

Matteo Convertino

Human-Natural Systems,
Department of Agricultural and Biological
Engineering, University of Florida,
Frazier Rogers Hall, Museum Road
Gainesville, FL 32611

Phone: (781) 645-6070
Email: mconvertino@ufl.edu
Skype: [convertino.matteo](https://www.skype.com/people/convertino.matteo)
Homepage: <http://plaza.ufl.edu/mconvertino/>

Personal

Born on July 20, 1982

Married

Italian Citizenship and USA Permanent Residency (EB1a Extraordinary Ability)

Education

Degrees

Ph.D. Civil and Environmental Engineering Sciences (Ecohydrology and Biocomplexity), *summa cum laude*, University of Padova, December 2009.

Dissertation title: *Patterns in Ecology and Geomorphology of River Basin Ecosystems*, advisers: A. Rinaldo and I. Rodriguez-Iturbe (Princeton University)

M.Sc. Civil and Environmental Engineering (Fluid Mechanics and Hydrology), University of Padova, September 2006.

Thesis title: *Analysis and Modeling of the Ontogeny of Optimal Channel Networks with Heterogeneous Rainfall*, advisers: A. Rinaldo, R. Rigon (University of Trento), and A. Maritan

B.Sc. Civil and Environmental Engineering (Environmental and Structural Engineering), University of Padova, July 2004

Thesis title: *FEM Modeling and Experimental Characterization of Innovative and Environmentally Sustainable Materials for Pavement Infrastructures*, adviser: M. Pasetto

High School **Diploma** (science/technical major - structural and environmental engineering), G.B. Belzoni High School, Padova, Italy, 2001

Projects titles: *Planimetric and Structural Road Project in a Mountain Area in Northern Italy* and *Water Quality, Water Management, and Hydrology in Italy*, comprehensive mark 100/100 with honor

Other Certified Education

NSF Responsible Conduct of Research (RCR) Training, July 2012, Gainesville, FL

"Climate Forcings and Global Patterns", Venetian Institute of Science, Literature, and Arts (IVSLA) Advanced Summer School Certificate, 13-20 June 2008, Venice, IT

“Environmental Dynamics Pathways to Environmental Sustainability”, Venetian Institute of Science, Literature, and Arts (IVSLA) Advanced Summer School Certificate, 08-15 July 2007, Venice, IT

Research Expertise

Complex Systems Engineering, Systems Biology, Systems Design and Sustainable Technology, Bio-inspired Design (by Analogy), Risk Analysis, Resilience Analysis, Decision Science & Engineering, Portfolio Decision Models, Strategy, Quantitative Social Sciences, Asset Management, Stochastic Optimization, Complex Network Theory and Modeling, Monitoring Network Design, Supply Chain Modeling & Management, Virtual Water Trade, Bayesian Inference, Probabilistic Decision Networks, Stakeholder Engagement & Preference Elicitation, Serious Games for Socio-cognitive Studies and Education, Synthetic Sociology, Value of Information Analysis, Environmental Modeling (Geomorphology, Ecology, Socio/Bio-Hydrology) & Management, Ecosystem Functions and Services, Water/Energy/Food Trade-offs, Stochastic Metacommunity and Metapopulation Modeling, Climate Change Analysis, Stochastic Transport Phenomena (e.g. species, pathogens, individuals, nanomaterials), Geographical Information Systems, Big Data Mining and Analytics, Computational Science and CyberScience/Education/Engineering, Pattern Analysis, Global Sensitivity and Uncertainty Analysis, Sustainability of Natural and Built Environment, Quantitative Public Policy, Environmental Security, Fractals, Spatial Point Processes, Maximum Entropy Theory, Conceptual and Theoretical Mathematical Modeling, Wicked Problems

Academic and Professional Appointments

University of Florida, Gainesville, FL

Research Faculty, Human-Natural Systems (HumNatSys), Department of Agricultural and Biological Engineering , July 2012-present

Affiliated Faculty, Water Institute, 2010-present

Affiliated Faculty, Florida Climate Institute and SouthEast Climate Consortium (SECC), 2010-present

Affiliated Faculty, SustainableUF, Office of Sustainability, “Analysis and Modeling of Coupled Human-Ecological Systems” Guest Lecturer, 2011-present

Affiliated Faculty, Bob Graham Center for Public Service, 2012-present

Affiliated Faculty, Digital Humanities Working Group (Center for Humanities and the Public Sphere), 2012-present

Research Associate, Department of Agricultural and Biological Engineering (R. Muñoz-Carpena and G.A. Kiker groups), November 2009-present

IDRAN Engineering and Technology

Adjunct Scientist and Partner; IDRAN Rome (IT) and Miami (FL), CEO Prof. F. Nardi; July 2011-present

Engineering Research and Development Center (ERDC), US Army Corps of Engineers (USACE)

Contractor Research Scientist, Risk and Decision Science Team (I. Linkov Team), August 2010-December 2012

South China Botanical Garden, Chinese Academy of Sciences, Guangzhou, China

International Young Scientist Fellow (non-resident), 2010-2012

Lamont-Doherty Earth Observatory - Columbia University, Palisades, NY

Research Intern, LDEO Surface Processes Group, (PI: Dr. C. Stark), July 2009 - August 2009

Princeton University, Princeton, NJ

Visiting Assistant Professional Specialist, Civil and Environmental Engineering, Environmental Engineering and Water Resources, (I. Rodriguez-Iturbe group), April 2009 - October 2009

Graduate Research Assistant, Civil and Environmental Engineering, Environmental Engineering and Water Resources, (I. Rodriguez-Iturbe group), January 2008 - December 2008

University of Padova, Padova, Italy

Graduate Research Assistant, IMAGE Department (Hydraulics, Maritime, Environmental, and Geotechnical Engineering; currently "DICEA"), and International Center for Hydrology "Dino Tonini", 2006-2009

Undergraduate Research Assistant, University of Padova, Italy, Finite Element Modeling Lab for Structural and Environmental Engineering Research (M. Pasetto group), March 2004 - July 2004

Honors, Awards, and Fellowships

Alfred P. Sloan Foundation Research Travel Prize - Synthetic Biology Special Session - for the World Congress on Risk 2012 - Society for Risk Analysis, Sydney Australia, (\$ 3000, conferred by Society for Risk Analysis, Prof. A. Cullen, University of Washington), 18-20 July 2012

University of Florida Water Institute Honorarium for "Wetlands in a Complex World" - INTECOL Conference, Orlando, FL, (\$ 500, conferred by Prof. W. Graham), 3-8 June 2012

Young International Research Scientist Fellowship, Chinese Academy of Sciences, Smithsonian-South China Botanical Garden, Guangzhou, China, (\$ 25,000), 2010

"Ing. Aldo Gini" career fellowship for research abroad at Princeton University, Foundation Ing. Aldo Gini, University of Padova, Italy (€5,000), 2008

I.N.P.D.A.P. career fellowship - Department of Higher Education, Research and Development, Italian Government, fellowship for PhD studies, III year of the PhD program (€6.000), 2009

I.N.P.D.A.P. career fellowship - Department of Higher Education, Research and Development, Italian Government, fellowship for PhD studies, I year of the PhD program (€6.000), 2007

3rd distinction for the M.Sc. Honor Degree Prize "Claudio Bertuzzi", Venetian Institute of Sciences, Letters and Arts (IVSLA), Venice, Italy, July 2007

Regional career fellowships by the University of Padova (€5000 each year), academic years 2006/2007, 2007/2008, 2008/2009 (I, II and III year of the PhD program)

EAP University of California-University of Padova exchange program fellowship, UC Berkeley (CEE and ESPM Depts.), UC Davis (CEE Dept.) and UC Santa Barbara (ME Dept.) campuses with positive admission (supporting faculties: Prof. D.D. Baldocchi, Prof. T.R. Ginn, and Prof. S.R. McLean respectively), academic year 2006/2007

Regional career Fellowship, University of Padova (€2000 each year), academic years 2003/2004, 2004/2005, 2005/2006 (III year BSc, I and II year of the M.Sc. programs respectively)

European Union Socrates-Erasmus Fellowship at the University of Wales - Swansea - Civil & Computational Engineering Centre, supervisor Prof. L. Simoni/B. A. Schrefler, academic year 2005/2006

B.Sc. degree award (€500), Regional Fellowship 2003/2004, University of Padova, Italy, December 2004

Publications

h-index=5

Journal Articles - peer-reviewed and accepted

- 21 **Convertino**, M., Simini, F., Catani, F., Linkov, I., Kiker, G.A. (2012). Power-law of Aggregate-size Spectra in Natural Systems, *Transactions on Complex Systems*, *in press*
- 20 **Convertino**, M., K. Baker, C. Lu, J.T. Vogel, B. Suedel, I. Linkov (2012). Use of Multi-Criteria Decision Analysis to Guide Metrics Selection for Ecosystem Restorations, [free model case study available at PANGAEA - Data Publisher for Earth & Environmental Science, <http://doi.pangaea.de/10.1594/PANGAEA.776746>] *Ecological Indicators*, *in press*
- 19 **Convertino**, M., R. Mangoubi, I. Linkov, N.C. Lowry, M. Desai (2012). Inferring Species-Richness and Species-turnover by Statistical Multiresolution Texture Analysis of Satellite Imagery, <http://dx.plos.org/10.1371/journal.pone.0046616>, *PLoS ONE*
- 18 Wood, M, Kovacs, D, Bostrom, A, **Convertino**, M, Linkov, I (2012) A Moment of Mental Model Clarity, Response to Jones et al. 2011 ("Mental Models: An Interdisciplinary Synthesis of Theory and Methods", 2011, 16-1, Ecology and Society) in the special issue "Mental models in human - environment interactions: Theory, policy implications, and methodological explorations"; Editor: L. Gunderson), *Ecology and Society*, <http://dx.doi.org/10.5751/ES-05122-170407>
- 17 **Convertino**, M., M.L. Chu-Agor, R.A. Fischer, I. Linkov, G.A. Kiker, R. Muñoz-Carpena (2012). Untangling Model Drivers of Species Distribution Predictions: Global Sensitivity and Uncertainty Analysis of MaxEnt, *accepted in Environmental Modelling & Software*
- 16 Lagerwall, G., G. Kiker, R. Muñoz-Carpena, M. **Convertino**, A. James, N. Wang (2012). A Spatially-Distributed, Deterministic Approach to Modeling *Typha domingensis* (Cattail) in an Everglades Water-controlled Wetland, in the special issue "Wetlands in a Complex World", *Ecological Processes*, DOI: 10.1186/2192-1709-1-10
- 15 **Convertino**, M. (2012). Wetlands in a Complex World, Editorial paper of the special issue "Wetlands in a Complex World", *Ecological Processes*, *forthcoming*
- 14 **Convertino**, M., M.L. Chu-Agor, R.A. Fischer, G. Kiker, R. Muñoz-Carpena, I. Linkov (2012). Shorebird Patch Dynamics as Fingerprint of Coastline Variation due to Climate Change, in the special issue "Wetlands in a Complex World", *Ecological Processes*, DOI:10.1186/2192-1709-1-9

