



ADAC Team Biographies

**Dr. Helena S. Wisniewski, Vice Provost for Research and Graduate Studies
University of Alaska Anchorage (UAA),
Principal Investigator and Executive Director, Arctic Domain Awareness Center**



Dr. Helena S. Wisniewski assumed the position of Vice Provost for Research and Graduate Studies, at UAA in August 2011. She is President of Seawolf Holdings, a wholly owned subsidiary of UAA, and the Executive Director and PI for the Arctic Domain Awareness (ADAC) a DHS Center of Excellence (COE) at UAA.

She has a breadth of senior executive and leadership experience in academia, the federal government, and private industry. She has an impressive record of leading technology innovation and has successfully launched and sold start up companies. She holds patents and has received awards for outstanding leadership, entrepreneurship, and significant contributions to scientific areas, including the

2002 Women In Technology Leadership Award for Entrepreneurship; the Award of Honor in Recognition of Extraordinary Leadership, Management, and Service from Lockheed; Award for Special Achievement from the CIA, and for Special Recognition from DARPA.

At UAA Dr. Wisniewski is leading the growth of and enhancing the research enterprise, and creative works and developing technology commercialization, to position the university to be at the leading edge of innovation and to raise its visibility in the community and nationally. She created an agile business infrastructure to commercialize technology based on faculty and student research that includes Seawolf Holdings and Seawolf Venture Fund. She facilitated a significant increase in the patent portfolio since she started in FY 12. Invention disclosures increased to 38 from 3 in FY 11; patent applications filed increased to 32 from 1 in FY 11 and 5 patents have been issue. Together with the faculty inventors, she formed the first 3 UAA start up companies. To inspire research, creative works and innovation she established the Innovate Awards and the Patent Wall of Fame. She has taken the lead to acquire new areas of external research funding, which has increased annually since FY 11. For example, she initiated, led and acquired a grant from the Department of Homeland Security (DHS) for UAA to be the Center

Lead for ADAC, the new DHS COE, and she is the Executive Director, and PI. ADAC develops technology solutions and innovative products to improve situational awareness and crisis response capabilities related to challenges posed by the dynamic Arctic environment. She organized a distinguished group of universities, research institutions and industry leaders across the US and Canada that form its 16 partners. UAA is the first institution in Alaska to lead a DHS Center of Excellence.

Prior to UAA she was Vice President for University Research and Enterprise Development at Stevens Institute of Technology. Under her leadership Stevens tripled research revenues, and she launched nine startup companies and sold two. Her corporate experience includes Vice President, Titan Corporation, and a Senior Executive at the Lockheed Corporation. She was also CEO of Aurora Biometrics a company that she founded to provide complete turnkey biometric systems, based on her advanced mathematical methods. As CEO she raised the investment, built the business and sold the company. At the Defense Advanced Research Projects Agency (DARPA), she created and grew its first mathematics program; and prior to that served at the CIA.

She serves on public and private corporate boards of directors and on advisory committees. She served on the Board of Directors, of Greatbatch Inc., a publicly traded on the New York stock exchange (NYSE:GB) and on its Audit and Technology Committees; is on the Advisory Board of Landmark Ventures; was Chairman of the George Washington University Advisory Board; and in 2007, the Secretary of the Navy appointed her to the Naval Research Advisory Committee.

She received her PhD in mathematics from the Graduate Center of the City University of New York, in 1980; her MS in Mathematics from Stevens Institute of Technology; and is a Distinguished Alumni of William Paterson University, where she received her BA in mathematics. She is a tenured professor at UAA.

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Dr. Lilian Na'ia Alessa, Professor, University of Idaho and Director of and a Principal Investigator for the Alaska Experimental Program to Stimulate Competitive Research (EPSCoR); ADAC Theme 1 – Maritime Domain Awareness Project.

Prior to joining the University of Idaho Dr. Lilian Na'ia Alessa established and ran the Resilience and Adaptive Management Group at the University of Alaska for over a decade. At the University of Alaska she is currently is the Director of and a Principal Investigator for the Alaska Experimental Program to Stimulate Competitive Research (EPSCoR) and the Community Based Observing Networks (CBONs) Co-Lead for the Arctic Domain Awareness Center (ADAC), a Department of Homeland Security Center of Excellence. At the University of Idaho she established the Center for Resilient Communities (CRC), a multi-Institutional partnership focused on applying cutting-edge, useable tools to help regions thrive in changing environments. She received her PhDs from the University of British Columbia and sits on several national advisory committees including the Environmental Research and Education Committee (ERE) of the National Science Foundation. During the U.S. Chairmanship of the Arctic Council (2015-

2017) she serves as Project Lead for Arctic freshwater security assessments and is the Chair of the Arctic Adaptation Exchange.

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JS Allen, Research Assistant, Department of Engineering, University of Alaska Anchorage and University of Alaska Fairbanks; ADAC Theme 1 – Maritime Domain Awareness Project.

