IHMC Board of Directors Meeting Minutes
Monday, February 13, 2017
8:30 a.m. CST/9:30 a.m. EST Meeting

Roll Call	Chair Bill Dalton
Chair's Greetings	Chair Bill Dalton
Action Items	
1. Approval of September 26, 2016 Minutes	Chair Bill Dalton
2. Finalization of June 30, 2016 Financial Statements	Finance Chair Dick Baker
Chief Executive Officer's Report	
1. Research Update	Dr. Ken Ford
2. State Legislative Update	Dr. Ken Ford
Adjournment	

IHMC Chair Bill Dalton 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, Hal Hudson, Jon Mills, Mort O'Sullivan, Alain Rappaport, Jim Reeves, Martha Saunders, and Gordon Sprague. Also in attendance were Ken Ford, Sharon Heise, Row Rogacki, Ronnie Armstrong, Alan Ordway, and Julie Sheppard.

Chair Dalton opened the meeting by thanking everyone who is here this morning also those who dialed in this morning.

Chair Dalton introduced Action Item 1 calling for the approval of the September 23, 2016 Minutes. Director Sprague moved approval and the motion was seconded by Director O'Sullivan. With no modifications, the minutes were unanimously approved.

Chair Dalton then called upon Director Dick Baker, Chair of Finance and Audit, to discuss the year end financials and the upcoming audit. Director Baker discussed the financials comparing end of June 2015 to June 2016 and commenting that contract revenues had significantly increased in the past year. He discussed the external audit noting that a clean audit had once again issued by Saltmarsh and congratulated IHMC on another good year. Director Baker made a motion to approve the audit and this was seconded by Director Carlan. The motion passed unanimously. Chair Dalton complemented IHMC on both the audits and financials.

Chair Dalton then informed the Board that the action and discussion items had concluded and he asked Dr. Ford to provide his report.

Dr. Ford thanked Chair Dalton and informed the Board that there was indeed some exciting news since our last meeting. He reminded the Board that he had shared at the

last meeting, the preparation of the IHMC team for the upcoming Cybathlon and that many may know, IHMC robotics team once again demonstrated its brawn as it placed a strong second in the powered exoskeleton division of the first annual Cybathlon. To recap, he told the Board that the competition, held on October 8th, in Zurich, Switzerland, was a global competition for disabled athletes aided by wearable robotic devices. He informed the Board that the unique competition hosted 66 teams from across the globe, competing in six distinct divisions. He continued the discussion by relating that using the Mina v2 exoskeleton, developed at IHMC's research facility in Pensacola, Florida, was Mark Daniel, the IHMC pilot athlete and that Daniel, who grew up in Pensacola, suffered a spinal cord injury in 2007 as a result of a car accident, which left him paralyzed. Dr. Ford mentioned that Mark began assisting the IHMC research team in 2010, with the evaluation and testing of powered exoskeletons. He stated that the German-based company ReWalk won first place in the competition, represented by Andre Van Ruschen, who also suffered a spinal cord injury due to a car accident and that overall nine teams from around the world competed in the exoskeleton division event, with IHMC being the only team from the United States to compete and place. He concluded by saying that IHMC is more than proud of our team and we celebrated their success in late October with a well-attended IHMC party at the Union Public House.

Dr. Ford went on to announce another great honor, informing the Board that Dr. Bonnie Dorr, Associate Director and senior research scientist, has been named a fellow of the Association for Computational Linguists (ACL). He mentioned that she is one of four people to be named to this year's class of ACL fellows adding that this honor is in recognition of Dorr's contributions to the field of computational linguistics. In naming Dorr one of its 2016 fellows, Dr. Ford stated that the ACL specifically highlighted her "significant contributions to machine translation, summarization and human evaluation." He added that Dorr's research spans several areas of broad-scale multilingual processing, including machine translation, summarization, and cross-language information retrieval. He concluded by stating that established in 2011, the ACL Fellows program recognizes ACL members whose contributions to the field have been most extraordinary.

Dr. Ford also informed the Board that David Fries has been named a prestigious Fellow of the National Academy of Inventors (NAI) and further explained that David is an IHMC Research Scientist and true innovator in undersea technologies, especially microsystems and robotics for sensing applications, advanced sensor development, and mobile robotic systems for field applications. He remarked that Fries holds more than 35 U.S. patents, 13 of which have been licensed to seven separate companies. Dr. Ford remarked that David was cited as having "demonstrated a highly prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development, and the welfare of society." He ended his comments by stating that the NAI was founded in 2010 "to recognize investigators at universities and non-profit research institutes who translate their research findings into inventions that may benefit society," according to the group's website and that the NAI Fellows Program currently has 582 Fellows worldwide representing more than 190 universities and governmental and non-profit research institutions and that collectively, the Fellows hold more than 21,000 issued U.S. patents. He added that David will be

inducted during the 6th Annual Conference of the National Academy of Inventors on April 6, 2017, at the John F. Kennedy Presidential Library and Museum in Boston, MA.