- 13 Park, J., Seager, TP., Rao, PCS, **Convertino**, M., Linkov, I. (2012). Integrating Risk and Resilience Approaches to Catastrophe Management in Engineering Systems, doi: 10.1111/j.1539-6924.2012.01885.x., *Risk Analysis*
- 12 **Convertino**, M., R. Muñoz-Carpena, G. Kiker, M.L. Chu-Agor, R. Fischer, I. Linkov (2012). Epistemic Uncertainty in Predicting Shorebird Biogeography Affected by Sea-Level Rise, <http://dx.doi.org/10.1016/j.ecolmodel.2012.04.012>, *Ecological Modelling*
- 11 M.L. Chu-Agor, R. Muñoz-Carpena, G.A. Kiker, M. Aiello-Lammens, R. Akcakaya, M. **Convertino**, I. Linkov, (2012). Simulating the fate of Florida Snowy Plovers with sea-level rise: exploring potential population management outcomes with a global uncertainty and sensitivity analysis perspectives, *Ecological Modelling*
- 10 M. **Convertino**, F. Catani, A. Troccoli (2011), Maximum Entropy Macroscale Prediction of the Occurrence and Size of Landslides Driven by Climate Change Rainfall Variation, *Geophysical Research Abstract, Vol. 13, EGU 2011-9389*
- 9 Aiello-Lammens, M., Chu-Agor, M.L., **Convertino**, M., Fischer, R.A., Linkov, I., Akcakaya, H.R., (2011). The impact of sea-level rise on Snowy Plovers in Florida: Integrated Geophysical, Habitat, and Metapopulation Models, *Global Change Biology*, DOI: 10.1111/j.1365-2486.2011.02497.x
- 8 **Convertino**, M. (2011). Neutral Metacommunity Clustering and SAR: River Basin vs 2-D Landscape Biodiversity Patterns, *Ecological Modelling*, 222, 11, 1863-1879
- 7 **Convertino**, M., J.F. Donoghue, M.L. Chu-Agor, R.A. Fischer, G.A. Kiker, R. Muñoz-Carpena, I. Linkov (2011). Anthropogenic Renourishment Feedback on Shorebirds: a Multispecies Bayesian Perspective, *Ecological Engineering*, 37, 8, 1184-1194
- 6 **Convertino**, M., G. Kiker, R. Muñoz-Carpena, R. Fischer, I. Linkov (2011). Scale- and resolution-invariance of suitable geographic range for shorebird metapopulations, *Ecological Complexity*, Special Section: Complexity of Coupled Human and Natural Systems, doi:10.1016/j.ecocom.2011.07.007
- 5 **Convertino**, M., J. Elsner, G. Kiker, R. Muñoz-Carpena, Martinez, C.J., R. Fischer, I. Linkov (2011). Do Tropical Cyclones Shape Shorebird Patterns? Biogeoclimatology of Snowy Plovers in Florida, *PLoS ONE*, 10.1371/journal.pone.0015683
- 4 I. Linkov, R.A. Fischer, M. **Convertino**, M. Chu-Agor, G. Kiker, C.J. Martinez, R. Muñoz-Carpena, H.R. Akcakaya, and M. Aiello-Lammens, (2010). The Proof of Sea-level Rise is in the Plover - Climate Change and Shorebirds in Florida, *Endangered Species Bulletin (US FWS)*
- 3 Stark, C.P., E. Choi, and M. **Convertino** (2011). Landslide rupture and length-depth scaling, *Earth and Planetary Sciences Letters*, *accepted*
- 2 **Convertino**, M., R. Muneeppeerakul, S. Azaele, E. Bertuzzo, A. Rinaldo, and I. Rodriguez-Iturbe (2009). On neutral metacommunity patterns of river basins at different scales of aggregation, *Water Resources Research*, 45, W08424, Aug., 10.1029/2009WR007799
- 1 **Convertino**, M., R. Rigon, A. Maritan, I. Rodriguez-Iturbe, and A. Rinaldo (2007). The probabilistic structure of the distance between tributaries of given size in river network, *Water Resources Research*, 2007WR006176

Journal Articles - submitted and in review

- 3 **Convertino**, M., J.M. Keisler, D. Dokukin, C. Foran, I. Linkov (2012). Spatially-explicit Portfolio Decision Model for Optimal and Sustainable Ecosystem Management, *PNAS*, *submitted*
- 2 **Convertino**, M., C.M. Foran, J.M. Keisler, L. Scarlett, A. LoSchiavo, G.A. Kiker, I. Linkov (2012). Enhanced Adaptive Management: Application to the Everglades Ecosystem, *PNAS Sustainability Science*, *submitted*
- 1 **Convertino**, M., F. Morales, Troccoli, Linkov, I., Catani, F. (2012). Landslide Patterns as Fingerprints of Climate Change, *Journal of Geophysical Research - Earth Surface*, *in review*

Journal Articles - in preparation (excerpta)

Linkov, I., **Convertino**, M., Seager, T.P., Allen, J., Gunderson, L., (2012) Taxonomy of Resilience for the Science-Policy Interface, in preparation for Science

Convertino, M., Dokukin, D., Wood, M., Linkov, I., (2012) What do stakeholders think? A game-based preference elicitation model for environmental management

Perz, SG, Muñoz-Carpena, R, Kiker, GA, **Convertino**, M, Holdo, RM, Holt, RD, (2012) Evaluating Ecological Resilience with Global Sensitivity and Uncertainty Analysis

Convertino, M., Convertino, N., Linkov, F., Linkov, I. (2012) Death Risk Reduction with Portfolio Decision Analysis: a case-study for Epilepsy, in preparation for PLoS Medicine

Convertino, M., Z. Collier, I. Linkov (2012), Health Risk, Revenue and Virtual Water Trade of the Worldwide Pharmaceutical Network

Convertino M., M. Barber, Zachary A. Collier, James L. Valverde Jr., Jeffrey M. Keisler, Igor Linkov, A Risk Assessment Model for the Pharmaceutical Supply Chain

Mayo, M., **Convertino**, M., Dimperio, E., Valente, D., Lemasson, B., Linkov, I., Perkins, E., Biologically Inspired Design Principles for Engineering Networks

Convertino, M. G.A. Kiker, Network-based Metapopulation Dynamics of the *Loxodonta africana* in the Kruger National Park, (2012) *for Proceedings of the Royal Society B*

Lagerwall, G.L., G.A. Kiker, M. **Convertino** (2012). Drivers of Marula and Mopane distribution in the Kruger National Park inferred from niche modelling, *for Ecological Modelling*

Convertino, M., Colarossi, A., Multidisciplinarity and Humanity Imprinting in Engineering Education (2012), for the Journal of Engineering Education

Kiker, G.A., **Convertino**, M., Carpena, R., Chu-Agor, M, Akcakaya, R., Aiello-Lammens, M., Foran, C.M., Fischer, R.A., Linkov, I. (2012), Climate Change Risks to Threatened Bird Populations on Florida Coastal Military Installations: Integrated Modeling and Risk Management Decision Support, *for Integrated Environmental Assessment and Management*

Acknowledged Contribution in Journal Articles

Chu-Agor, M.L., J.A. Guzman, R. Muñoz-Carpena, G.A. Kiker, I. Linkov (2012). Changes in beach habitat due to the combined effects of long-term sea-level rise, storm erosion, and nourishment, *submitted to Environmental Modelling and Software*, (using my Habitat Suitability calculation)

Chu-Agor, M.L., R. Muñoz-Carpena, G.A.Kiker, A. Emanuelsson, I. Linkov (2011). Exploring vulnerability of coastal habitats to sea level rise through global sensitivity and uncertainty analyses, Volume: 26, Issue: 5, Pages: 593-604, 10.1016/j.envsoft.2010.12.003, *Environmental Modelling and Software*, (using my Habitat Suitability calculation)

Gaucherel, C., Salomon, L., Labonne, J. (2011). Variable self-similar sinuosity properties within simulated river networks, 36, 1313-1320, 10.1002/esp.2153, *Earth Surface Processes And Landforms*, (using my Optimal Channel Network model)

Rodriguez-Iturbe, I., R. Muneeppeerakul, E. Bertuzzo, S. A. Levin, and A. Rinaldo (2009), River networks as ecological corridors: A complex systems perspective for integrating hydrologic, geomorphologic, and ecologic dynamics, *Water Resour. Res.*, 45, W01413, doi:10.1029/2008WR007124.

Book Chapters

- 4 William H. McAnally, Phillip H. Burgi, Darryl Calkins, Richard H. French, Jeffery P. Holland, Bernard Hsieh, Barbara Miller, Jim Thomas, William D. Martin, James R. Tuttle, **Convertino**, M, Linkov, I, (2011). Water-controlled Habitats, *ERDC Climate Book*, [INVITED]
- 3 **Convertino**, M., Muñoz-Carpena R., Troccoli A., Kiker, G., Linkov I., 2011. Epitomes of a bottom-up hydro-geo-climatological analysis and modeling to face sea-level rise in coastal ecosystems, *Water Encyclopedia*, "Climate Sustainability: Understanding and Addressing Threats to Essential Resources", Elsevier book. Editor R.A. Pielke Sr. (editor "Water Encyclopedia", F. Hossain), [INVITED]
- 2 **Convertino**, M., G.A. Kiker, M.L. Chu-Agor, R. Muñoz-Carpena, C.J. Martinez, M. Aiello-Lammens, R.H. Akcakaya, R.A. Fischer, I. Linkov, 2010. Integrated Modeling to Mitigate Climate Change Risk due to Sea-Level Rise of Imperiled Shorebirds on Florida Coastal Military Installations, *NATO Book "Climate Change: Global Change and Local Adaptation"*. Editors I. Linkov, and T. Bridges, [INVITED]
- 1 **Convertino** M., Rinaldo, A. (2007). Figures of Optimal Channel Networks for the book "The Self-Made Tapestry: Pattern Formation in Nature", *Oxford University Press*. Written by Philip Ball, [INVITED]

Technical Notes, and Reports (peer-reviewed)

- 9 **Convertino**, M., Valverde Jr., L.J., Dokukin, D., Bridges, T., Linkov, I., (2012). Decision driven integration of biophysical modeling for assessing species threat to climate change, *Technical Report* for ERDC USACE within the CDR project (Center Directed Research) for Ft. Stewart (USACE)
- 8 **Convertino**, M., Foran, C.M., Linkov, I., (2012). Enhanced Adaptive Management: Decision Analysis Tool to Support CERP Restoration and Monitoring Decisions, *Technical Report* for Cooperative Agreement Jacksonville District - ERDC USACE within the RECOVER program for the Everglades (USACE and South Florida Water Management District)
- 7 Linkov, I., Fischer, R.A., Kiker, G.A., Muñoz-Carpena, R., **Convertino**, M., Chu-Agor, M.L., Aiello-Lammens-M., Cathey-Linoss, A., Martinez, C., Akcakaya, H.R, (2012). Integrated Climate Change and Threatened Bird Population Modeling to Mitigate Operations Risks on Florida Military Installations, *Final Report SERDP-1699*
- 6 Linkov, I., **Convertino**, M., Chu-Agor, M.L., G.A. Kiker, Fischer, R.A., Muñoz-Carpena, R., Martinez, C., Akcakaya, H.R, Aiello-Lammens-M., (2011). Integrated Climate Change and Threatened Bird Population Modeling to Mitigate Operation Risks on Florida Military Installations, *Vulnerability Report SERDP-1699*