JS Allen’s work is focused on the design, execution and analysis of numerical models to study the effects of climate change on storm surge inundation extent and vegetation migration in western Alaska, including the development of a comprehensive DEM. More recently, he has applied elements of this existing model to develop an automated nowcast/forecast model to issue ADAC partners and other relevant agencies storm surge warnings and distribute time-stamped flood prediction maps. In addition, he has designed a 3D hydrodynamic model to assist in efforts to optimize the placement of hydrokinetic devices.

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Grace Beaujean, Research Associate, Aleut International Association; ADAC Theme 1 – Maritime Domain Awareness Project.

Grace Beaujean is a Research Associate and Project Coordinator at Aleut International Association; a Permanent Participant of the Arctic Council. She was previously a member of the Resilience and Adaptive Management Group hosted at the University of Alaska Anchorage. Originally from Anchorage, Alaska, she trained in cultural anthropology with an emphasis in contemporary Alaska Native societies. For the past four years she has been working with Indigenous rural Alaskan communities throughout the state examining the perceived threats of environmental change to health, well-being, cultural identity and livelihood, and working to construct locally-informed strategies to increase adaption. Currently she manages qualitative data analysis for the Community Based Observing Network for Adaptation and Security in the Bering Sea and is coordinating the Community Based Observation Network for Situational Awareness.

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Dr. James (Jim) Bellingham, founding Director of the Center of Marine Robotics at the Woods Hole Oceanographic Institution (WHOI); ADAC Theme 2 – Maritime Technology.

The Center for Marine Robotics was established to transform how people and machines work in the marine environment, to foster the young marine robotics industry, and to apply advances to great ocean science challenges. He joined WHOI from the Monterey Bay Aquarium Research Institute (MBARI), where he was successively Director of Engineering and Chief Technologist. Prior to MBARI, Jim founded the Autonomous Underwater Vehicles Laboratory at MIT Sea Grant (1988) and co-founded Bluefin Robotics (1997). Bluefin is a Massachusetts-based company that develops, builds and operates autonomous underwater vehicles (AUVs) and was acquired by Battelle in 2005. Bellingham is the author of dozens of scholarly papers. He has participated and

led research expeditions around the world from the Arctic to the Antarctic. He has served on numerous advisory committees and boards, including Chairing the Naval Research Advisory Committee and serving on several National Academies studies. His awards include the Lockheed Martin Award for Ocean Science and Engineering and the MIT Fourteenth Robert Bruce Wallace lecturer. He received an S.B., S.M., and Ph.D. in physics from the Massachusetts Institute of Technology.

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Victoria Betts Blackwood, Coordinator Continuing Education, Maine Maritime Academy and ADAC Theme 4 – Integrated Education.

Mrs. Blackwood received a BA degree in English from the University of California at Berkeley in 1975. She also attended Colby College in Waterville Maine and completed a year of graduate studies at Lesley University Cambridge, Mass in Intercultural Relations and Management Training. Mrs. Blackwood has worked at Maine Maritime Academy (MMA) since 1999 where she began as a Development Associate writing Grants, managing the Annual fund and assisting with Donor Relations. In 2004 she was selected to head the Department of Continuing Education. Over the past 10 years she has grown MMA’s professional partnerships, PD programs and built MMA’s DHS/FEMA course program in cooperation with the Maine Emergency Management Agency. Growing up winters in San Francisco and summers at Castine Victoria has long been an avid sailor. From 1979-1989 her love of the sea expanded by working aboard the three, luxury cruise ships of Royal Viking Line (RVL), visiting more than 50 countries on itineraries to the North Cape, Alaska, transits of the Panama and Suez Canals and Magellan Straits, Asia, Polynesia, South America, No. Africa, Europe and the Middle East. At RVL she held several Hotel management level positions including the Ship’s Travel Consultant, Senior Hostess, Corporate Motivation Trainer and Crew Steward. As one of 5 Americans among 400 crew and 45 nationalities aboard, Victoria earned the respect of her shipmates by recognizing the unique global family to which they all belong. At MMA she continues to work with seasoned mariners among faculty and alumni. Victoria and her husband Temple Blackwood live in Castine Maine.

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Dana Brunswick, Research Assistant, Department of Engineering, University of Alaska Anchorage; ADAC Theme 1 – Maritime Domain Awareness.

Ms Brunswick is working on the Oil Spill modeling project, under Theme 1 – Maritime Domain Awareness.

Dr Martin Cenek, Assistant Professor, University of Alaska Anchorage, ADAC Theme 2 – Maritime Technology

