that IHMC has accomplished quite a bit during Chair Baker's tenure including completing the expansion into Ocala. Dr. Ford presented Chair Baker with a shirt and dinner certificate and asked the Board to join him in thanking Dick Baker for his tireless efforts! Dr. Ford also added his thanks to Jim Reeves for serving as Vice Chair mentioning that he was looking forward to working with Jim over the next 2 years in his role as Chair and also with Glenn Sturm as Vice Chair.

Dr. Ford then thanked all the Board members who attended the event last night at the Bait Shop stating that he hoped everyone enjoyed dinner and seeing everyone. He also thanked everyone for the kind remarks regarding his upcoming NASA award.

Dr. Ford began his remarks by explaining that with regards to IHMC research activities, the first half of 2010 has been busy and productive at IHMC and that in this past six months, fifteen new or extended projects have been awarded to IHMC researchers, with new total funding of almost \$4.8M. Dr. Ford began a discussion of the new research explaining that in February, the IHMC robotics team, led by Drs. Jerry Pratt and Peter Neuhaus, began a major new project in support of NASA Johnson Space Center, where scientists and engineers are working on an inspiring effort to develop a humanoid robot capable of operating on the moon – or a “robonaut.” He explained that Jerry and Peter's team's role is to develop walking algorithms that enable robust and reliable locomotion in both 1 g and simulated reduced gravity environments and that although this is a 1-year initial effort, the significant research challenges will likely extend beyond that. He added that with this project we have enjoyed the funding and opportunity this past spring to recruit a number of young people with talent and experience in walking robots and it will be a pleasure over the next few years to watch some of these people and their contributions in this emerging field.

Dr. Ford then discussed the area of human-centered visualization, explaining that Dr. David Still and Tom Eskridge are applying IHMC's Oz flight display concept to remotely

pilot aircraft in support of the Air Force Research Laboratory's Human Effectiveness Directorate. In this effort, AFRL will evaluate the effectiveness of using Oz to train Predator and other UAV operators, with the goal of eventually allowing a single operator to control multiple platforms during complex missions in close collaboration with other manned and unmanned assets. He added that unmanned systems is an exciting new application domain where we think Oz will have a significant impact on both training and operations.

Dr. Ford continued his research comments mentioning that the KAoS policy services group, led by Dr. Jeff Bradshaw, once again has successfully teamed up with industry to support the Air Force Research Laboratory Information Directorate and that for the duration of 2010, IHMC and Raytheon will build and demonstrate a proof-of-context architecture for policy-based Web service access control, and delegation of authority in a military context. He explained that IHMC expects this work to lead to a leap-ahead improvement in command and control capabilities for our armed services.

Dr. Ford then discussed Dr. Marco Carvalho's work with the Air Force Research Laboratory Information Directorate on the design and implementation of a hybrid network emulation environment for the Air Force's Airborne Testbed Network. He mentioned that this new emulation environment will enable low cost development, evaluation and validation of protocols and systems designed for airborne networks supporting aircraft to aircraft and air to ground communications. He explained that we anticipate such an environment will reduce the overall 'air time' required for field test and experimentation – which would otherwise be extremely expensive!

Dr. Ford continued the research discussions by mentioning Dr. James Allen, who leads the IHMC natural language processing group. Dr. Allen has had several efforts start up over the past six months including working with Lockheed Martin Advanced Technology Lab under their internal research program to merge IHMC's one-shot learning of complex tasks based on user instruction with Lockheed's rich models of user activity. This is based on knowledge acquisition strategies, which currently are not learned with the intent to create a hybrid system that would enable ongoing strategy learning by observing and inferring from user actions. He continued by discussing a planning project for NSF, where we will identify what type of toolkits and data would best support technical community research involving deep language understanding with the end result to help NSF define a follow-on program to develop such a core set of resources. Finally, Dr. Ford mentioned Dr. Allen's work with the Air Force Office of Scientific Research pursuing work in Process Integrated Mechanisms as a novel and robust means of human-computer collaboration and coordination.

Dr. Ford concluded his specific research discussions by mentioning that Dr. Anil Raj received a new award just this week from the Office of Naval Research to support his work on Assistive Technologies for Injured Service members and that in this project, IHMC will continue research on sensory substitution for those with vision, hearing or balance loss, as well as robotic exoskeletons for mobility assistance. He mentioned that this year, a new emphasis will be placed on cognitive assistance, where James Allen and

Yorick Wilks will lead development of an intelligent spoken dialogue interface that can aid in reminding and planning to assist a person throughout the day in pursuing consistent, everyday activities. ONR has shown great interest in our Assistive Technologies work, and they have even proposed transitioning sensory substitution in to a Future Naval Capabilities program, where the technology would be matured over a concentrated long range research and development effort. Dr. Ford added that ONR's internal selection process for these programs is highly competitive, and whatever the outcome we are extremely proud that Anil's work has been recognized for its significant value to the warfighter.

Dr. Ford then concluded these discussions adding that as always, IHMC researchers are currently pursuing a number of other new opportunities, and we look forward to reporting on these at our next board meeting. Also, IHMC continues to host weekly visits from military and private firms and are engaged in a number of collaborative teaming opportunities and overall, he is pleased to report this research activity to date this year and that he has great expectations for this next year.