- 5 **Convertino**, M., Suedel, B.C., Linkov, I, Vogel, JT, Baker, K, Valverde, JL, Fischenich, JC (2011). An Illustrative Case Study of the Application of Uncertainty Concepts and Methods for Ecosystem Restoration, *USACE ERDC Technical Note*
- 4 Suedel, B., Vogel, JT, Linkov, I, McKay, K, Valverde, JL, **Convertino**, M. (2011). Uncertainty evaluation of restoration projects, *USACE ERDC Technical Note*
- 3 **Convertino**, M., Vogel, J.T., McKay, K, Suedel, B, Foran, CM, Lu, C., Baker, K, Valverde, JL, Linkov, I, (2011). Metric Selection for Restoration Evaluation of Aquatic Ecosystems through MCDA methods, *USACE ERDC Technical Note*
- 2 **Convertino**, M. and Rigon, R. (2007). FluidTurtle routines for the study of Optimal Channel Networks, theory and applications, *University of Trento, DICA-CUDAM Technical Book*. (user manual) (Optimization and Further Development of Computational Tools for Hydrological and Geomorphological Applications (JGRASS-uDig-GEOTOP), Civil and Environmental Engineering - University Center for the Hydrogeologic Protection of the Mountain Environment (DICA-CUDAM), University of Trento, and HydroloGIS
- 1 **Convertino** M., Romano L., Geo-hydrologic characterization of the Apulia karst watersheds draining in the Adriatic sea, Apulia Water Management District, Italy, 2006

Technical Notes, and Reports (non peer-reviewed)

Muñoz-Carpena, R., Albertin, A.R., Graham, W.D., Huffaker, R., Kiker, G.A., and Waylen, P.R. (2012), "Collaborative Research Catalyzing New International Collaborations: Interdisciplinary workgroup on water sustainability in the Tempisque Basin, NW Costa Rica", NSF annual activity report (International Science and Engineering (OISE)); **Convertino**, M. as contributing author for the section "Inference of Stakeholder Mental Models and Preferences"

Linkov, I., **Convertino**, M., Chu-Agor, M.L., G.A. Kiker, Fischer, R.A., Muñoz-Carpena, R., Martinez, C., Akcakaya, H.R, Aiello-Lammens-M., (2011). Integrated Climate Change and Threatened Bird Population Modeling to Mitigate Operation Risks on Florida Military Installations, *Vulnerability Report SERDP-1699*

Alessi-Celegon E., M. **Convertino**, L. Kelpsaitte, D. Kurennoy, M. Puliga, K. Schroder, C. Venier, S. Zanardo, F. Zanello, Troccoli A. (2008). Analysis of Climatological and Hydrological Conditions on High Waters in Venice, *Working Group report, IVSLA Advanced Summer School "Climate Forcings and Global Patterns"*, 13-20 June 2008, Venice

Botter, G., Bertuzzo, E., **Convertino**, M., Borgogno, F., Tamea, S., Rodriguez-Iturbe I. (2007). Vegetation Landscape and River Network Interactions: Biomass Dynamics and Biodiversity Patterns, *Working Group report, IVSLA Advanced Summer School "Environmental Dynamics Pathways to Environmental Sustainability"*, 08-15 July 2007, Venice

Da Deppo L., **Convertino**, M., Viero, D., Stefanon, L., Computational - Experimental project of an Hydraulic Infrastructure: Fluvial small dam project on river Sesia at Borgo Sesia (Vercelli), Lombardia, Italy, 2006

Convertino, M., Marani, M., Characterization and Prediction of the Hydrologic Response of the Taloro River Basin (Sardegna, Italy) through High Quality Remote Sensing Data and the GIUH theory, University of Padova, Italy, 2006

Proceedings and Published Abstracts

Dai H., **Convertino** M., Linkov I., Ye M., A Bayesian network approach for ecogeomorphological modeling facing uncertainty: a cross-comparison of pristine and impacted wetlands, Geological Society of America, 4-7 November, Charlotte, NC, USA

M. **Convertino**, I. Linkov, Species-Inspired Resilient Networks for Global Sustainability, ERDC Conference, New Orleans, Louisiana, November 2011

M. **Convertino**, G. Kiker, I. Linkov, Integrated Modeling Tool to Assess the Impact of Sea-Level Rise on TER-S at Military Installation, ERDC Conference, New Orleans, Louisiana, November 2011

Convertino, M., Zachary A. Collier, James L. Valverde Jr., Yousra Tourki, Michelle Barber, Jeffrey M. Keisler, Igor Linkov, Decision-driven Risk Assessment of the Pharmaceutical Supply Chain, Society for Risk Analysis Annual Meeting, Charleston, SC, December 2011; [Chairman of the session W4-B "Risk Assessment of Pharmaceuticals in the Environment"]

Valverde, J.L., **Convertino**, M., Bockelie, A., Keisler, J., Dokukin, D., I. Linkov, Portfolio MCDA-based Optimization for Asset Management: a USACE example, Society for Risk Analysis Annual Meeting, Charleston, SC, December 2011

Kiker, G., **Convertino**, M., Chu-Agor, M.L., Aiello-Lammens, M., Kiker, G.A., Muñoz-Carpena, R., Akcakaya, H.R., Fischer, R.A., and Linkov, I., Integrated Modeling for Risk Assessment of Shoreline-dependent Species Threatened by Sea-level Rise, Society for Risk Analysis Annual Meeting, Charleston, SC, December 2011, and SERDP-ESTC meeting, Arlington, VA, November 2011

Convertino, M., Bates, M, Vogel, JT, Foran, CM, Keisler, J, LoSchiavo, A, Linkov, I, Enhanced Adaptive Management: Using Decision Analytical Methods to Transparently Integrate Science, Expert Knowledge, Decisions, and Monitoring, SETAC (Society of Environmental Toxicology and Chemistry) 32nd North America Annual Meeting, Boston, November 2011

Convertino, M., Kiker, G, Linkov, I, Warning Signals of Species Shifts for Risk Assessment and Management, SETAC (Society of Environmental Toxicology and Chemistry) 32nd North America Annual Meeting, Boston, November 2011

Convertino, M., J.F. Donoghue, M.L. Chu-Agor, G.A. Kiker, R. Muñoz-Carpena, R.A. Fischer, I. Linkov, Anthropogenic Renourishment Feedback on Shorebirds: a Multispecies Bayesian Perspective for Beach restoration in the face of Climate Change, National Conference on Ecosystem Restoration (NCER), Baltimore, August 2011

I. Linkov, J.T. Vogel, B. Suedel, W. Hubbard, D. Tazik, C.M. Foran, **Convertino**, M., Decision Analysis and Ecosystem Restoration: Framework and Applications, National Conference on Ecosystem Restoration (NCER), Baltimore, August 2011

Convertino M., J.B. Elsner, G.A. Kiker, R. Muñoz-Carpena, J.F. Donoghue, R.A. Fischer, I. Linkov, Bayesian Modeling for Assessing Feedbacks among Species, Anthropogenic, and Climate Forcings: shorebirds in Florida, Ecological Society of America General Meeting, Austin, TX, August 2011

Convertino, M., J.B. Elsner, R. Muñoz-Carpena, G.A. Kiker, C.J. Martinez, R.A. Fischer, I. Linkov, Do Tropical Cyclones Shape Shorebird Patterns? Biogeoclimatology of Ecosystems Facing Climate Change, 3rd International Summit on Hurricanes and Climate Change, Rhodes, [INVITED], July 2011

Convertino, M., F. Catani, A. Troccoli, Maximum Entropy Macroscale Prediction of the Occurrence and Size of Landslides Driven by Climate Change Rainfall Variation, European Geophysical Union, Wien, April 2011

Zajac, Z., Muñoz-Carpena, R., **Convertino**, M., Global Uncertainty, Sensitivity Analysis and Fractal Characterization of Spatially Distributed Hydrologic Models: case-study for a Constructed Subtropical Wetland in Everglades, Florida, Total Maximum Daily Loads (TMDL) conference “Watershed Management to Improve Water Quality”, ASABE, Baltimore, 14-17 November 2010

Convertino, M., Space-time evaluation of land-cover for ecohydrological applications and wildlife conservation, Florida section of the American Society of Agricultural and Biological Engineers Conference, Jupiter, FL, 10-11 June 2010

M. Aiello-Lammens, H.R. Akcakaya, **Convertino**, M., Fischer, R., Kiker, G., Martinez, C., and Linkov, I., Integrated Climate Change and Threatened Bird Population Modeling to Assess Risks from Changes in Sea-level and Weather Patterns, 24th International Congress for Conservation Biology (ICCB 2010), Edmonton, Alberta, Canada, 3-7 July 2010

Journal Editorship

Associate and Guest Editor

“*Ecological Processes*”, Springer, Guest Editor for the special issue “Wetlands in a Complex World” (featured topic of the Society of Wetland Scientists and the Greater Everglades Ecosystem Restoration Conference “INTECOL”, Orlando, FL, June 3-8, 2012, <http://www.conference.ifas.ufl.edu/intecol/topics.html>)

“*Transactions of Complex Systems*”, European Alliance for Innovation Publication - Institute for Computer Sciences, Social Informatics and Telecommunications Engineering (ICST), Area Editor: Ecological and Social Complexity

“*Environment, Systems, and Decisions*”, Guest Editor for the special issue “Risk and Decisions in Coupled Human-Natural Systems” (symposium of the Society for Risk Analysis Annual Meeting, San Francisco, CA, 9-12 December 2012)

“*Environment, Systems, and Decisions*”, Springer (formerly “The Environmentalist”), Area Editor: Ecological Modeling/Biocomplexity (Editors: J.H. Lambert (UVA), and I. Linkov (ERDC USACE)), 2011-present

PLoS ONE, Associate Editor, request pending

Reviewing (journals)

Environment Systems and Decisions (1), Ecological Processes (3), Transactions of Complex Systems (2), Risk Analysis (5), Ecological Modelling (22), PLoS ONE (20), Water Resources Research (7), PLoS Computational Biology (1), Journal of Geophysical Research - Biogeoscience (1), Environmental Science and Technology (3), Transaction of the ASABE (1), International Journal of Geographical Information Science (2), Hydrology and Earth System Sciences (HESS) (3), Ecological Indicators (2), Integrated Environmental Assessment and Management (2), Ecotoxicology and Environmental Safety (1), Science of the Total Environment (2), Earth and Planetary Sciences Letters (1), Biological Conservation (10), Journal of Infrastructure Systems (5), Diversity and Distribution (4), Journal of Theoretical Biology (2), Journal of Environmental Management (2), Biology (1), Decision Analysis (1)