Dr. Martin Cenek is an Assistant Professor at the University of Alaska Anchorage with a joint appointment in the Computer Science and Engineering Department and the Honors College. He is a leading member of the UAA's Complex Systems Faculty Group and Director of the ICAN Lab (Artificial Intelligence, Complex Systems, Adaptive Systems and Networks Lab). His work is supported by grants from the National Science Foundation, Department of Homeland Security, and International Relief and Development. Dr. Cenek earned both a MS and PhD in Computer Science from Portland State University in Artificial Intelligence and Complex Systems. He studied how a specific model of a complex system processes information in order to solve a given problem. His research focused on the principles of self-assembly of tertiary system-wide objects, signaling and information transmission in these models, and how information changes over time in connection to the object formation and interactions among objects. Although his previous research uses theoretical models, the principles of the system-wide collective behavior parallel the self-assembly and object interactions in other system such as biology, chemistry, and social systems. The direction of his current research is to extend and implement these theoretical models as massively parallel, asynchronous, decentralized, locally connected networks of simple poweraware sensors for environmental sensing in the Arctic regions. Complex Systems is an overarching theme of many projects in Dr. Cenek's ICAN Lab. The range of topics covered in his projects include neuromorphic computer vision, complex network and social network analysis, computational theory, natural language processing and semantic networks, brain computer interface, and computational modeling of dynamics between social and environmental systems. The effort of Dr. Cenek's research to understand the coupled systems dynamics between social and environmental systems in Southeast Alaska led him to develop an integrated agent-based model for scenario based experimentation to understand the landscape use, management policies, and the systems' adaptive capacity.



Dr. R. Chandramouli (Mouli), CEO Spectronn and Thomas Hattrick Chair Professor of Electrical and Computer Engineering (ECE) and a Professor of the School of Systems and Enterprises at Stevens Institute of Technology; ADAC Theme 2 – Maritime Technology.



Dr. Mouli is the Co- of the Information Networks and Security (iNFINITY) laboratory. Prior to joining Stevens he was on the ECE faculty at Iowa State University, Ames. His research and entrepreneurial interests cover cognitive radio networking, dynamic spectrum management/access, text analytics and forensics, social media analytics and security, and prototyping/experimental research in these areas. His research and technology commercialization projects are funded by the National Science Foundation, National Institute of Justice,

Department of Defense and the industry.

His text based deception detection research has been covered by The New Scientist, Mental Floss, ACM Tech News and others. Four of his papers appear in the IEEE COMSOC Best Reading in Cognitive Radio. SpiderRadio, the cognitive wireless router for dynamic spectrum management and access, developed by his group, has been highlighted in the Wireless Spectrum R&D (WSRD) Senior Steering Group U.S. government report as "Best Investment: Public Safety". SpiderRadio's capability for dynamic spectrum management and access has been successfully demonstrated through deployment, field trials and demonstrations in South Africa for long range rural wireless broadband, inter-operable and resilient public safety communications in Brookline (Police Department), cognitive multi-radio communications in the Idaho National Lab Wireless National User Facility, the Federal Communications Commission (FCC), the National Institute of Justice (NIJ) and other venues.

He is a recipient of the NSF CAREER award, IEEE GLOBECOM Best Paper Award (2008), IEEE CCNC Best Student Paper Award (2006), IEEE Richard E. Merwin Scholarship, Provost's Award for Academic Entrepreneurship and Enterprise Development (2012), New Jersey Inventors Hall of Fame Innovator Award (2012) and the Master of Engineering Honoris Cause (2014) from Stevens Institute of Technology.

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Aaron Dotson is an Assistant Professor at the University of Alaska Anchorage, Director of the Environmental Engineering Laboratory, UAA and Graduate Program Chair of the Applied Environmental Science and Technology Program, UAA and Affiliate Professor at University of Alaska Fairbanks. ADAC Theme 2 – Maritime Technology.

Dr. Dotson also is the current chair of the ASCE Technical Council of Cold Regions Engineering, Water and Wastewater Committee and holds a position on the Anchorage Water and Wastewater Board of Directors. Dr. Dotson earned a Civil Engineering degree at the University of Arizona and received both a Master of Science and Ph.D. in Civil and Environmental Engineering from Arizona State University. His Ph.D. focused on characterization of nitrogenous fraction of dissolved organic matter in wastewater influenced drinking water. After his Ph.D., he spent two years as a post-doctoral research at the University of Colorado at Boulder studying how ultraviolet disinfection or ultraviolet based advanced oxidation changes organic matter character and subsequent disinfection by-product formation.

While a professor at the University of Alaska Anchorage, Dr. Dotson's overarching research theme is based on development of a holistic treatment approach for small systems in cold regions. Specifically, his current research has focused on technology development using locally acquired do-it-yourself treatment processes (i.e. biochar) and highly advanced novel integrated technologies (i.e. integrated UV/Ceramic membrane treatment). He currently is leading a team for the Alaska Water and Sewer Challenge developing the next generation of household technologies for rural Alaskan villages inclusive of water reuse with plans for near term implementation (< 5 years).

Prior to his academic career, Dr. Dotson was an Engineer at Malcolm Pirnie Inc. (now owned by

Arcadis) in the Drinking Water Planning and Process group located in Phoenix, Arizona. His work focused on early phase design and pilot testing of technologies as well as master planning activities. During this time, he lead activities studying treatment technologies targeting treatment objectives from regulated species like arsenic, taste & odor, disinfection by-products to unregulated species originating from EPA's contaminant candidate list and associated with the unregulated contaminant monitoring rules.

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Dr. Robert Finkelstein, Collegiate Professor at University of Maryland University College and President of Robotic Technology; ADAC Theme 2 – Maritime Technology.