Dr. Ford then began his research update stating that given the very unusual and rather contentious past year in the federal government, he didn't think that any of the Board would be surprised to hear that federal funding activity has once again been long-drawn-out. He added that with the change in administration, heads of some of the more major federal funding agencies are now turning over, and it is uncertain still how long and impactful the recent election process will be on research and development in both the public and the private sector. However, even with difficult times in D.C. and the short amount of time since our last board meeting, IHMC researchers have brought in $1.9M in new funding, with an additional $4.1M pending. He added that in addition to completely new efforts, this funding also includes contract/grant extensions and renewals of temporary government assignments (IPAs), but that all of this funding is significant to maintaining the IHMC research enterprise.

Dr. Ford also added that a recent phenomenon he should mention, however, is that in the past several weeks hiring freezes have driven federal agencies to leap into action regarding Proposers' Days, new Broad Agency Announcements, and any activity that can accelerate towards committing what funding is available and that although this has not led to any new awards just yet, it has led to a flurry of effort on everyone's part at IHMC.

Dr. Ford informed the Board that Dr. Matt Johnson has been funded by the Naval Postgraduate School to support their "Unmanned Tactical Autonomous Control and Collaboration" (UTACC) research program by providing expertise in human-robot interaction and human-robot system design. He explained that this NPS UTACC effort is exploring the interaction and roles necessary in a collaborative manned-unmanned team, with significant effort spent on reducing the cognitive load of the operator adding that the concept demonstrator for this effort will be a single integrated system consisting of multiple Unmanned Ground Vehicles and multiple Unmanned Aerial Vehicles. Dr. Ford mentioned that Matt's specific role will be to provide expertise in his specialty of Coactive Design, a design method that focuses on identifying and managing the interdependencies among human-machine team members, which will ultimately support the U.S. Marine Corps goal of proving that the concept of collaborative autonomy is valid and can be utilized in an operational environment.

He continued his research update mentioning that in partnership with prime contractor Aptima, Dr. Robert Hoffman has received a Phase 2 Small Business Innovative Research award from the Air Force Research Laboratory to refine and implement information display technology that fuses distributed sensing and human perception to increase operator situational awareness and decision speeds during highly dynamic cyber-kinetic operations. He added that more specifically, Robert will continue to contribute design concepts for visualizations and techniques to adaptively support user sense making and decision-making based on principles that effectively exploit various aspects of human vision and perception. Throughout the Phase 2 effort, Dr. Ford explained that Robert will provide support for the design of prototype interactive visualization concepts for network

environments and the development of evaluation methodologies for testing the adaptively and resilience of data intensive command and control systems.

Dr. Ford then mentioned that in what has proved to be a very interesting few days at IHMC, Dr. Anil Raj was sponsored by the Army's Small Business Innovation Research office to host a meeting of the Spatial Orientation Modeling Expert Workgroup, an ad hoc group of researchers that came together in Pensacola from all over the world to study problems associated with real or apparent motion stimuli. He informed the Board that during the 2 ½ day workshop, approximately 80 researchers shared presentations and discussed research concerning modeling, measurement, and countermeasures for disorientation and motion sickness caused by various types of motion stimuli, such as fixed or motion based flight simulators, or even by watching movies. He mentioned that perhaps the greatest draw of the workshop was a celebration of the life and work of Dr. Robert S. Kennedy, a retired Navy aviation experimental psychologist and a leading expert in human factors and economics.

Dr. Ford then turned the discussion to pending projects currently under negotiation, mentioning that Dr. Hoffman has been funded by the Army Research Laboratory (ARL) to investigate human factors principles for the design of Army statistical and data graphs, for example bar graphs, pie charts, scatter plots, etc. Currently he added, there is a disconnect between the literature on the design of statistical graphs, the literature on data visualization, and the literature on graphicacy, that is, the ability to understand and present information in non-textual, two-dimensional form. Dr. Ford stated that Robert will be collaborating with ARL researchers to review this literature and extract a unified and broadly applicable set of human factors guidelines that can be used to improve visualization of data and the use of its interpretation for control of complex networks and operations in the context of Army missions. He added that Robert will demonstrate if this is the case by designing and constructing experiments that will compare interpretability of graphs created using conventional Army charting practices, new human factors guidelines, and a widely-used software package. Dr. Ford concluded this discussion stating that this nearly three-year project could have immense impact on how we interpret data given the widespread reliance on graphs in industry, government, media, and society in general.