Dr. Ford then began a discussion of intellectual property noting that IHMC recently received the Urban Warrior Robot Patent which had been filed in 2006 and as many of you know, the patent office backlog is 4-5 years for receipt when the patent moves smoothly so IHMC was delighted that it came in without difficulty in less than the 4 year time frame. He added that we still have a number of patents pending including Process Integrated Mechanisms, filed jointly with UWF, and Humanoid Push Recovery, filed jointly with Honda, and IHMC's PLOW, Process Learning that you had seen a demonstration of several years ago by Dr. James Allen. He concluded by adding that we have several new patents in the preparation stages and are continuing to work closely with IHMC researchers on these important discoveries.

Dr. Ford informed the Board that with the PIM and PLOW patents pending; IHMC is watching very closely a Supreme Court opinion on patents that could have a substantial impact. On June 28th, the U.S. Supreme Court opened the door for innovation by easing restrictions for acquiring business method patents, with the software, biotechnology and gambling industries are the most likely to benefit. He discussed the court ruling in *Bilski v. Kappos* that the test for business method patents – of which Amazon.com's "one-click buying" may be the most famous – is too rigid and that under the test, the patented invention needs to involve a machine or a transformation in which a particular article is transformed into a different state or item. He noted that the high court did not provide any new guidelines; however, leaving the patent office and the rest of us with no clear idea of what business methods could be patent-protected, but that hopefully we will be successful in our efforts to protect these inventions.

Dr. Ford also mentioned that with our current 2 patents and licensing opportunities, we are still working on these and that CMap Tools continues to be provided for free, but we are exploring media advertising and other revenue generators due to the large number of hits the CMaps area receives daily. He reminded the Board that the OZ technology was licensed to a start up, eSky for fixed wing experimental, and that so far, the group has

continued to attract small NASA SBIR's and meet its modest milestones. While IHMC has not received any royalties, we have continued to keep UWF and the NAVY apprised of our progress and as you heard above, we have great hopes for the use of OZ in unmanned systems and that IHMC will continue to update the Board on progress.

Dr. Ford then began a discussion of Ocala explaining that the new facility in Ocala is now completed and IHMC is in the process of wrapping up the paperwork to close out the EDA grant, which helped pay for portion of the renovation costs, and IHMC now has an estimated \$3M asset in Ocala.

Dr. Ford mentioned that at the January Board meeting in Ocala, many of you had the honor of meeting Dr. Yorick Wilks in person and that Yorick, recently hired from Cambridge University in the UK, began working with IHMC in May and is now a residence in Ocala and in the process of building his research team and securing grants to support his work with IHMC. Dr. Ford added that Yorick is establishing partnerships with research colleagues at UCF, UF, and exploring opportunities with the Moffitt Cancer Center in Tampa and that Yorick will be traveling between Ocala and the UK for a while as he completes his final transition to our team. Dr. Ford informed the Board that in late June, Yorick was named ACM Fellow: One of 47 new Fellows among 97,000 members ~ in San Francisco at the annual awards banquet of the Association of Computing Machinery (ACM). He mentioned that Yorick received this top honor in his field for his fundamental contributions to the field of computing and computer science and that the ACM Fellows selection is the most prestigious recognition of the Association, assigned to the top one percent of its membership for outstanding accomplishments in computing and information technology. Dr. Ford noted that as Yorick is known internationally for his substantial work in the area of artificial intelligence, this specific honor by the ACM is for his research on meaning-based understanding of natural language by computers and that IHMC could not be more proud to have Yorick on the IHMC team.

Dr. Ford added that Dr. Marco Carvalho continues to head-up a large team of researchers in Ocala with his work primarily in the area of cyber security and that he is also partnering with FIT in Melbourne on his Air Force work that was mentioned previously.

Dr. Ford informed the Board that our community outreach programs in Ocala are off to a great start and that IHMC has hosted five evening lectures and the response has been quite good with between 150 to 170 attendees at each of the events—a number that strains the capacity a bit. He mentioned that we started the inaugural series with Jack Schmitt after the January opening who discussed returning to the moon, and the series continued in February with Walter Kulash discussing new ways to think about traffic in our downtowns. In April the famous food critic, John Edge discussed Street Food as a new culinary phenomenon. May's guest was Brother Guy Consolmagno discussing Religion and Science and finishing in June with Astronaut Tom Jones discussing Space and Exploration of Near Earth Objects. Dr. Ford noted that as in Pensacola, the local community has also begun to take advantage of our facility as a venue for various events including one for an "Ocala 2035 Visioning Process"; similar to our hosting of the Ray

Gindroz urban planning process in Pensacola and other local events. He mentioned that on August 17th, IHMC is hosting an evening in Ocala with the Hispanic Business Council to promote and recognize Hispanic Scientists and Researchers and that IHMC will have a number of its Hispanic Researchers present including Dr. Alberto Canas, Dr. Marco Carvalho, Marco Arguedas, Adrian Granados, and Carlos Perez.