Reviewing (proposals and reports)

NSF Decision, Risk and Management Sciences (1 proposal), RAND corporation study (1 report)

Other Journal Activity

Society for Risk Analysis newsletter, Ecological Risk Assessment Specialty Group section, October 2011-present

International Network of Research on Coupled Human and Natural Systems newsletter (CHANS-Net), May 2012-present

Florida Climate Institute newsletter, Contributor, October 2011-present

Grantsmanship (funded and pending research projects)

BIOSALINE project (<http://www.biosaline.org/>), "Salinity monitoring and mapping in the coastal areas of Senegal considering sea water intrusion", A. Alshankiti, M. **Convertino**, et al., 2013, in preparation

NSF CyberSEES (Type 1), When cyber meets natural ecosystem networks: Design for ecosystem sustainability and security, **Convertino**, M. (UFL), Fok M. (UGA), 2013, \$ 300,000, in submission

NSF SEES Fellowship, Spatial Portfolio Optimization for Trading-off Energy, Environmental and Social Needs in Complex Ecosystems, **Convertino**, M., 2012, \$ 263,775, pending

NSF CNH-EX (Coupled Natural Human Systems interdisciplinary team exploratory project), Coupling conflicting response times of human decisions and natural systems in a dysfunctional Pacific MesoAmerican basin, with C. Murcia (OTS Duke), R. Muñoz-Carpena, G Kiker, J. Southworth, P. Frederick, M Brown, and M **Convertino** (UF), 2012, \$ 250,000 pending

"Integrated Critical Mangroves Conservation and Sustainable Use", with Dr. Paul Ouedraogo, 2012, Lead Agency: Ramsar Convention, Other Executing Partners: Mava Foundation, UNEP, IUCN, Wetlands International-Africa, and WWF WAMER, \$ 535,00, pending

"Integrated Modeling for Assessing Response of Species to Climate Change" "center-directed research" (CDR); subproject: "Eco-hydro-climatological Risk model of Amphibians at Fort Stewart, GA" (USACE ERDC, Linkov, I., Lee, A., Westervelt, B., Bridges, TS, Valverde, J.L., **Convertino**, M., Weatherly, J.W.), 2011-2012, \$ 100,000

"Decision and Risk Analysis Applications Environmental Assessment and Supply Chain Risks" (first project: Drug Importation Policy Options through Optimization of the Global Supply Chain - sponsor: FDA), ERDC-USACE and University of Florida Cooperative Agreement W912HZ-11-2-0012 (PI: I. Linkov, co-PI: G.A. Kiker, and M. **Convertino**), \$ 271,959, 2010-present

- "Exploring tradeoffs for an Uncertain Future: Comparing Traditional Criteria Weights Elicitation with Results from Game-based Decision Simulations", extension of the ERDC-USACE and University of Florida Cooperative Agreement W912HZ-11-2-0012 (PI: I. Linkov, co-PI: G.A. Kiker, and M. **Convertino**), \$ 20,397, 2012-present

- "Modification of the Sea Level Affecting Marshes Model (SLAMM) to Incorporate the Effects of Coastal Sediment Processes and Dredges Material Placement", extension of the ERDC-USACE and University of Florida Cooperative Agreement W912HZ-11-2-0012 (PI: I. Linkov, co-PI: G.A. Kiker, and M. **Convertino**), \$ 20,000, 2012-present

- "Probabilistic decision model for Enhanced Adaptive Management of the Everglades Water Conservation Areas", (PI: G. Kiker; I. Linkov, C.M. Foran, A. LoSchiavo, J.M Keisler, L. Scarlett, M. **Convertino**), US Army Corps of Engineers Civil Works Internal Grant, Jacksonville District - ERDC, RECOVER program, 2011-present

“Evaluation of Coastal Resilience at Camp Lejeune”, SERDP Special Solicitation “Defense Coastal/Estuarine Research Program”, with Russo E. and other ERDC - USACE scientists, contractor, unfunded

University of Florida Gainesville Health Science Center Institutional Review Board (IRB-01), “Novel early-warning signals of epileptic-seizure based on EEG, MRI and fMRI”, M. **Convertino**, H. Skinner, accepted

University of Florida Behavioral/NonMedical Institutional Review Board (IRB-02), “A Multidisciplinary and Collaborative Approach: When Engineering and Foreign Language Education meet”, M. **Convertino**, A. Colarossi, Academic Year 2011, accepted

Various internal “Basic Research” program (“6.1”) of the Engineering Research and Development Center, US Army Corps of Engineering, 2010, 2011, 2012 Fiscal Years; e.g. (excerpta):

- “Agent-Based Modeling and Network Science for Fabricating Bacteria Integrated Micro/Nano-Robotic Systems”, with M. Cowan, M. Sitti (CMU), and Igor Linkov (ERDC);

- “A Neutral Metacommunity Model For The Assessment Of The Dams’ Effect and Water Management Strategies in River Basin Socio-Ecological Systems”, with CM Foran, and I. Linkov;

- “Integration of LIDAR, imagery, and texture analysis for understanding the coupled dynamics of key vegetation species and species community of coastal/marine ecosystems”, with M. Reif (ERDC Joint Airborne Lidar Bathymetry Technical), J. Zinnert (VCU & ERDC), R. Mangoubi (Draper - MIT), and I. Linkov (ERDC);

- “Influence of Spatial Heuristics on Soldier Route Planning - Coupling Decision Field Theory and Gaming”, with T.T. Brunye (U.S. Army Research, Development, and Engineering Command (RDECOM), and Tufts University), and I. Linkov (ERDC);

- “Game-based Preference Elicitation”, with J. Keisler (UMB), G.A. Kiker (UF), R. Cooke (RFF), and I. Linkov (ERDC);

- “Development of a Universal Information Processing Dynamic Model for Environmental Stress and Health Assessment”, with J. Palma-Oliveira (University of Lisbon), D. Smith (UPenn), C.M. Foran and I. Linkov (ERDC);

- “Bird species recognition and estimation of metapopulation abundance using texture analysis of aerial images”, with R.A. Fischer, R. Mangoubi (Draper - MIT), and I. Linkov (ERDC);

“Selection and Assessment of Metrics of Evaluation of Ecosystem Restorations using Multi-criteria Decision Models”, Environmental Benefits Analysis Program, US Army Corps of Engineers (Linkov, I., B. Suedel, M. **Convertino**) 2011-2012

“Portfolio Decision Analysis for the Assets Management of Hydropower Infrastructures and TER Species”, (\$ 300,000 for 6 months), (PI: Valverde J.L. Jr.; Linkov I., Hale D., **Convertino** M.), 2011-2012

“Neutral metacommunity modeling for vegetation and megafauna in the Kruger National Park - Neutral vs trade-off vs niche models”, (M. **Convertino**, and G.A. Kiker) 2010-2012

“Detection of the drivers for the community assembly in tropical forests using neutral and niche models for the Dinghushan and Changbaishan plots, South China Botanical Garden, Guangzhou” (managed by Center for Tropical Forest Science- Smithsonian Tropical Research Institute), Chinese Academy of Science International Young Scientist Research, (PI: **Convertino**, M.; co-PI: W. Ye and J. Lian) (\$ 24,000), 2010-2012

“On the Drainage Density as Geomorphological Fingerprint of Geological Heterogeneities and Climate Change in River Basins”, **Convertino** M., Catani F., Rigon R., A. Rinaldo, University of Padova, University of Trento, and University of Firenze, 2008-2009

“Predicting the Landslide Risk by a Maximum Entropy Principle Approach, case study for the Arno River Basin, Tuscany, Italy”, **Convertino M.**, Catani F., University of Florida and University of Firenze, 2010-2012

NSF 0642517, “Co-Organization of River Basin Geomorphology and Vegetation”, and J. S. McDonnell fund “Grant for Studying Complex Systems”, Princeton University (PI: I. Rodriguez-Iturbe), Research Fellow (\$ 1400/month), 2008

NFS 0823953, “Geomorphic transport laws, landscape evolution, and fractional calculus, subproject: Topographically Consistent Networks (TCN) vs Optimal Channel Networks (OCN): a new formulation for optimal river networks” (PI: Colin Stark, Lamont-Doherty Earth Observatory, Columbia University), Graduate Research Assistant, June 2009- August 2009

NFS 0617557, “An Exploration of the Role of Mountain River Sinuosity in Landscape Dynamics, subproject: 3d simulation of landslide failure and incipient runout using SNAC-CIG (Computational Infrastructure for Geodynamic)”, (computation on Teragrid supercomputer, grant EAR090034) (PI: Colin Stark, Lamont-Doherty Earth Observatory, Columbia University), Graduate Research Assistant, Jan. 2009-May 2009

AquaTerra GOCE CT-2003-505428, “Analysis of the fundamental geomorphological properties of river basins for transport phenomena at large scales”, EU project Global Change and Ecosystems, (PI: Prof. Andrea Rinaldo, University of Padova, Italy), Research Fellow (€1000/month), May 2007-May 2008

AquaTerra GOCE CT-2003-505428, “Theoretical and Modeling Study of the Spatial Distribution of freshwater fishes and their Diversity in Fluvial Networks”, EU project Global Change and Ecosystems, (PI: Prof. Andrea Rinaldo, co-PI: Prof. Marco Marani, University of Padova, Italy), Research Fellow (€1000/month), March 2009-June 2009

Current & Past Research and Region of Study

“Are oscillations in membrane transport related to leaf physiology? A texture-based validation of hypothesis coupled to biosensor measurements”, with E. McLamore 2012-present

“Inference of Stakeholder Mental Models and Preferences” in the NSF project “Collaborative Research Catalyzing New International Collaborations: Interdisciplinary workgroup on water sustainability in the Tempisque Basin, NW Costa Rica”, 2012-present

“Inferring Species Richness, Species Turnover, Environmental Change Effects, and Urban Growth by Texture Analysis of Satellite Imagery” (Everglades, Florida; Okavango Delta, Africa; in vitro bacteria biofilms), 2012

“The Better to (Not) See You With, My Dear: Use of Textural Image Analysis for Camouflage Pattern Evaluation”, with Matthew Wood (CMU), Igor Linkov (ERDC USACE), and US Army Natick Soldier Center, 2011-present

NSF Coupled Natural and Human Dynamic, project: “Global Sensitivity & Uncertainty Analysis for Evaluation of Ecological Resilience: Theoretical Debates over Infrastructure Impacts on Livelihoods & Forest Change in the MAP region (Peru, Brasil, Bolivia)”. (PI: Stephen Perz, co-PI: R. Muñoz-Carpena, G.A. Kiker, and J. Southworth), 2011-2014

SERDP SI-1699, “Use of Multi-Scale Models, Data and Scenario Projections to Reduce Risks of Climate Change Effects and Human Disturbances on the Distribution of Nesting Snowy Plovers and Wintering Piping Plovers on Florida Military Installations”, at University of Florida, Gainesville (PI: Igor Linkov), Postdoctoral Research Associate grant (\$ 48,000/year), 2009-2012