Currently Dr Finkelstein is Collegiate Professor, University of Maryland University College, Graduate School of Management and Technology teaching graduate courses in management and technology; received the UMUC Teaching Recognition Award. He is also Co-Director of the Intelligent Systems Laboratory in the Center for Technology and Systems Management in the University Of Maryland Clark School Of Engineering, and a Professor for the Unmanned Vehicle University.

Dr. Finkelstein is the inventor of the Energetically Autonomous Tactical Robot (EATR), developed as a Small Business Innovation Research (SBIR) project sponsored by the Defense Advanced Research Projects Agency (DARPA). He also initiated the Military Memetics Project for DARPA and the Intelligent Vehicle Technology Transfer (IVTT) Project for the Office of the Secretary of Defense (OSD). He is currently developing an Integrated Intelligent System of Systems and performing other tasks for the Department of Homeland Security (DHS) Arctic Domain Awareness Center (ADAC) and analyzing autonomous intelligent control system architectures for individual and swarm unmanned air vehicles for a DARPA program. Dr Finkelstein's Responsible for technical analyses, business development, technology assessments and forecasts, operations research, and other professional services, for government and industry - nationally and internationally - in military and civil advanced technology systems, especially robotics, unmanned vehicles, and intelligent systems.

Dr Finkelstein obtained his doctorate in the primary field of Systems Theory and Cybernetics and the supporting field of the Management of Science, Technology, and Innovation, the George Washington University (GWU, 1995); **Ap.Sci.** (Applied Scientist degree) in Operations Research (GWU, 1977); **M.S.** in Operations Research (GWU, 1974); **M.S.** in Physics (University of Massachusetts, 1966); **B.A.** in Physics (Temple University, 1964). Also: **LL.B.** in American law and Procedure (LaSalle Extension University, 1971); **Diplomas** from the U.S. Army Missile School (1967) and U.S. Army Ordnance School (1966); **Certificates** from the University of Tennessee Space Institute (Combat Obscuration Modeling, 1978) and University of California, Los Angeles (Battlefield Robotics, 1983), and **post-graduate courses** in Physics at the Massachusetts Institute of Technology (1968-1970).

Dr. Finkelstein served as an Army ordnance officer with the Missile Intelligence Agency and was awarded the Army Commendation Medal and National Defense Service Medal

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Kenneth Juengling, GISP, Project Manager, GeoNorth and ADAC Theme 2 – Maritime Technology

Kenneth Juengling has over 24 years of experience in the field of Geographic Information Systems (GIS) and Project Management. His strong technical and management background brings the unique perspective of having been the client, software and training solution provider, business partner, business owner, and consultant with both small and large firms. In his present capacity, Ken provides management and technical directions to project teams and clients. Ken has held positions in the industry with responsibilities for implementing and managing GIS operations. He served as the Training Program Manager for Esri in the Pacific Northwest where he managed and directed a team of technical professionals at all levels for training GIS software clients in the Pacific Northwest and Alaska. Ken negotiated and set up seven off site training facilities throughout the Pacific Northwest and Alaska to offer GIS training classes for remote client locations. Prior to this he worked for the State Service Center for GIS in Oregon holding increasingly key positions with that group, culminating in the role of GIS Data Administrator.

Certified GIS Professional (GISP)

B.S. Geography (GIS, Remote Sensing, Cartography), Pennsylvania State University

M.B.A. Business Administration, Pennsylvania State University

Certified Technical Trainer, CompTIA

1st Esri ArcGIS Authorized Instructor

Introduction to Geoprocessing Scripts Using Python, Learning GIS Using ArcGIS Desktop, Migrating from ArcView 3.x to the current version of the ArcGIS software, Introduction to ArcGIS (I) for ArcView - ArcEditor - ArcInfo, Introduction to ArcGIS (II) for ArcView - ArcEditor - ArcInfo, Introduction to ArcView GIS, Programming with Avenue, Introduction to Avenue, Working with the ArcView Spatial Analyst, Introduction to ArcInfo, Advanced ArcInfo, Advanced ArcView, and Working with ARC GRID, Getting Started with VBA for ArcGIS, Topology in the Geodatabase, Geoprocessing with ArcGIS ModelBuilder, Satellite Tool Kit.

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Dr. George Kamberov, Associate Vice Provost for Research, University of Alaska Anchorage and ADAC Program Manager for Research.

George Kamberov currently holds the position of Associate Vice Provost for Research at the University of Alaska Anchorage. Dr Kamberov is the Program Manager for Research at the Arctic Domain Awareness Center at UAA and works across all Theme areas. Before joining UAA, he was the head of the Visual Computing Laboratory and an Associate Professor and Associate Research Professor in Computer Science at Stevens Institute of Technology. Prior to those positions, he served as William Chauvenet Assistant professor at Washington University at

St. Louis and a G. C. Evans Instructor at Rice University. He received a Ph.D. in Mathematics from the University of Pennsylvania in 1990. His research interests and publications are in real-time computer vision and graphics; machine learning; nonlinear analysis; high energy physics; the development and deployment of real-time systems for scene analysis, surveillance and forensics, and for monitoring and control of large sensor networks.

Dr. Kamberov's research has been funded by the National Science Foundation, the Department of Defense, the Department of Homeland Security, Google, and private foundations.