Dr. Ford continued his Ocala discussion explaining that we are also working with Central Florida Community College and providing speakers for their robotics camp this summer as we gear up for the fall lecture series in Ocala. Dr. Ford mentioned that many people have asked him about our youth outreach and that we are still looking for some local sponsorship before we begin those activities. Dr. Ford commented that if anyone knows of those interested in sponsoring this hands-on science, please let him know and IHMC will follow up. Dr. Ford added that we continue to enjoy excellent support from the Ocala/Marion County communities, the local governments, and the local congressional leaders and that Rep. Cliff Stearns has been particularly helpful. Dr. Ford stated that while he can't speak on behalf of the representatives from Ocala, he believes they are extremely pleased with IHMC progress to this point.

Dr. Ford then turned to Pensacola noting that our Pensacola operations have continued to flourish this year and that once again, IHMC filed a \$10M request with the National Institute for Standards and Training (NIST) to build a 36,000 sq. ft. robotics and assistive technologies lab along Romana Street. He noted that Escambia County has generously agreed to a \$1.2M match and IHMC is hopefully optimistic that this project will be funded and that with much needed lab space in 4 major research areas, this project would certainly cement new research opportunities and employment growth for the Pensacola operations.

Dr. Ford noted that the science outreach continues to be successful here and that, in addition to Science Saturdays double sessions each month and I LOVE Science, this year we were able to do a new collaboration with the Naval Aviation Museum. In conjunction with the showing of the Hubble movie, IHMC's Tom Eskridge demonstrated Jello lenses which helped young attendees with creating lenses before enjoying the film.

Dr. Ford commented on the 4 very successful evening lectures this spring in Pensacola including Dr. Daniel Nocera in February discussing personalized energy, Jack Burns in April describing the exploration of space from the Moon, John Grunsfeld in May who discussed and demonstrated the amazing advances that have come from the Hubble, and Andrew Young in June who discussed ethics and politics. He mentioned that as a special summer lecture this year, on August 19th NASA Administrator Charles Bolden will discuss growing up in the rural south to life as a Marine General to running NASA and that this promises to be a fascinating lecture and we are very fortunate to have engaged Charlie to visit Pensacola.

Dr. Ford then turned his attention to the legislative budget noting that we were very pleased this year with the state legislative budget and for the first time in over 7 years,

IHMC actually had a small increase in funding and that this will be a tremendous help as we recruit scientists to Ocala and continue our growth opportunities in Pensacola.

He explained that on the federal level, the fall legislative session is still unclear and that the house republicans choose not to support projects this year, which leaves much of Florida largely without prospects in terms of federal projects. Dr. Ford noted that it remains to be seen whether any new project starts will happen but IHMC has several collaborations, with institutions outside Florida, in the works so teaming on a national level may pay off this year. Dr. Ford mentioned that Senator Nelson has continued to be supportive of IHMC and we are grateful for his support. Many know, these congressional projects are a way for a federal agency to get monies appropriated for a new area of emerging research and begin to build a funded program so these projects become very important in terms of American innovation in research and technological developments. Dr. Ford stated that IHMC should have more information on the status of federal funding opportunities at the Fall meeting.

Dr. Ford then began a discussion of the Fall Lecture Series...noting that IHMC has an exciting list of lectures lined up for Fall in both Ocala and Pensacola and is in need of both season and individual sponsors and asked all Board members to think about this list and let him know of potential sponsors, and that he would be grateful for the leads and IHMC will follow up. Specifically he mentioned for Pensacola:

August 19th - Charlie Bolden: Life in poor rural South Carolina to Marine General to NASA Administrator.

September 8th - Tom Murphy, former mayor of Pittsburgh: Extensive experience in urban revitalization—what drives investment, what ensures long-lasting commitment.

October 27th - John Logsdon: JFK and space exploration... will be forthcoming book.

December 1st - Chuck Carlson: The Stock Market: Where are we are headed in 2011.

December 15th/16th - John Norquist: former Mayor will discuss city building and economic development.

Dr. Ford noted that the Ocala lineup included:

September 8th - Dan Britt: Global Climate Change.

October 14th - Astronaut Eileen Collins: Leadership and lessons learned from the space program.

November 9th - Glenn Sturm: Entrepreneurial Attorney will talk about developing Sustainable Businesses.

January 19th - Roger Schank: Future of education.

Dr. Ford then mentioned fundraising, adding that, as many know, For Impact has been working with us this past year on a fundraising strategy for IHMC and that we are at the point where I would like to engage the Board in a strategy as to moving forward. Under Glenn's leadership, Dr. Ford noted that he hopes that IHMC can make some progress in this arena and would welcome everyone's thoughts, participation and contributions.

Dr. Ford then thanked Chair Baker and Board members for their comments and congrats on the NASA award adding that he is proud to be a recipient and thanked all of the Board of Directors for allowing him the opportunity to be successful at what he loves to do.

Dr. Ford also thanked incoming Chair Reeves for the opportunity to present this report.

Respectfully submitted,

Julie Sheppard
Corporate Secretary