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Andrew G. Huff

Senior Scientist

B.A., Psychology

M.S., Security Technologies & Geographic Information Systems

Ph.D., Environmental Health, Environmental & Emerging Infectious Disease

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Dr. Huff began his formal education after two combat tours of duty as an infantryman in Operation Enduring Freedom throughout Central America and in Iraq. After earning a bachelors degree in psychology, and masters degrees in security technologies and geographic information systems (GIS), he was appointed a research fellow at the National Center for Food Protection and Defense (NCFPD) while earning a Ph.D. in Environmental Health specializing in emerging and environmental infectious disease at the University of Minnesota. While working at NCFPD, Andrew researched the human, environmental, and engineered aspects of global food systems and patented a novel technology to collect and fuse data from multiple disparate sources to determine which food systems are at risk to spatial hazards, map global supply chains in near real-time, and to rapidly identify contaminated food products and supply sources. After completing his Ph.D., Dr. Huff transitioned to Sandia National Laboratories as a Senior Member of the Technical Staff where he worked on interdisciplinary teams in developing novel methods of biosurveillance, public health capacity building in foreign governments, and modeled the effects of pandemics on interdependent infrastructure systems (e.g., food, water, energy).

As a senior scientist at EcoHealth Alliance, Andrew is working to develop novel methods of biosurveillance, data analytics and visualization for disease detection, and unique methods to identify disease emergence. His research centers on the interaction of human disease reporting, machine learning of passive and active surveillance data streams, and combined with the interaction of both engineered and natural systems. Additionally, he has been an active participant in government and private sector committees that work to establish effective policies for food systems and multiple aspects of public health.

“Climate change is causing different ecological interactions; thus, zoonotic diseases will likely emerge in new transitional ecological zones. While old diseases will re-emerge in the developed world, their effects will be most detrimental in the third world. From influenza to HIV, the urbanization of the global population will increase the rate at which zoonotic and anthropogenic diseases are transmitted. High population density and rapid global transportation will increase the frequency and intensity of disease cycles, and increase the demand for limited public health resources. Complicating matters further, 925 million humans are currently malnourished worldwide, which increases the probability of disease infection. An increasing population will cause the competition for water, energy, and food resources to intensify. Furthermore, climate change is increasing ecological interactions and likely contributes to: growing disease emergence risk; possible reductions in crop productivity due to changing weather patterns, increasing prevalence of plant pathogens and pests; and armed conflicts where potable water, natural resources for manufacturing and energy, and nutritious foods are less readily available or extremely scarce. These challenges will complicate the response to a pandemic in the future and we need to work to measure these problems and create novel solutions to mitigate their consequences.” Dr. Andrew G. Huff

Andrew completed all of his degrees at the University of Minnesota. Although he completed all of his coursework at the University of Minnesota, he studied in the College of Liberal Arts (B.A. psychology), the College of Science and Engineering (M.S. in Security Technologies & GIS), and the School of Public Health (Ph.D. in Environmental Health, Environmental & Emerging Infectious Disease). Lastly, his research has been published in wide variety of academic journals, government, and industry publications (e.g., agricultural, computational, engineering, food, public health, computational).