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Dr. Eric Klein, Postdoctoral Research Scientist, Department of Biological Sciences, University of Alaska Anchorage and ADAC Theme 1 – Maritime Domain Awareness Project.



Dr. Klein, an Earth system scientist, has been instrumental in the success of a NSF Arctic Observing Network EAGER project led by Professor J Welker addressing a changing Arctic water cycle. Using place-based, continuous water vapor isotope ratio measurements from Toolik Lake, Alaska and Thule, NW Greenland, his research is transforming our understanding of the Arctic. Dr. Klein recently collected and analyzed a continuous record, from late winter to early autumn, of water vapor isotopes at Toolik Lake, Alaska. The uninterrupted nature of his measurements allowed him to capture an Arctic cyclone event and its altered Arctic Ocean sea ice and water characteristics, which were reflected in very rapid changes in water vapor isotope geochemistry. His findings from this first ever study of Arctic cyclone water vapor isotopes, have recently been published in the journal *Scientific Reports*. This water isotope cycle study demonstrated our ability to help understand Arctic Ocean sea ice properties from inland sites, up to 130 miles from the Alaskan coast, and also provided a novel explanation of changes in sea ice and precipitation during past warm periods recorded in Greenland Ice Sheet cores. He is also studying how Arctic Alaska mountain glacier ice cores record past climates and precipitation changes associated with fluctuations in sea ice, which incorporates long-term precipitation isotope-weather records at Toolik Lake. Dr. Klein is also collaborating with glaciologists at the Alaska Science Center (USGS) to study water isotopes of Alaskan glaciers to learn about changes in precipitation patterns, glacier mass balance, and air parcel moisture sources throughout south-central and interior Alaska.

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Andrew Kliskey, University of Idaho is a Professor of Landscape Social-ecology and co-Director of the Center for Resilient Rural Communities at the University of Idaho, and ADAC Theme 1 – Maritime Domain Awareness Project.

Dr Kliskey co-lead the Resilience and Adaptive Management (RAM) Group at University of Alaska Anchorage for 10 years. Originally from Aotearoa / New Zealand he trained as a land surveyor, resource planner, and landscape behavioral geographer. He has spent the last 12 years working with people in Inupiat communities in northwestern Alaska, Denai'na communities in southcentral Alaska, and rural communities in Idaho examining community perception and response to landscape and hydrologic change. He is co-lead of the Southcentral Testcase for the Alaska Experimental Program to Stimulate Competitive Research, and co-PI of the Community-based Observing Network for Adaptation and Security in the Bering Sea.

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Amy Kukulya, Operations Engineer, Woods Hole Oceanographic Institution (WHOI) and ADAC Theme 2 – Maritime Technology.

Amy Kukulya is an Ocean Vehicle Operations Engineer at the Woods Hole Oceanographic Institution (WHOI). She holds a B.S. from Rutgers University in Environmental Policy. She is a recognized authority in management and operations of AUV systems at WHOI. She has either led or participated in over 75 oceanographic expeditions over the past 14 years. Working with underwater robots has brought her to the Arctic and Antarctica while working on the advancement of scientific applications for AUVs. She is passionate about promoting education and outreach initiatives and has been named a Wowster by the Governor's office. Her work has also been shown on several Discovery Channel and PBS productions.

Dr. Andrew (Andy) Mahoney, Geophysical Institute, University of Alaska Fairbanks; ADAC Theme 1 – Maritime Domain Awareness.

Dr. Mahoney's broad field of expertise is sea ice geophysics, but his research interests encompass climate change, coastal dynamics, ice-ocean interaction and the relationship between humans and sea ice. Arctic sea ice is a rapidly changing component of the global climate system and reports of its retreat make frequent headlines in international media. Research interests include the local implications of these changes for the Arctic residents. Sea ice geophysics also has an important role to play in providing data and information to stake holders and policy makers as commercial interests in the Arctic grow. At the opposite end of the world, Antarctic sea ice is not undergoing the same reduction in extent. The two Polar Regions are geographically very different from each other, so a difference should not be surprising. Research interests also include the processes by which ice shelves flowing off of the Antarctic continent influence sea ice growth through ice-ocean interaction at depth. In 2009, he was fortunate to have the opportunity to over-winter at Scott Base in order to study these processes in depth.

Dr. Kenrick Mock, Professor of Computer Science and Associate Dean for the College of Engineering at the University of Alaska Anchorage and Team Lead for ADAC Theme 2 – Maritime Technology.

Kenrick Mock received his PhD in Computer Science from the University of California, Davis. Dr. Mock is the project lead for Theme 2, Maritime Technology at the Arctic Domain Awareness Center. He has taught over 20 courses in computing and conducts research in artificial intelligence, complex systems, agent-based systems, computer security, and computer science education. He has over 25 years of programming experience and has held positions at Intel Corp. as Research Hacker and at startup company Unconventional Wisdom as Chief Technology Officer. He has co-authored four textbooks on programming in Java and C++.