He then informed the Board that they might recall that in September, Dr. James Allen was notified by the Defense Advanced Research Projects Agency that they intended to fund an IHMC-led project titled "An Exploratory System for Complex World Modeling." He added that IHMC has now learned that the funding for this effort is in place at our contracting agent, the Army Research Office, and it is simply awaiting a so-far protracted distribution and that DARPA staff and ARO leadership are currently steadfastly working to assist in the release of these funds. In World Modelers, Dr. Ford explained that the goal is to pursue a one-year, $1.2 million seedling effort to extend and adapt reading and analysis capabilities developed in James' Big Mechanism effort to create a capability to read descriptions of heterogeneous qualitative models, and to then assemble several specialized existing reasoning engines to create broad scale quantitative models predicting global, socio-economic phenomena. In particular, Dr. Ford added that World

Modelers will explore integration of existing climate, crop and market models to determine how factors such as climate change and economic policies impact agriculture and the distribution of food, and how these issues affect food security which in turn leads to the possibility of social unrest and eventually migration. He concluded this discussion by adding that if successful, this seedling will become the basis for a new full-scale, multi-year DARPA program with multiple performers.

Dr. Ford wrapped up his new research discussion mentioning that IHMC's newest notice of award goes to Dr. Robert Hoffman, who in partnership with Michigan Technological University, Middlesex ~~Univeristy~~ University of London, small business MacroCognition, and the Air Force's School of Advanced Air and Space Studies, will support DARPA's Explainable Artificial Intelligence program by providing a psychological model of explanation. In this Explainable AI program, Dr. Ford stated that DARPA seeks to enable human users to understand, appropriately trust and effectively manage the emerging generation of artificially intelligent machine partners or assistants. He added that while other program performers will develop new machine learning techniques to produce more explainable models as well as develop explanation interfaces, Robert's team, the only one of its kind in the program, will focus on developing a computational theory of explanation based upon psychology and added that this is a significant multi-year award, coming in at just under $2.4M.

In addition to the research funding, Dr. Ford added that he was pleased to announce that IHMC received several gifts since its last meeting mentioning that one of our anonymous donors who has supported small IHMC exoskeleton research initiatives for several years has donated $100,000 to continue our exoskeleton research and that Gulf Power has named the Blue Sky Integration Lab mentioning that there was a nice small unveiling ceremony of their new plaque with the Gulf Power leadership in late January.

Dr. Ford then turned to new hires mentioning that in addition to our regular group of young research interns, he was pleased to announce several new hires at IHMC since our last Board meeting. He began by mentioning that Dr. Philip Fatolitis, joined Anil Raj's team as a research associate in November 2016 and that Philip is planning to start a Physician's Assistant program in 2018. Dr. Ford explained that Philip is a Retired U.S. Navy Lieutenant Commander/Hospital Corpsman, with a PhD in Experimental (Applied) and Human Factors Psychology adding that Philip worked at IHMC back in 2001 and since that time has worked as an Aerospace Psychologist and Principal Investigator at NAMRL and as an Adjunct Professor at Embry-Riddle. He continued by adding that Philip holds a PhD in Applied Experimental and Human Factors Psychology from the University of Central Florida, a Masters in Psychology from UWF and a BA in Psychology from the University of Honolulu adding that Philip has been the recipient of numerous research awards and the author of numerous scholarly publications and presentations and we are delighted to have him back at IHMC.

Dr. Ford then discussed another new hire, Dr. Inho Lee who joined the Robotics Lab research team on January 4th and will be working under Drs. Pratt and Neuhaus on humanoid research. He mentioned that Dr. Lee received his BS degree, MS and PhD

degree in Mechanical Engineering from Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea, in 2009, 2011 and 2016, respectively and that his research has included working on the project of development for humanoid robots: HUBO, HUBO2 and DRC-HUBO. He stated that Dr. Lee's research interests include motion planning, quadruped and bipedal walking and stabilization control for a humanoid robot, manipulation, sensors, actuators and application of micro-processor adding that we anticipate he will be an excellent addition to the robotics group.