- “Stochastic Multiparticle Transport of Nanomaterials in River Basins and Metacommunity Toxicological Risk Model (Switzerland)”, 2012-present
- “Synthetic Biology and Emerging Technology Risk Perception: Survey of People’s Perception of Risk and Benefits for Guiding Policy Planning of Synthetic Biotechnologies”, (with M. Bates, I. Linkov), 2012-present
- “Enhanced Adaptive Management of the Everglades by Integration of Ecological Models with a Probabilistic Decision Model (Florida)”, 2011-2012
- “Enhanced Adaptive Management Model for the Submerged Aquatic Vegetation of the Starved Rock Island (Illinois River)” (ERDC and US Army Corps of Engineers), 2011-2012
- “Definition and Taxonomy of Resilience in Complex Systems”, with D. Chang (MIT), T. Seager (ASU), L. Gunderson (Emory), J. Allen (CMU), and I. Linkov (ERDC), 2012-present
- “Risk vs. Resilience Management in Catastrophe Management in Engineering Systems” (case study for the Mississippi Missouri River and for the Fukushima Nuclear Power Plant), with P.S.C. Rao and J. Park (Purdue), T. Seager (ASU), and I. Linkov (ERDC), 2011-2012
- “Socio-Cognitive Resilience to Environmental Stress”, with Jose Palma-Oliveira (University of Lisbon), and Igor Linkov (ERDC USACE), 2011-present
- “Risk, Resilience, and Adaptive Capacity: the case of Chem-bio Threat on the Water Supply Network” (with Tom Seager, Arizona State University), 2012-present
- “Spreading of Information and Epidemics on Networks: Theoretical Formulation, Analogies, and System Resilience”, 2012-present
- “Expert Selection using Mental Modeling, MCDA and Social Network Analysis”, with Matt Wood (CMU), Ben Trump (U. Mich) and Igor Linkov (ERDC USACE), 2011-present
- “Environmental Metrics Selection for Sustainable Ecosystem Restorations” using DECERNS SDSS (Decision Evaluation in ComplEx Risk Network Systems - Spatial Decision Support System), sponsored by Dredging Operations and Environmental Research (DOER) (Program Manager: Todd S. Bridges), with Kelsie Baker, Burton Suedel, Igor Linkov, US Army Corps of Engineers, Engineering Research & Development Center, Environmental Lab, 2011
- “Investigating the Fire-Elephant trap in the Kruger National Park using presence-only and presence-absence vegetation data in species distribution models” (with Rheinhardt Scholtz (South Africa National Park), and Greg Kiker (University of Florida)), 2011-2012
- “Spatio-temporal transferability of species distribution models” (GLM and MaxEnt) for shorebirds (Dunlin) in intertidal areas (from Fraser River delta in British Columbia to Skagit delta in Washington State), with Yuri Zharikov (Pacific Rim National Park Reserve of Canada, and Centre for Wildlife Ecology, Department of Biological Sciences, Simon Fraser University, Burnaby, BC), 2012-present
- “Spatio-temporal Dynamics of Multistrain Biofilms: Metacommunity and Metapopulation Modeling”, (Lab experiments developed by Eric McLamore, University of Florida), 2011
- “Metacommunity/Network-based Theory and Modeling of Species” (South Africa and Brasil), 2011-2012
- “Climate Change and Ecohydrological Signatures on Landscapes and Species (Biohydrology): Niche and Metapopulation Risk Models” (Georgia, Floirda, Costa Rica), 2011-2012
- “Maximum Entropy Prediction of Landslides and Potential Hazard Model (Italy)”, 2010-2011

“Theory of Aggregate Formation and Space-Time Point Processes”, 2011

“Using Global Sensitivity and Uncertainty Analysis to Explore the Influence of Body-Mass on Species Assemblage (USA and South Africa)”, 2011-present

Research with Federal Agencies

US Army Corps of Engineers (Engineering Research and Development Center, Jacksonville District, New England District)

Federal Emergency Management Agency (FEMA)

US National Science Foundation (NSF)

US Environmental Protection Agency (EPA)

US Department of Homeland Security (DHS)

US Department of Defense (DoD), Strategic Environmental Research and Development Program (SERDP)

US Department of Defense (DoD), Environmental Security Technology Certification Program (ESTCP)

Featured Research in Public Science Media (excerpta)

“Satellite images tell tales of changing biodiversity” (2012),

- by EurekAlert!,

http://www.eurekalert.org/pub_releases/2012-10/plos-sit102212.php,

- by PhysOrg.com

<http://www.podcast.de/episode/186407527/Satellite2Bimages2Btell2Btales2Bof2Bchanging2Bbiodiversity>,

- by International Network of Research on Coupled Human and Natural Systems

http://chans-net.org/news/satellite_biodiversity_0ct2012

“UF/IFAS researcher helps test new way to probe remote ecosystems with satellite imagery”, (2012), by T. Nordlie, University of Florida Office of Research and IFAS news, <http://news.ifas.ufl.edu/2012/10/ufifas-researcher-helps-test-new-way-to-probe-remote-ecosystems-with-satellite-imagery/>, featured also in Space Daily, Science Daily, Scoop, PhysOrg, Bioportfolio, and EurekAlert, and others.

“Tiny Shorebirds Benefit From Big Storms, Explore Magazine” (2012), M. Anderson, University of Florida Office of Research

<http://www.research.ufl.edu/publications/explore/past/spring2011/extracts/extractso8.html>; featured also in Science Daily, PhysOrg, and others.

“Hurricanes Can Be Beneficial to Certain Species of Shorebirds” (2011), Featured IFAS Research, University of Florida, <http://research.ifas.ufl.edu/featured-discoveries/hurricanes-can-be-beneficial-certain-species-shorebirds>.

“Bird population modeling protects Plovers, sustains military mission” (2011), Patrice Creel, ERDC - USACE Newsletter.

Models (excerpta)

Optimal Monitoring Networks Design via VoI Maximization

Multiresolution Statistical Analysis of Image Texture and Segmentation for Analysis of Biosystems Images (with R. Mangoubi)

Metrics Selection for Sustainable Ecosystem Restorations with DECERNS - SDSS (Decision Evaluation in ComplEx Risk Network Systems & Spatial Decision Support System)

1D and 2D Probabilistic Decision Models for Enhanced Adaptive Management of Wetlands (with J.M. Keisler, and I. Linkov)

Spatio-temporal Portfolio Decision Model (with D. Dokukin, J.M. Keisler, J.L. Valverde Jr., and I. Linkov); application for Infrastructure Asset Management, Species Asset Management, Medical Decision Making, and Prioritization of R&D technologies

Game-based Stakeholders' Preferences Elicitation Model using Probabilistic Inversion (with D. Dokukin)

Statistical Assessment of Local Species Richness from Occurrence Data at different Resolutions (with D. Dokukin)

Neutral Metacommunity Model (with R. Muneeppeerakul and E. Bertuzzo)

Optimal Channel Networks with heterogeneous precipitation - (set of tools in Mathematica and Java within the "FluidTurtle-HydroloGIS/JGrass environment" for river network generation and analysis") (with A. Rinaldo and R. Rigon); see JGrass and FluidTurtle

Stochastic Trade-off Multispecies/Metapopulation Model

Maximum Entropy Principle-based model for Landslide Prediction (with F. Catani)

Network-based Risk Model of the Pharmaceutical Supply Chain (sponsored by FDA and developed with I. Linkov and J.M. Keisler)

Stochastic Agent-based Transport Model (e.g. for Nanomaterials and Water-borne diseases)

Patent

"Multiresolution statistical image analysis for predicting α and β diversity in complex ecosystems", **Convertino, M.**, Mangoubi, R., and Linkov, I. (pending at UF and Draper Lab)

Conferences, Symposiums, and Workshops

Organized

Convertino, M. "Simplicity in Biocomplexity: Influence Diagrams for Modeling Human-Environment Interactions", 4-hours teaching workshop, Society for Risk Analysis Annual Meeting (sponsored by Ecological Risk Assessment and Decision Analysis and Risk Specialty Groups), San Francisco, CA, 9-12 December 2012

Convertino, M., Linkov, I., “What Lawyers and Birds have in Common: Risk and Decisions in Coupled Human-Natural Systems”, symposium, Society for Risk Analysis Annual Meeting (sponsored by Ecological Risk Assessment and Decision Analysis and Risk Specialty Groups); presenters: N. Quinn (LBL), C. Gonzalez (CMU), I. Azevedo (CMU), M. Wood (CMU), N. Sawe (Stanford), F. Micheli (Stanford), B. Trump (U. of Michigan) T. Bridges (ERDC), and M. **Convertino** (U. of Florida and ERDC); San Francisco, CA, 9-12 December 2012

B. Suedel, Linkov, I., Vogel, J.T., Baker, K., **Convertino, M.,** Risk-Informed Adaptive Decision Making for Ecosystem Restoration Planning: Methodology and Case Studies, Symposium at SRA Annual Meeting, San Francisco, CA, 9-12, 2012

I. Linkov, Keisler, J., Foran, C.M., **Convertino, M.,** Collier, Z., Bates, M., Risk and Decision Analysis Summer Workshop for Undergraduate and Graduate Research Interns at the Risk and Decision Science Team - ERDC, Newcastle, NH, 29 May 2012.

Most Relevant Attended

“Decision Analysis in a Day”, Society for Risk Analysis, 29 May 2012, New Castle, NH

“Something in the Air: Climate Change, Science and Policy” Advanced Symposium Certificate, Radcliffe Institute for Advanced Studies - Harvard University, 15 April 2011, Cambridge, MA

Oral Presentations

Convertino, M., (2012). “Analysis and Modeling of Complex Human and Natural Systems for Sustainability”, School of Civil, Environmental, and Architectural Engineering, Korea University, Seoul, Korea [INVITED], 30 November 2012

At Society for Risk Analysis Annual Meeting, San Francisco, CA, 9-12, 2012:

- Craig A., **Convertino, Baker K., Lu C., Vogel J.T., McKay K., Linkov, I.,** “Metric Selection for Ecosystem Restoration: Dealing with Risk and Uncertainty”, oral presentation in the symposium “Risk and Uncertainty in Ecosystem Restoration Planning: Methodology and Case Studies”;

- Linkov I., **Convertino M., Foran C.M., Keisler J.M., Scarlett L., LoSchiavo A., Kiker G.A.,** “Enhanced Adaptive Management: Application to the Everglades Ecosystem”, oral presentation in the symposium “Risk and Uncertainty in Ecosystem Restoration Planning: Methodology and Case Studies”;

- Suedel B.C., Linkov I., **Convertino M., Foran C.M., Baker K.M., Vogel J.T.,** “Methodology for addressing risk and uncertainty in ecosystem restoration planning and for developing adaptive management frameworks”, oral presentation in the symposium “Risk and Uncertainty in Ecosystem Restoration Planning: Methodology and Case Studies”;