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Corinne Nakashima, Research Assistant, Department of Engineering, University of Alaska Anchorage and University of Alaska Fairbanks and ADAC Theme 1 – Maritime Domain Awareness Project.

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Mark Pearson, PE, Director of Technology, GeoNorth; ADAC Theme 2 – Maritime Technology.

Mark Pearson has over 24 years of experience in the field of Geographic Information Systems (GIS). Considered an expert in the field, Mark is one of the co-founders of GeoNorth. Mark's proficiencies lie in ArcGIS Server design and development, ArcSDE implementations, ArcGIS desktop development, Web development using .Net and ColdFusion, and Mobile application development. One of the most sought after GIS minds in the business, Mark also has an extensive background in business analysis, technical writing and editing, software documentation and training, data analysis and providing technical support to users at all levels, and has proficiencies in ArcGIS Server Design, Development, ArcSDE Implementations, ArcGIS Desktop Development, and Web Development using . Net and ColdFusion. He also has in-depth experience with environmental data, database design, and scientific methodology, as well as several years of experience in the oil and gas industry. In 2010, Mark became the first and only GIS professional to be inducted into the Alaska Surveying and Mapping Hall of Fame. He is currently GeoNorth's Director of Technology in addition to his hands-on involvement in key projects.

Professional Engineer

B.S. Civil Engineering, Northeastern University, Boston - Arctic Engineering, University of Alaska, Anchorage - Computer Science, Continuing Education

1st/Only GIS Professional Inducted into the Alaska Surveying and Mapping Hall of Fame

ColdFusion Certified Instructor, Advanced ColdFusion Certified Instructor, ArcObjects Certified Instructor, ArcGIS Certified Instructor, ESRI Authorized Trainer, Macromedia Authorized

Instructor, Certified Advanced ColdFusion MX Developer, Authorized Trainer for ArcGIS I, ArcGIS II, ArcObjects, and ESRI ArcSDE.

LuAnn Piccard, PMP, Assistant Professor and Department Chair for Engineering, Science and Project Management and Program Chair for Project Management. ADAC Theme 3 – E2E



LuAnn Piccard, PMP, is an Assistant Professor and Department Chair for the Engineering, Science and Project Management master's programs and Program Chair for Project Management in the College of Engineering at the University of Alaska Anchorage. Her academic focus includes project management and the development of future leaders in project, engineering and science management. She teaches academic courses in all aspects of project management as well as several modules in UAA's project management professional training curriculum. She was the Principal Investigator for the State of Alaska Election Security Project. Her research interests include organizational development, collaboration with stakeholders, and risk assessment for polar and pacific rim projects as well as the application of project management methodologies in the non-profit sector.

Prior to joining UAA in 2006, LuAnn spent 22 years in high-technology with Hewlett Packard, Agilent Technologies and Advanced Energy Industries. Her most recent assignments included Vice President and General Manager responsible for Agilent Technologies' Communications Solutions Business Unit and Senior Vice President and General Manager /Co-Chief Operating Officer for Advanced Energy Industries. During her career, she has held positions with increasing responsibility starting with R&D, strategic marketing, alliance management. Additionally, she has held several other executive and general management positions.

She currently serves on the Boards of Directors for Project Management Institute (PMI) Global Accreditation Center (GAC), Habitat for Humanity Anchorage, and Alaska Association of Figure Skaters.

She holds a BS and MS in Engineering from Stanford University.

Captain Ralph H. Pundt, Key Researcher, Maine Maritime Academy and ADAC Theme 4 – Integrated Education

Captain Pundt holds a USCG Master Unlimited Tonnage & Oceans license, and is a 1977 graduate of Maine Maritime Academy (MMA) Castine Maine where he has been a full time member of the faculty since 1999. Captain Pundt is a favorite among his colleagues and enjoys sharing his maritime knowledge and skills while training undergraduate students on campus and as a training officer aboard the Academy's TV State of Maine for many years. Captain Pundt is a sought after graduate program, industry, and Continuing Education lecturer and instructor both domestically and internationally in subjects as various as Tanker Operations, Maritime Security Operations, worldwide Navigation and Pollution control, all hazards training and emergency response. After serving aboard a variety of vessels on global itineraries for 15 years Captain Punt became Master of the MV Richard G Matthiesen a 32000 Dwt Clean Product Tanker on worldwide trade for Military Sea Lift Command from 1992-1998. Voyages aboard that ship included Arctic and Antarctic trips where he became familiar with the challenges of Ice Navigation in Polar Waters. Captain Pundt served for six years as the head of MMA's Academic Department of Marine Transportation and is also the co-founder of International Maritime Security Network, a PA based maritime security training and USCG approved maritime security course provider. In February 2015, he was a member of the US delegation to the IMO subcommittee on the Human Element in Training and Watchkeeping where he served as a training advisor for Ice Navigation. Captain Pundt and his wife Maureen live in Brooksville, Maine.

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Dr. Tom Ravens, Professor in the Civil Engineering Dept. at UAA. Team Lead for ADAC Theme 1 – Maritime Domain Awareness Project.