Dr. Ford continued his discussion of new hires adding that Gordon Badgett also joined IHMC in January as a computer technician working with Alan Ordway's group. He mentioned that although a native of North Carolina, Gordon Badgett's interest in computers began in high school while he was living in South Africa and that upon returning to the U.S. for college, he received his BS in Computer Science from Pensacola Christian College in 2014. Dr. Ford stated that Gordon worked as a student technician in the IT department at PCC and then joined them full time as a network administrator after graduating adding that while at PCC, he developed a technology plan that phased out the old network and implemented a new, easier system for 4,000+ student users. Dr. Ford mentioned that Gordon also trained and led Wi-Fi support teams that were responsible each semester for helping hundreds of new students with connectivity issues and that he helped to create and maintain the campus tech help web page and also worked with Internet security. Dr. Ford added that Gordon's interest in the interaction of people and computers make him an especially good fit at IHMC, where he is a computer technician for both the Pensacola and Ocala staffs concluding his discussion by mentioning that Gordon enjoys water sports, reading, hiking, and traveling, and is also an accomplished pianist.

Dr. Ford then informed the Board that Randy Hammer joined IHMC in January 2017 as the communications director adding that Randy will also continue to be the president emeritus of the Studer Community Institute and was the former executive editor of the Pensacola News Journal, which was a two-time finalist for the Pulitzer Prize under his leadership. He added that Randy was the president and CEO of the Asheville Citizen-Times and Asheville Media Group in Asheville, N.C., before returning to Pensacola in 2014 to work with Quint Studer to launch the Studer Community Institute, a Pensacola non-profit dedicated to improving the quality of life in Escambia and Santa Rosa counties. He continued his remarks by adding that the Gannett Company, which owns the News Journal and Citizen-Times as well as USA Today, twice named Hammer editor of the year and that during his 40-year career in journalism, Hammer was a vice president at the Courier-Journal in Louisville, Ky., and also executive editor of newspapers in Springfield, Mo., Huntington, W. Va., and Marion, IN. Dr. Ford stated that Hammer grew up in Fairhope, AL, and Panama City where his father was a high school football coach and his mother was an English teacher and that he graduated from the University of West Florida in Pensacola, where he was the editor of the student newspaper, the Voyager concluding by mentioning that Randy's wife, Michelle, is a fourth-grade teacher at Ensley Elementary School.

Dr. Ford also informed the Board that he was also heavily recruiting several top scientists

and hope to have some exciting news to share at our next Board Meeting.

He continued by discussing that with new hires comes several IHMC retirements as well and informed the Board that Dr. Yorick Wilks, our Senior Research Scientist in Ocala, retired from his full-time efforts on December 31st and is working part time on finishing up his work on Cubism. Dr. Ford added that both Yorick and his wife Roberta are experiencing some health issues and he made the decision to spend this time with his family in England mentioning that Yorick's booming voice and enthusiasm will be sorely missed in our Ocala office.

Dr. Ford also stated that Row Rogacki, who has been on loan to the Doolittle Institute and finished up as their Interim Executive Director also in late December will also be retiring from IHMC in late February of 2017.

A short discussion then ensued on the upcoming Legislative Session explaining that IHMC had the standard budget request in through the State University System budget and that any support from Board members while in Tallahassee this coming Spring would be greatly appreciated as it was shaping up to be a difficult session.

Dr. Ford commented that outreach continues to go well stating that in Ocala this coming Wednesday and Thursday, IHMC will be hosting the Nations Cup Teams and VIP party. The Nations Cup Jumping series is equestrian sport's oldest and most prestigious team challenge, with national teams from around the globe competing for one of the most coveted prizes in this Olympic-level discipline. He stated that this will be Ocala's third year hosting and that last year, the 2016 Nations Cup at HITS Ocala garnered over 5,000 on-site spectators, as well as an unprecedented figure of national and international media attention. He continued his discussion mentioning that there would be approximately 200-220 persons attending the VIP party, made up of the riders, owners and chef d'equipes from the seven participating nations, along with the competitions' sponsors, the HITS sponsors and special guests and community dignitaries. He added that this was the perfect audience to showcase our exoskeleton adding that the IHMC Exoskeleton group will also do a short talk and a live demonstration for interested parties on Thursday with the actual Nations Cup competition being Friday.

Dr. Ford then turned to Science Saturdays stating that it continues to be a popular event with the November, December, and January Science Saturdays haven taken place at both locations. He stated that local Ocala Community Volunteers Sunny Ferrero, presented Food: What's in it and Dr. Manal Fakhoury presented Candy Chromatography, both topics they have previously led at prior Science Saturdays, and were again well received and that IHMC's Jena Hwang presented for the first time and adapted the IHMC Secret Codes presentation with some new fun codes and that she did a really nice job and that Row's The Gravity of It All session is always a hit with the young people. He stated that future Ocala sessions include #D Printing on March 4th presented by the College of Central Florida followed by Paper Helicopters on April 1st with IHMC's Dr. Ian Perera.