- **Convertino M., Keisler J.M., Dokukin D., Foran C.M., Linkov I.,** “Spatial portfolio decision model for the management of complex human-natural systems: the case of the Florida coastal ecosystem threatened by sea-level rise”, oral presentation in the symposium “What Lawyers and Birds have in Common: Risk and Decisions in Coupled Human-Natural Systems Part I”;

- **Convertino, M., Seager, T.P., Linkov, I.,** “Measuring Risk, Resilience and Adaptive Capacity”, oral presentation in the symposium “Governing sustainability: different approaches to societal integration in risk management issues”;

Convertino, M., (2012). “Design and Technology for Complex Human and Natural Systems”, Singapore University of Technology and Design - MIT, Singapore, [INVITED], 21-22 August 2012

Convertino, M., Keisler, J.M., Baker, K., Foran, C.M., Valverde, J.L. Jr., Linkov, I., A Risk-based Portfolio Decision Model for Prioritization of Conservation Management Alternatives, World Congress on Risk 2012 - Society for Risk Analysis, Sydney Australia, (supported by the Alfred P. Sloan Foundation Fellowship), [INVITED], 18-20 July 2012

Convertino, M., (2012). "Analysis and Modeling of Complex Human and Natural Systems for Sustainability", Department of Civil Engineering, University of Toronto, Toronto, CA [INVITED], 9-10 July 2012

Convertino, M., (2012). "Analysis and Modeling of Complex Human and Natural Systems for Sustainability", Department of Civil and Environmental Engineering, Florida International University, Miami, FL [INVITED], 11 June 2012

Convertino M., C.M. Foran, J.M. Keisler, L. Scarlett, A. LoSchiavo, G.A. Kiker, I. Linkov, Enhanced Adaptive Management for Everglades in Response to Climate Change - in Lance Gunderson session (and Tree Islands Workshop organized by RECOVER and CERP program) - INTECOL - 9th International Wetlands Conference, Wetlands in a Complex World, Orlando, FL, 3-8 June 2012

Convertino, M., (2012). "Analysis and Modeling of Coupled Human and Natural Systems for Sustainability", Forest Engineering, Resources & Management - College of Forestry, Oregon State University, Corvallis, OR [INVITED], 8 May 2012

Convertino, M., (2012). "Analysis and Modeling of Coupled Human and Natural Systems for Sustainability", Department of Civil and Environmental Engineering, University of Texas - San Antonio, [INVITED], 4 May 2012

Linkov, I., **Convertino, M.,** (2012). Integrated Climate Change and Threatened Bird Population Modeling to Mitigate Operations Risks on Florida Military Installations, *Final Presentation Project SERDP-1699*, 30 April 2012, Arlington, VA

Convertino M., C.M. Foran, J.M. Keisler, L. Scarlett, A. LoSchiavo, G.A. Kiker, I. Linkov, Enhanced Adaptive Management: Application to the Everglades Ecosystem - "Restoring the Florida Everglades" symposia, 4th International ECOSUMMIT - Ecological Sustainability: Restoring The Planets' Ecosystems Services - "Restoring the Florida Everglades", William J. Mitsch and Ramesh K. Reddy session - Ohio State University, [INVITED], 30 September - 5 October 2012,

Convertino M., Linkov, I., M., Keisler, J., Foran, C., Baker, K. Valverde, J.L. Jr., Spatially-explicit Portfolio Decision Model for the Optimal Management of Socio-Ecological Systems Facing Climate and Human Stress, "Sustainable Cities and Military Installations: Climate Change Impact on Energy and Environmental Security" NATO Workshop, Dr. Igor Linkov organizer, 3-6 June 2012

Convertino M., Are Decisions Neutral? (or É is it enough to think them neutral): Use of Cell Phone Data to Detect People Decision-Making and to Simulate City Dynamics - Pecha Kucha presentation, SENSEable Lab (Prof. C. Ratti) weekly meeting, Massachusetts Institute of Technology, Cambridge, MA, [INVITED], 21 March 2012

Convertino M., Biocomplexity Engineering: Analysis and Modeling of Coupled Natural and Human Systems for Sustainability, Civil, Structural, and Environmental Engineering Department, University of Buffalo - SUNY, Buffalo, [INVITED], 6 February 2012

Convertino M., Complex Systems Engineering: Analysis and Modeling of Coupled Natural and Human Systems for Sustainability, Civil and Environmental Engineering Department, Penn State University, State College, [INVITED], 30 January 2012

Convertino M., Engineering Biocomplexity: Analysis and Modeling of Natural and Human Systems, Infrastructure and Environment Research Division, School of Engineering, University of Glasgow, UK [INVITED], 16 November 2011

Convertino M., C.M. Foran, J.M. Keisler, L. Scarlett, A. LoSchiavo, G.A. Kiker, I. Linkov, A probabilistic decision model for enhanced adaptive management of the comprehensive Everglades Restoration Plan, Howard T. Odum Center for Wetlands - The Water Institute - Dept. of Soil & Water Science [INVITED], 26 October 2011

Convertino M., From River Basins to Elephants to Bacteria Colonies: a Universal Theory of Aggregate Organization for Animate and Inanimate Organisms, Italian Scientists and Scholars in North America Foundation Annual Event, Institute of Physics and Astronomy - UCLA, Los Angeles, CA [INVITED], 16 September 2011

Linkov I, Suedel B, Bridges T, Fischenich C, Valverde J, Swannack T, Tazik D, Foran C, Vogel J, **Convertino M**, Hubbard B, LoSchiavo A, Application of Risk Management Concepts and Methods for Ecosystem Restoration: Overview and State of the Science, USACE ERDC Environmental Laboratory, Vicksburg, MS, March 2011

Kiker, G.A., **Convertino, M.**, Carpena, R., Chu-Agor, M, Akcakaya, R., Aiello-Lammens, M. Foran, C., Fischer, R.A., Linkov, I., Climate Change Risks to Threatened Bird Populations on Florida Coastal Military Installations: Integrated Modeling and Risk Management Decision Support, NATO Workshop "Climate Change: Global Change and Local Adaptation", Organizers: Dr. I. Linkov, and Dr. T. Bridges, 6-10 June 2010

Convertino, M., On Niche Habitat Suitability Modeling for Threatened and Endangered Shorebirds to 2100, "Dino Tonini" International Center for Hydrology - Department IMAGE (currently "DICEA"), University of Padova, Padova, Italy, [INVITED], 19 July 2010

Convertino, M., On Habitat Suitability Modeling of Endangered Species as a function of Climate Change, Hydrology and Water Quality Research Group Meeting, ABE Dept. University of Florida, 25 May 2010;

Convertino, M., River network: from geomorphic Auto-organization to Biodiversity Patterns Dynamics, Frontiers in Applied and Computational Mathematics Symposia (FACM), New Jersey Institute of Technology & Rutgers University (Depts. of Mathematics and Biological Sciences), [INVITED by Daniel Bunker], 1-2 June 2009

Convertino, M., Auto-organization and Scaling of River Basin Ecosystems, Geology Department, Penn State University, Department of Geological Sciences, [INVITED by Rudy Slingerland], 28 May 2009

Convertino, M., Auto-organization and Scaling of River Basin and 2-D Landscape Ecosystems, ABE Department, University of Florida, [INVITED by Rafael Muñoz-Carpena], 10 June 2009

Convertino, M., Clustering in River Basin and 2-D Landscape Ecosystems: Numerical analysis and comparison for Trees and Fishes in the Mississippi-Missouri River System, Civil Engineering Dept., the City College of New York (CUNY), Cross-Road Initiative [INVITED by C. Vorosmarty], 5 June 2009

Convertino M., R. Muneeppeerakul, On the Biodiversity of River Basins at Different Scales of Observation in the presentation "Neutral Metacommunity Models and Biodiversity Patterns", CEE Brown Bag Seminar at Princeton University, 24 October 2008

Alessi-Celegon E., M. **Convertino**, L. Kelpsaite, D. Kurennoy, M. Puliga, K. Schroder, C. Venier, S. Zanardo, F. Zanello, Analysis of Climatological and Hydrological Conditions on High Waters in Venice, presentation Working Group 3, leads by Prof. Alberto Troccoli, IVSLA Summer School "Climate Forcings and Global Patterns", Venice, Italy 13-20 Giugno 2008

Alessi-Celegon E., E. Bertuzzo, F. Borgogno, G. Botter, M. **Convertino**, A. Frascati, F. Mandricardo, M. Monego, D. Pumo, N. Tambroni, S. Tamea, S. Zanetti, Vegetation Landscape and River Network Interactions: Biomass Dynamics and Biodiversity Patterns, presentation Working Group 4 leads by Ignacio Rodriguez-Iturbe at IVSLA Summer School "Environmental Dynamics Pathways to Environmental Sustainability", Venice, Italy, 08-16 Giugno 2007

Convertino, M., The probabilistic structure of the distance between tributaries of given size in river networks, "Theoretical Aspect and Models of Large, Complex and Open Information Networks" Workshop, Institute for Scientific Interchange Foundation, Torino, organizer, A. Vespignani, 19-21 November 2007

Convertino, M., Ontogeny and Optimal Organization of River Networks for Homogeneous and Heterogeneous Rainfall, International Workshop on Complex Systems and Networks & Transylvanian Summer School, UNESCO and University of Notre Dame organizers (International Advisory Board and Scientific Committee: Prof. A.L. Barabasi, A. Vespignani, R. Albert, E.H. Stanley, and M. Vidal), 15-20 July 2007

Convertino, M., Physics of Complex Networks: uniqueness in life sciences?, Evento Belzoniano at "G.B. Belzoni" High Technical School, Padova, Italy, [INVITED] December 2006

Posters (excerpta)

Convertino, M., Morales, F., Troccoli, A., Linkov, I., Catani, F., Landslide Patterns as Fingerprints of Precipitation Change: Erosion and Hazard in River Basins, "Hydrologic Discovery Through Physical Analysis - Honoring the Scientific Legacies of Wilfried H. Brutsaert and Jean-Yves Parlange" Symposium at Cornell University (ABE and CEE Departments), Ithaca, NY, 14-15 May 2012

Convertino, M., Lowry, N., Linkov, I., Mangoubi, R., On the Correlation of Rainfall, Local Species-Richness, and Species-turnover in Subtropical Wetlands Derived by Texture Analysis of Satellite Imagery, "Hydrologic Discovery Through Physical Analysis - Honoring the Scientific Legacies of Wilfried H. Brutsaert and Jean-Yves Parlange" Symposium at Cornell University (ABE and CEE Departments), Ithaca, NY, 14-15 May 2012

Convertino, M., Kiker, G., Linkov, I., Warning Signals of Species Shifts for Risk Assessment and Management, SETAC (Society of Environmental Toxicology and Chemistry) 32nd North America Annual Meeting, Boston, November 2011

Convertino, M., Donoghue, JF, Chu-Agor, M, Kiker, GA, Muñoz-Carpena, R, Fischer RA, Linkov, I, Anthropogenic Renourishment Feedback on Shorebirds: a Multispecies Bayesian Perspective for Beach restoration in the face of Climate Change, NCER (National Conference on Ecosystem Restoration) - UF - USACE, Baltimore, MD, August 2011