Dr Raven's research is focused in two principal areas: coastal processes and hydrokinetic (renewable) energy and includes field, laboratory, and modeling work. His coastal processes research is focused on arctic coastal erosion and coastal flooding with a particular interest in the role of climate change on these processes. Tom is leading the Maritime Domain Awareness Theme within UAA's DHS-funded Arctic Domain Awareness Center. Within ADAC, he is PI on a project that develops nowtime and forecasting models of surge and coastal flooding for Western Alaska and on a project to develop arctic-capable oil spill models. In the area of hydrokinetic energy, Tom and his research assistants are investigating the hydraulic and sediment transport impacts of hydrokinetic devices in rivers as well as on hydrokinetic energy resource assessment.

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Dr. Kristin Eastman Reardon, Postdoctoral Fellow, Civil Engineering Dept. UAA and ADAC Theme 1 – Maritime Domain Awareness Project.

Dr. Reardon's research focuses on physical processes in natural waters and includes field, laboratory, and modeling work. Kristin recently came to UAA from the University of California, Davis where she completed her doctoral dissertation investigating the implications of nearshore sediment resuspension on water clarity at Lake Tahoe, California-Nevada. Additionally, Kristin has more than 10 years consulting experience working in the field of water resources engineering for local, state, and federal clients. Within ADAC and under the direction of Dr.

Tom Ravens, she leads the project to develop a nowtime and forecasting model of surge and coastal flooding for Norton Sound, Western Alaska.

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Collin Schroeder, Sr. Developer, GeoNorth and ADAC Theme 2- Maritime Technology.

Collin Schroeder has over 7 years of professional experience developing software and has recently moved into the field of Geographic Information Systems (GIS). Applying his rich development and design skills, Collin is a valuable team member for GeoNorth. His development skills include:

Python, numpy, Java, ASP.NET, C#, C++, HTML, OpenGL, C, SQL, HTML, JavaScript, AJAX, ColdFusion

Collin is also well versed in various database technologies to include:

MS SQL Server 205/2008, SQLite, MS Access, Oracle, SQL Server Integration Services, SQL, PostgreSQL, Linq, SSIS

State of Alaska Journeyman Consultant in Distributed Application Analysis, Design and Programming

Microsoft ASP.NET 2.0 Application Development Certification

Sr. in the Computer Science program at U.A.A.

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Dr. Sam Siewert Assistant Professor at Embry Riddle Aeronautical University and ADAC Theme 2 – Maritime Technology.

Dr. Sam Siewert has studied at University of California Berkeley, University of Notre Dame, University of Houston and University of Colorado Boulder and has a BS in Aerospace and Mechanical Engineering and MS/Ph.D. in Computer Science. He has worked in the computer engineering industry for twenty four years before starting an academic career in 2012. Half of his time was spent on NASA space exploration programs including the Spitzer space telescope, Space Shuttle mission control, and deep space programs. The other half of that time he has spent on commercial product development. His commercial work has ranged from I/O chip firmware architecture to scalable systems design of storage and networking solutions for high performance computing. In 2014 Dr. Siewert joined Embry Riddle Aeronautical University Prescott as full time faculty and retains an adjunct professor role in addition with University of Colorado Boulder. Overall, his focus has been embedded systems with an emphasis on autonomous systems, computer and machine vision, hybrid reconfigurable architecture and operating systems. Related research interests include real-time theory, digital media and fundamental computer architecture. Dr. Siewert has published numerous research, industry, and educational papers on these topics.

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Dr Don Spalinger, Associate Professor Biological Sciences, UAA and ADAC Theme 3 – E2E

Dr. Don Spalinger's research focuses on the ecology, chemistry, and physiology of plants and herbivores. Spalinger is particularly interested in the nutritional ecology of large herbivores in northern ecosystems, including moose, caribou, and black-tailed deer. To understand how habitats and plant communities influence the survival and productivity of these animals, Spalinger's research explores a diversity of topics. These include studies of nutritional qualities of plants, plant defensive chemistry, plant architecture and its influence on foraging behavior and food intake rate of herbivores, the digestive physiology of herbivores, foraging behavior, and biological simulation modeling.

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Dr. K.P. (Suba) Subbalakshmi, Professor, Stevens Institute of Technology and Founder and Chief Scientist, Spectronn; ADAC Theme 2 – Maritime Technology.



K.P. (Suba) Subbalakshmi is a Professor in the Department of ECE, Stevens Institute of Technology. She is the Founder & Chief Scientist of Spectronn. Her research interests lie in the areas of Cognitive radio networks: design and security, Cognitive Mobile Cloud Computing, Social Media Analysis, Security and Forensics; Steganography, Steganalysis and Wireless security. She is a Founding Associate Editor of the IEEE Transactions on Cognitive Networks as well as an Associate Editor of IEEE Transactions on Vehicular Technology. Her research in these areas has resulted in several highly cited publications and book chapters. She has given several Keynote Addresses, Tutorials and Short Courses as well as served as a panelist in several prestigious international conferences in her areas of interest. Two of her papers appear in the IEEE COMSOC Best Reading Topics on Cognitive Radio, 2012 and one of the papers she co-authored has been cited in US Government's Wireless Spectrum Research and Development (WSRD), Senior Steering Group (SSG) Suggested Readings, 2011. Her group's research in advanced text mining has been covered by prestigious media such as The New Scientist, ACM Tech News, Mental Floss, The Guardian, Voice of America, Fox News etc. She has also been featured in the Stevens Alumni Magazine, Indicator, Fall 2012.