In Pensacola, Dr. Ford added that Matt Johnson's Roller Coasters continues to be a tried and true favorite and that Dawn Kernagis' session on Macro-organisms (presented in partnership with the Navarre Marine Center) and Jerry Pratt's Brain Games were both new, and both were excellent. He mentioned that Dawn has a good relationship with the Marine Center and that they are interested in coming back for a future Science Saturday. He added that still to come beginning this Saturday in Pensacola on February 18th is Programming Robots with UWF's Dr. Lakshmi Prayaga, followed by Fun with Polymers on March 18th with David Fries and ending for the spring on April 29th with Computer Game Design by Doug Stephen.

Dr. Ford also mentioned that IHMC is beginning to gear up for summer programs including Robotics Camp for 6-7 and 8th graders adding that we hope to expand our offerings in Pensacola this second year by offering an advanced camp for returning attendees but are still actively seeking sponsors and that in Ocala, we will be hosting our 6th year of Robotics Camp.

He continued his outreach discussing mentioning that the Evening Lectures continue to go well and both locations have waiting lists for almost every lecture. He added that talks still to come in Pensacola is one this coming Thursday night with Stuart McGill discussing Back Pain followed on March 22nd with Kirk "Doc" Parsley discussing Health and Longevity, then on April 27th with Colin Champ discussing Augmenting Cancer Therapy with Diet and ending for the Spring with David Diamond on May 31 discussing Cholesterol research.

In Ocala, Dr. Ford added that we just had a sold out standing room only crowd for this past Thursday lecture with Laura Reiley discussing Farm to Table: are we all Doomed to Be Duped; to be followed on March 9th with Roger Smith on Seeing the World Through the Eyes of a Raptor, then followed on April 6 with Mark Lupo discussing Thyroid and Metabolism and ending on May 3rd with David Spiceigel discussing ~~the relationship between Stress and Health.~~the science of hypnosis.

Dr. Ford stated that it looks like a great spring lineup in both Ocala and Pensacola and informed the Board that if any of these talks are of interest to any on a personal level to please email him.

Dr. Ford then turned the discussion to the latest outreach effort, StemTalk stating that this was coming up on its First-Year Anniversary, mentioning that it debuted on March 1, 2016 with Dr. Peter Attia and that on January 31th of this year we releases Episode 30 with Dr. Art De Vany discussing Hollywood Economics and the Role of Fitness and Diet in Aging. He added that StemTalk continues to be ranked with a five-star rating on I-Tunes and increasing in popularity weekly and that he was very pleased with our success on this new effort.

Dr. Ford then turned the conversation to facilities stating that in Ocala, radon continues to be a problem both inside and outside the facility and adding that we are in the process of purchasing several new radon meters and looking for an expert consultant for advice. He

mentioned that in Pensacola, the LEVIN Center continues slowly with its indoor punch list but that he was happy to report outside progress on the pervious paving and storm water expansion mentioning that slowly the property outside looks like it will be finished, hopefully by spring and with new plantings. He added that at that time we would commence on reinstating the IHMC garden when the heavy equipment has departed and that he believed everyone would be well pleased with the final result.

He added that IHMC had a lovely celebration with Gulf Power in mid January when we unveiled the Gulf Power Blue Sky and Integration Lab on the second floor and also with Fred Levin and Phillip Morris when we unveiled the Phillip Morris Directors Conference Room. He stated that IHMC would be working on the signage for the Ken and Nancy Ford kitchen and commented on how he appreciated this Board's generosity.

Dr. Ford added that he would love to engage with each Director individually on ideas each may have for naming other locations, namely the rooftop venue, the second-floor observatory, the Robotics Lab, the VVBD Sensory Lab and the Board of Director's room. He also mentioned that there are also the pavers in the front entrance that can be engraved and named and that he looked forward to assistance and ideas fro the Board.

Dr. Ford then informed Chair Dalton that that concluded his report and thanked the Board for the opportunity to update all on the IHMC progress.

Chair Dalton then asked the Board for additional items and after hearing none, he informed the Board that the next meeting would be in person in Pensacola scheduled for dinner on Sunday June 4 followed by a Board meeting Monday June 5 from 8:30 to noon. Chair Dalton then adjourned the meeting concluded at 9:30 am.

Respectfully submitted,

Julie Sheppard
Corporate Secretary