Convertino, M., F. Catani, A. Troccoli, Maximum Entropy Macroscale Prediction of the Occurrence and Size of Landslides Driven by Climate Change Rainfall Variation, European Geophysical Union, Wien, April 2011

Convertino, M., F. Borgogno, B. Morel, I. Linkov Complex Species: from Colony Communication Networks to Patterns, Resilience 2011: Resilience, Innovation and Sustainability: Navigating the Complexity of Global Change, Arizona State University, Tempe, AZ, March 2011

Convertino, M., P. Hendrix, Budrene E., B. Morel, I. Linkov, Biologically-inspired Systems: Complex Network and Agent-based Modeling of E. coli bacteria, Army Science Conference, Orlando, FL, October 2010

Convertino, M., On Habitat Suitability Modeling of Endangered Species as a function of Climate Change, 2nd Water Institute Symposium, University of Florida, Gainesville, 24-25 February 2010

Convertino, M., A. Maritan, A. Rinaldo, On the probabilistic structure of tributaries in river network and eco-epidemiological applications, Statphys23-IUPAP Satellite Conference Complex Networks, from Biology to Information Technology, Pula, Cagliari, Italy, July 2007

Teaching and Advising

Courses

Risk and Decision Science Team, ERDC - USACE, Concord, MA

“Risk and Decision Analysis Summer Workshop” (2-days), Instructor of Adaptive Management and Bayesian Networks, for Undergraduate and Graduate Research Interns at the Risk and Decision Science Team - ERDC, Newcastle, NH, 29 May 2012

Massachusetts Institute of Technology, Cambridge, MA

1.016: Design for Complex Environmental Issues: Building Solutions and Communicating Ideas, and “Bazaar of Ideas” - Terrascope projects exposition (freshman level, Department of Earth, Atmospheric and Planetary Sciences, Spring 2012). Co-instructor for the project “Analysis and Modeling of the Effects of Dam Distribution and Water Regulation on New England River Biodiversity”, 28 hours, (Instructors: A.W. Epstein, and M. Polz); Terrascope website, Course website

Department of Civil Engineering, University of Toronto

“Decision Networks for Environmental Management” (2-hours), Guest Lecturer, 9 July 2012

University of Florida, Gainesville

Faculty participating in the program “Student Artist In Residence Program: An Interdisciplinary Exchange Of Creativity Promoting Resource Sustainability”, <http://media.wix.com/ugd//6a93189f279996e9f0006b29dbf3453e385a00.pdf>, Fall 2012 - present
Research Faculty Organizer of Research Meetings “Biological Engineering Group” (graded) (cohort of research group of Prof. R. Muñoz-Carpena (Hydrology and Water Quality), C. Martinez (Climatology), G. Kiker (Ecological Modeling and Risk Analysis), B. Gao (Nanotechnology), J. Ullman (Water Quality and Management), E. McLamore (Experimental Biosystems and Biosensors), 1 hour a week, Fall 2012 - present; topics:

- Science Communication
- Decision Science in the Environment
- Systems Engineering (from micro- to macro-scale)
- Climate Change Effects on Ecosystems
- Nanomaterials in the Environment
- Peer Reviewing and New Alternatives
- Causality and Correlation in Complex Systems

Guest Lecturer of “Analysis and Modeling of Coupled Human-Ecological Systems” in “Sustainable Urbanism in the Americas” PhD course (Prof. J. Macedo), Department of Urban and Regional Planning, Fall 2012

BCN1582, Guest Lecturer about Coupled Human-Natural Systems, “International Sustainable Development”, special course (Prof. R. Srinivasan), Rinker School of Building Construction, Fall 2012

ABE6933, Lecturer of “Probabilistic Decision Networks for Modeling Human-Environment Interactions”, special course, Spring 2013

“Analysis and Modeling of Coupled Human-Ecological Systems” (Environmental/Climate Guest Lectures, Sustainable UF); website Sustainable UF

ITA2203, Guest Lecturer “Mathematical Models in Ecology and Biology” for UF IRB-02 project “A Multidisciplinary and Collaborative Approach: When Engineering and Foreign Language Education meet”

University of Padova, Italy

Modeling Natural Patterns (undergraduate level, 2007), seminar on fractals in river basins, Galileian School of Advanced Studies, Science Curriculum, 4 hours

Hydrology and Remote Sensing (undergraduate level, 2008), graduate student teaching assistant, 12 hours

Environmental Modeling and GIS (graduate level, 2010), graduate student teaching assistant, 10 hours

Workshops

Society for Risk Analysis

“Integrating Probabilistic Decision-, Risk-, and Process-based Models for Policy Development of Complex Systems Problems” (4-hours), Instructor (theory and modeling in Matlab of influence diagrams, global sensitivity and uncertainty analysis, bayesian inference, etc.) at the Society for Risk Analysis Annual Meeting, San Francisco, CA, 9-12 December 2012

Students

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Risk and Decision Science Team, Engineering Research and Development Center, US Army Corps of Engineers

Hao-Yu Derek Chang (BSc 2014, CEE, MIT), Evaluating Country Resilience from Socio-economical and Environmental Footprints assessed using MCDA, June-August 2012

Heng Dai (PhD student, Department of Scientific Computing, Florida State University), 2-D model of the Decision Network for Water Conservation Area 3A in the Greater Everglades Ecosystem Restoration, June-August 2012

Aileen Craig, (BSc 2012, CEE and Engineering and Public Policy, Carnegie Mellon University) Enhanced Adaptive Management Model for Everglades, June-August 2012

Elizabeth Jones, (BSc 2012, CEE, MIT), Enhanced Adaptive Management Model for Everglades and application of the same model for a Submerged Aquatic Vegetation problem in the Illinois River, June-August 2012

Freshman students of MIT in various research projects for the “Terrascope” program (<http://web.mit.edu/terrascope>) in collaboration with the Risk and Decision Science Team (ERDC), Spring 2012

Adam Bockelie (BSc 2011, CEE MIT, research internship at Linkov’s team), “Dam effects on Freshwater Fish Biodiversity: A neutral approach; GIUH model for prediction of runoff, freshwater fish biodiversity and dam stress; Asset Management; and trade-off model for large mammals and bacteria”, June-August 2011

¹Letters of reference are available from supervised students

Fausto Morales (BSc 2011, CEE MIT, research internship at Linkov's team), "Portfolio Decision Analysis (development of theory, case-study, and software); Landslide effects on Biodiversity Patterns: a Neutral Metacommunity Perspective; and Intervention Prioritization of Assets after the Mississippi Flood", June-August 2011

Connie Lu (BSc 2011, CEE MIT, research internship at Linkov's team), "Environmental Benefit Metrics for Restoration; Adaptive Management of Everglades; and Uncertainty Evaluation of Ecological Models", June-August 2011; and "Can we assess the potential public health risk of pharmaceutical drugs? A supply chain risk model", May-June 2012

Kelsie Baker (BSc 2011, CEE MIT, research internship at Linkov's team), "Environmental Benefit Metrics for Restoration; and Adaptive Management of Everglades", June 2011 - present

Michelle Barber (BSc 2011, Chem. Eng. MIT, research internship at Linkov's team), "Risk Modeling for the Pharmaceutical Supply Chain", June-August 2011

Paul Welle (BSc 2011, CEE MIT, research internship at Linkov's team), "Theory of Resilience; Spreading of Epidemics; and Risk vs Resilience in Engineering and Ecological Systems", June-August 2011

Dmitry Dokukin (MSc, 2008, Software Engineering, National Research Nuclear University MEPhI, Moscow, dmitry.dokukin@gmail.com), "Portfolio Decision Analysis (development of theory, case-study, and software); Decision Framework for Eco-hydrogeomorphological modeling as a function of climate change"; "Gaming for Elicitation of Stakeholders' Preferences" research scientist, Linkov's group, Summer 2011;

Yousra Tourki (MSc, ongoing, National Polytechnic Institute of Lorraine - Nancy (France), exchange student at Linkov's team), "Optimization of the Pharmaceutical Supply Chain Network for reducing the risk of Public Health and Increasing the Economic Revenue in the USA (application of network theory and optimization)", August-January 2011

John T. Vogel (BSc, 2008, Ecology, Harvard University, jtvogel@post.harvard.edu), "Environmental Benefit Metrics for Restoration; Uncertainty and Risk of Restorations; and Adaptive Management of Everglades", research scientist, Linkov's group, Summer 2011;

Xiuyuan Chen (PhD in Applied and Computational Mathematics, Princeton University), "Influence diagram for guiding policy development of the US pharmaceutical importation network", September - December 2010

University of Florida, Gainesville, FL

Alice Alonso (PhD in Agricultural and Biological Engineering, started August 2012), proposed research: "Sequential Decision Making and Gaming for the Sustainable Management of the Tempisque River Basin, Costa Rica"; Research Faculty in the Graduate Research Committee.

Geraldine Hochman-Klarenberg (PhD in Agricultural and Biological Engineering, started July 2012), proposed research: Dynamics of Forest Structure and Forest Value at the Watershed Scale in a Tropical Rainforest ("MAP") using an Ecosystem Demography Model; Research Faculty in the Graduate Research Committee.

Gareth Lagerwall (PhD in Agricultural and Biological Engineering, advisor Prof. G.A. Kiker); supporting the research of the dissertation "Modeling vegetation dynamic in a constructed water conservation area in the Everglades: neutral vs niche vs mechanistic approach", and postdoctoral research about "Species distribution modeling of Marula and Mopane in the Kruger National Park", July 2010 - July 2011

Zuzanna Zajac (PhD in Agricultural and Biological Engineering, advisor Prof. R. Muñoz-Carpena); supporting the research of the dissertation "Uncertainty and fractal dimension in hydrologic modeling of wetlands" and "Characterizing biogeochemical patterns through fractal analysis in wetland ecosystem", September 2010 - December 2010

University of Padova, Padova, Italy

Nicola Convertino (M.Sc. in Biomedical Engineering, advisor: M.P. Saccomani); co-advisor for the thesis in Biomedical Engineering: "Portfolio Decision Analysis for Risk Reduction of Epileptic Death", July 2012

Nicola Convertino (B.Sc. in Biomedical Engineering, advisor: M.P. Saccomani); co-advisor for the thesis in Biomedical Engineering: "Novel early-warning signals on combined EEG and MRI for epileptic-seizure detection", September 2011

Politecnico di Bari, Bari, Italy

Lia Romano (M.Eng. in Civil Engineering-Hydraulics, advisor Prof. Umberto Fratino); co-advisor for the thesis in Hydrology: "Hydrographic delineation of river basins in karst environments: a new methodological approach based on the slope-area relationship" (in Italian), March 2007

Educational Materials

Podcast by PhysOrg.com

<http://www.podcast.de/episode/186407527/Satellite2Bimages2Btell2Btales2Bof2Bchanging2Bbiodiversity>
NSF Interdisciplinary work "Water sustainability in the Tempisque Basin, NW Costa Rica", Framework and preliminary results on "Inference of Stakeholder Mental Models and Preferences", (website)