Some of her research has been commercialized by two technology start-ups. One of the start-ups has received seed funding for commercialization from the NSF and has also just signed up the first client. Her work in Deception Detection from text won her an Innovator Award, from the New Jersey Inventors Hall of Fame in 2012. The academic version of this tool has been accessed by users from more than 15 countries.

Suba is the Founding Chair of the Security Special Interest Group in IEEE COMSOC's Technical Committee on Cognitive Networks (TCCN). She served as the Vice-Chair for the TCCN (2011 – 2013) and as Chair, IEEE Special Interest Group on Security, IEEE Technical Committee on Multimedia Communications (MMTC), IEEE Communications Society, June 2005 – 2010. The TCCN and MMTC are two of the largest Technical Committees with active participation from its members. Both committees sponsor a number of flagship conferences, policy working groups and standards.



Eddie Ungott, President of the Gambell IRA Council, Team Lead, Community Based Observer Network for Situational Awareness for the Arctic Domain Awareness Center. ADAC Theme 1 – Maritime Domain Awareness.

Mr Ungott is a life-long resident of the Native Village of Gambell. He was previously a steering committee member for the Bering Sea Sub Network and is currently on the steering community for the Community Observation Network for Adaptation and Security. He has also been involved with the Bering Strait Alliance LCC which is working to protect the abundance of the marine ecosystem while enhancing local economies.

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Joni Ungott, Project Manager, Community Based Observer Network for Situational Awareness for the Arctic Domain Awareness Center. ADAC Theme 1 – Maritime Domain Awareness.

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Dr. Jeffrey Welker, Professor & Fulbright Distinguished US Arctic Chair-Norway and ADAC Theme 1 – Maritime Domain Awareness.

Dr. Welker initiated his Arctic research program at NyAlesund on Svalbard between 1990-1993 as part of the NERC “Britain in the Arctic” program and has recently over-wintered on Svalbard as part of his Fulbright Chairship. His NSF PLR funded research emphasizes long-term studies of Low and High Arctic ecosystem responses to changes in winter and summer climates using experimental and observational studies, that have been in place since 1994 and 2003 respectively for Alaska at Toolik Lake and at Thule, NW Greenland. Dr. Welker’s Arctic program has trained over 60 undergraduate and graduate students and over 10 postdoctoral scientists since 1990.

Dr. Welker’s program has contributed to a suite of PLR and Pan Arctic programmatic endeavors including: a) The International Tundra Experiment (ITEX), b) Land-Atmosphere-Ice Interactions (LAI), c) Arctic Transitions in the Land-Atmosphere System (ATLAS), d) International Polar Year (IPY), Biocomplexity in the Arctic (BE), e) Arctic Observing Network (AON), and f) AON EAGER. Since 1994 he has received over 20 NSF DPP awards as PI or Co-PI including an Arctic Climate Change-specific Major Research Instrumentation (MRI) award expanding and solidifying the UAA Stable Isotope Laboratory.

Today, Dr. Welker has four main Arctic trajectories of research: 1) Herbivore-land surface interactions and trace gas feedback studies on the Bering Sea coast, 2) Tundra responses to climate warming and wetting in N Alaska and NW Greenland, 3) High Arctic sea ice and Greenland Ice Sheet process studies using continuous/real-time water vapor isotope devices in NW Greenland and 4) Alaska Water Isotope Network (AKWIN)-a region-wide investigation of the spatial and temporal patterns and linkages between the water isotopes ($\delta^{18}O$, δ^2H and d-excess) of precipitation, soil, plants, surface (creeks, rivers and lakes) water, wildlife, as well as

canopy and boundary layer water vapor isotope properties. Welker currently serves as an AC GEO Polar subcommittee member.

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Jinlun Zhang, Senior Principal Oceanographer, Polar Science Center, Applied Physics Laboratory, University of Washington, ADAC Theme 1 – Maritime Domain Awareness.

Dr. Jinlun Zhang is a senior principal oceanographer at the Polar Science Center, Applied Physics Laboratory, University of Washington. He is interested in quantifying and understanding climate change in the polar regions. He investigates the properties of polar ice-ocean systems by developing and using large-scale sea ice and ocean models such as the Pan-arctic Ice-Ocean Modeling and Assimilation System (PIOMAS), the Marginal Ice Zone Modeling and Assimilation System (MIZMAS), and the Global Ice-Ocean Modeling and Assimilation System (GIOMAS). He also studies the impact of changes in sea ice on marine planktonic ecosystems by developing and using coupled biophysical models such as the Biology-Ice-Ocean Modeling and Assimilation System (BIOMAS). His role in the UAA’s DHS-funded Arctic Domain Awareness Center (ADAC) is to develop a coupled ice-ocean model for high-resolution forecast of Arctic sea ice motion, concentration, and thickness and ocean currents.