Website of lectures: <http://www.youtube.com/user/MatteoConvertino>

Terrascope website course 1.016: Design for Complex Environmental Issues: Building Solutions and Communicating Ideas - project "Analysis and Modeling of the Effects of Dam Distribution and Water Regulation on New England River Biodiversity"

Facebook Educational Page Summer Research Internship at the Risk and Decision Science Team, ERDC USACE, website

Ecological Risk Assessment Specialty Group website and blog, Society for Risk Analysis (in preparation)

Optimal Channel Networks website and FluidTurtle Routines for hydrogeomorphological analysis and network generation (website)

Italian Scientists and Scholars of North America Foundation (ISSNAF) Miami Chapter (website)

Professional Societies

Society for Risk Analysis, 2011-present (Chair-elect Ecological Risk Analysis specialty group, and member Risk and Decision Science specialty group); service: newsletter of the Ecological Risk Assessment Specialty Group (Society for Risk Analysis)

Institute for Computer Sciences, Social Informatics and Telecommunications Engineering (ICST) - European Alliance for Innovation Publication, 2012 - present

International Network of Research on Coupled Human and Natural System (CHANS-Net), 2011-present

Ecological Society of America (ESA), 2011-present

American Geophysical Union (AGU), 2010-present

The Italian Scientists and Scholars in North America Foundation (ISSNAF), Member and Vice-Coordinator Miami Chapter, 2010-present

Other Memberships and Service

Consultant for “The New Challenges for Risk Assessment”, European Commission and EU non-food Scientific Committees, November 2012

“Evaluation of the relationship between professional science and citizen science within the field of biodiversity research”; survey research; University of Washington Dimensions of Biodiversity Distributed Graduate Seminar (DBDGS), 2012

International Network for Social Network Analysis, member, 2011-present

Social Science Network, member, 2011-present

Honors Center of Italian Universities, Centro Interuniversitario per la Formazione Internazionale, Scientific and Academic collaboration: Italy - USA, University of Rome, La Sapienza, Rome, IT, member, 2011-present

DAVINCI database (Italian Scientist Abroad) - Italian Ministry of Foreign Affairs, member, 2012 - present

New England Institute of Complex Systems, member, 2011-present

Complex Systems Society, member, 2012-present

Information Society as a Complex System (ISCOM), member, 2012-present

Sino-Italian Sustainable Development Community (Center for Thematic Environmental Networks (TEN), Venice International University), member, 2012-present

Understanding Risk - Innovation in Disaster Risk Assessment, member, 2011-present

Climate Adaptation Knowledge Exchange (CAKE), member, 2011-present

Union of Concerned Scientists - Citizens and Scientists for Environmental Solutions, member, 2011-present

Istituto Veneto di Scienze Lettere ed Arti (IVSLA), junior fellow, 2007-present

International Center for Hydrology “Dino Tonini”, Department IMAGE (currently “DICEA”), University of Padova, Italy, affiliated scientist, 2006-present

Chinese Academy of Sciences International Young Scientist Fellow, affiliated scientist, 2010-2012

Professional R&D Service

IDRAN Engineering and Technology, Roma (Italy) and Miami, Florida (USA), (Prof. Fernando Nardi CEO) R&D collaborator, July 2011-present

INFORM srl Development Group, Environmental Software and SIT/GIS technologies, Padova, Italy (www.informsrl.it, Dr. Enrico Del Sole CEO), R&D collaborator, 2007-present

uDig-JGrass & Horton machine Developer Team - DICA-CUDAM University of Trento/Hydrologis (Prof. Riccardo Rigon, PI), R&D collaborator, 2007-present

Collaborators (excerpta)

M. Fok (UGA), C. Murcia (Organization for Tropical Studies, Duke University); S. Perz (UF); J. Southworth (UF); A. Marcomini (Ca' Foscari University); R. Cooke (Resources For the Future, and TU Delft); L. Gunderson (Emory); Ben Trump (University of Michigan); Fadri Gottschalk (EMPA (Technology and Society Lab), and ETH (Chair of Environmental Sciences, Natural and Social Science Interface, CH);

Danail Hristozov (University of Venice); R. Muneeppeerakul (ASU); Jose Palma Oliveira (University of Lisbon); L.J. Valverde Jr. (USACE ERDC HQ); David Hale (University of Alabama); H. Rosoff, T. Longcore (USC); J.M. Keisler (UMass Boston); Rafael Muñoz-Carpena, Greg Kiker, Christofer Martinez (UF); M.L. Chu-Agor (University of Missouri, St. Louis); Franco L. Souza (Universidade Federal de Mato Grosso do Sul); Raya Pruner (Florida Park Service); M. Aiello-Lammens, H.R. Akcakaya, L. Ginzburg (Stony-Brook, SUNY); S. Ceriani (UCF-Archie Carr Marine Turtle Research Center); I. Linkov, R. Fischer (USACE); F. Catani (University of Firenze); R. Rigon (University of Trento); I. Rodriguez-Iturbe, M. Konar, Y. Deng (Princeton University); S. Azaele (Leeds University); Amos Maritan, M. Cacco, (University of Padova); F. Simini (Northeastern University); Andrea Rinaldo, Enrico Bertuzzo (EPFL); Igor Linkov, Richard Fischer, T. Bridges, Ed. Perkins (ERDC USACE); Colin Stark (LDEO-Columbia); Nancy Douglass, Chris Burney, (Florida Wildlife Commission); Patricia Kelly (Florida Wildlife Service); Kate Norris (Geoplan Center UF); Jim Lambert (UVA); Roman Stocker (MIT); A. Bottacin-Busolin (KTH Royal Institute of Technology).

References

Dr. Igor Linkov, Igor.Linkov@usace.army.mil
USACE ERDC, Risk and Decision Sciences Team , Concord, MA
696 Virginia Road, Concord, MA
Phone: (601) 831-7824

Prof. Rafael Muñoz-Carpena, carpena@ufl.edu
Agricultural & Biological Engineering
University of Florida, Museum Road, Frazier Rogers Hall
P.O. Box 110570
Gainesville, FL 32611-0570
Phone: (352) 392-1864 x287
Fax: (352) 392-4092

Prof. Gregory A. Kiker, gkiker@ufl.edu
Agricultural & Biological Engineering
University of Florida, Museum Road, Frazier Rogers Hall
P.O. Box 110570
Gainesville, FL 32611-0570
Phone: (352) 392-1864 x291
Fax: (352) 392-4092

Prof. Jeffrey M. Keisler, jeff.keisler@umb.edu & jeff_keisler@hotmail.com
Department of Management Science and Information Systems
University of Massachusetts, Boston
100 Morrissey Blvd.
Boston, MA 02125-3393

Dr. James Valverde, james.valverde@usace.army.mil
Engineering Research and Development Center, Risk and Decision Sciences Team
U.S. Army Corps of Engineers - Headquarters
441 G St NW, Washington, DC 20314
Phone: 202-761-7573

Prof. Rachata Muneeppeerakul, Rachata.Muneeppeerakul@asu.edu
Global Institute of Sustainability
Arizona State University
PO Box 875502
Tempe, AZ 85287
Phone: (480) 965-5738
Fax: (480) 965-8087

Dr. Rami S. Mangoubi, mangoubi@draper.com
Senior Member of the Technical Staff
Algorithms and Software Division
Charles Stark Draper Laboratory, Inc.
Cambridge, MA, USA
Phone: (617) 258-2262

Prof. Andrea Rinaldo (doctoral advisor), rinaldo@idra.unipd.it & andrea.rinaldo@epfl.ch
Department of Civil, Structural, and Environmental Engineering (DICEA, formerly "IMAGE"), University of Padova, Italy
"Dino Tonini" International Center of Hydrology, University of Padova
EPFL Full Professor, Laboratory of Ecohydrology, Lausanne, CH
Phone(s): +412169-38034, 33725

Prof. Ignacio Rodriguez-Iturbe (doctoral co-advisor), irodrigu@Princeton.EDU
CEE Department and EEWR Graduate Program
EQuad Princeton University, Olden Street
Room C319A Engineering Quad
Princeton University, Princeton, NJ
Phone: 609-258-2287

Prof. Riccardo Rigon, riccardo.rigon@ing.unitn.it
Department of Civil and Environmental Engineering (DICA)
Interdepartmental Center for Studies on the Mountain Systems (CUDAM)
University of Trento, Italy
Via Mesiano, 77 I-38050 Trento, Italy
Phone: +39 0461 882610-2614
Fax: +39 0461 882672

other references if necessary:

Prof. Filippo Catani, filippo.catani@unifi.it
Earth Sciences Department
GeoHazards Research Lab
University of Firenze
Firenze, IT

Prof. Fernando Nardi, fernando.nardi@unitus.it & fnardi@idran.net
WATER Resources REsearch DOocumentation Centre (WARREDOC), University for Foreigners of Perugia
& IDRAN Engineering and Technology S.r.l. (Rome and FL, USA)

Prof. Thomas Seager, thomas.seager@asu.edu
Global Institute of Sustainability
School of Sustainable Engineering and the Built Environment
Ira A. Fulton School of Engineering
Arizona State University
Tempe, AZ

Prof. James H. Lambert, lambert@virginia.edu
Associate Director, Center for Risk Management of Engineering Systems
& Department of Systems and Information Engineering
University of Virginia
112 Olsson Hall or PO Box 400747, Charlottesville, Virginia 22904, USA
Phone: (434) 982-2072

Dr. Christy M. Foran, Christy.M.Foran@usace.army.mil
Engineering Research and Development Center, Risk and Decision Sciences Team
U.S. Army Corps of Engineers
696 Virginia Road, Concord, MA
Phone: (601) 831-7824

Prof. Amos Maritan, maritan@pd.infn.it
Department of Physics and National Institute of Nuclear Physics
University of Padova, Italy

Dr. Sandro Azaele, s.azaele@leeds.ac.uk
Faculty of Biological Sciences
Institute of Integrative and Comparative Biology
University of Leeds, UK

Dr. Richard A. Fischer, Richard.A.Fischer@usace.army.mil
USACE Engineering Research and Development Center, Wildlife Biology Area
3909 Halls Ferry Road, Vicksburg, Mississippi
Phone: (601) 634-3111

Prof. Sergio Fagherazzi, sergio@bu.edu
Department of Earth Sciences
Boston University
Phone: 617-353-2092

Prof. Jose Palma-Oliveira, jpalma-oliveira@fp.ul.pt
Department of Social Psychology
Faculty of Psychology and Science of Education
University of Lisbon, Portugal

Dr. Alberto Troccoli, alberto.troccoli@csiro.au
Weather and Energy Research Unit - CSIRO Marine and Atmospheric Research
Pye Lab, Black Mountain
Canberra, AU

Mr. Andrew LoSchiavo, Andrew.J.LoSchiavo@usace.army.mil
Everglades Adaptive Management Coordinator
USACE Planning Division/RECOVER Branch/Jacksonville District, FL
Phone: 904-232-2077
Cell Phone: 904-305-1421