Contact Information

Juan B. Gutierrez, Ph.D.
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Online version of this CV with links to publications: http://euler.math.uga.edu/cms/People/Juan-B-Gutierrez

Education and Training

- **9/2010 - 7/2012**. Postdoctoral Fellow, Mathematical Biosciences Institute, Ohio State University, Columbus, OH.
- **9/2009 - 8/2010**. Postdoctoral Associate, Institute for Theoretical and Mathematical Ecology, University of Miami, Coral Gables, FL.
- **12/2009**. Ph.D. in Mathematics. Dissertation: *Mathematical Analysis of the Use of Trojan Y Chromosomes as Means of Eradication of Invasive Species*. Advisor: Dr. Monica K. Hurdal. Department of Mathematics, Florida State University, Tallahassee, Florida.
- **05/2005**. M.Sc. in Biomedical Mathematics. Department of Mathematics, Florida State University, Tallahassee, Florida.
- **05/1996**. B.Sc., Civil Engineering, Meritorious Thesis. National Prize of Excellence in B.Sc. Thesis, National University of Colombia.

Appointments and Professional Experience

- Interim director of the Latin American and Caribbean Studies Institute, University of Georgia, Athens, Georgia. Jan-Jun, 2018.
- Associate Professor of Mathematics and Bioinformatics, University of Georgia, Athens, Georgia. August 2016 to Present. Tenure effective on August, 2017.
- Adjunct Professor of Computer Science, University of Georgia, Athens, Georgia. August 2017 to Present.
- Assistant Professor of Mathematics and Bioinformatics, University of Georgia, Athens, Georgia. August 2012 to July 2016.
- President. CAVIIAR Inc (*Centro Avanzado de Investigación en Inteligencia Artificial* – Advanced Research Center in Artificial Intelligence). Tallahassee, FL. Duties: Manage a non-profit scientific corporation. Build mathematical models and their computational implementation (dynamical systems, partial differential equations, pattern classification, operations research). 2007 - 2009.
- Programmer/Analyst, Information Systems of Florida. Tallahassee, FL. Duties: Design enterprise web systems architecture, set development standards, design enterprise relational databases, write specifications for programmers, program according to specifications, design web pages, design and develop GIS applications, review and analyze solicitations. 2000 - 2008.
- Independent Engineer. Structural design, hardware, and software design for petroleum industry. 1999 - 2000.

- Author. Fiction writer funded with grants by the Colombian Ministry of Culture and the Bogotan Institute of Culture. See the Non-Scientific Publications section. These novels were the first electronic novels in the Spanish language. To date, there are several dissertations, masters thesis, and peer-reviewed manuscripts studying these pieces (see http://euler.math.uga.edu/cms/People/Juan-B-Gutierrez/Literary-Publications#Others). I obtained my green card in 2007 as a self-petitioned Alien of Extraordinary Ability (EB-1A) for my contributions to the field of electronic literature. See Employment-Based Immigration: First Preference EB-1 at the USCIS web site.

- Design Engineer. Inprotekto Ltda. Geographic Information Systems (GIS) and transportation models. 1996

- Engineering Assistant. Inprotekto Ltda and PCA Ltda. Several activities involving GIS data acquisition, structural design, aqueducts. 1992 - 1995

Leadership

- I have received formal training to undertake leadership roles. I was a trainee at: (i) the Summer Leadership Institute of the Society for the Advance of Chicanos and Native Americans in Science, SACNAS, 2011, (ii) the Advanced Leadership Institute, SACNAS, 2014, and (iii) the Leadership Institute, UGA, 2018, a selective track to nurture future leaders at the University of Georgia.

- Between January and June, 2018, I was the Interim Director of the Latin American and Caribbean Studies Institute (LACSI). My role, in addition to the traditional functions of an institute director, was to prepare and submit a Title VI Department of Education FLAS grant. The grant was submitted in June, 2018, for a total of $2.2M and it was awarded. I also managed the transition to a renewed Web presence (http://lacsi.uga.edu/).

- Between 2011 and 2016, I managed the submissions of five complex grant proposals totaling $32M. I was hired in 2012 at UGA as an assistant professor, but also with a role under the Office of the Vice President for Research to create a unit in charge of managing the preparation and submission of complex grants. This is a role that normally does not exist in research universities. The successor of that effort is the now well-established Office of Proposal Enhancement at UGA https://research.uga.edu/proposal-enhancement/; this office is credited for the advances in national research ranking of UGA. See the article "UGA advances in national research ranking", December 15, 2017, UGA Today.

- Between 2007 and 2009, I founded and directed CAVIIAR (*Centro Avanzado de Investigación en Inteligencia Artificial* – Advanced Research Center in Artificial Intelligence), a non-profit scientific corporation based in Florida. While being a graduate student, I attracted $100K for research projects funded by the Spanish Ministry of Industry and the Florida Department of Agriculture. I employed students from under-represented backgrounds in science.

Research

My current **research** efforts in **quantitative biology** focus on **multi-scale analysis of infectious disease** and other ecological problems: (i) the characterization of malaria, from the within-host dynamics to the epidemiology of this infectious disease, and (ii) modeling dispersal and population dynamics of genetically modified organisms. In my lab we produce mathematical, computational, and statistical models ranging from molecular interactions to spatial distribution and interaction of populations.

My current efforts in **education** focus on **adaptive learning**. We have created in my lab an Adaptive Learning System for Interdisciplinary Collaborative Environments (ALICE). This systems offers competency-centered adaptivity (a syllabus is created for each student based on what they do not know), and interest-based adaptivity (examples respond to students' interests). The multi-lingual web-based pilot has shown improvements in student performance with strong statistical significance.

Current Research Projects

1. (PI Gutierrez) ALICE (Adaptive Learning for Interdisciplinary Learning Environments, 2016-2019, $299,000), NSF award #1645325: ALICE is a Web-based information system that generates individualized development plans, according to previous experiences and current challenges. Furthermore, ALICE is designed to connect lexias from multiple subject matters, thus bypassing disciplinary barriers that in many cases are artificial. The principles behind ALICE are generalizable, and hence it has the potential to be used in K-16, graduate, and continuing education. ALICE is based upon the Literatronica engine I designed and implemented between 1996 and 2005.

2. (Co-PI Gutierrez, PI Galinski) Technologies for Host Resilience (2016-2019, $1,573,674 UGA out of $6.5M) - Host Acute Models of Malaria to study Experimental Resilience (THoR's HAMMER), DARPA contract contract #W911NF-16-C-0008, 2016-2019. This project explores the molecular mechanisms of resilience, susceptibility and resistance of non-human primate hosts when challenged with a malaria infection. I direct the computational biology team in charge of building mathematical models of resilience.

Past Research Projects

1. (Co-PI Gutierrez, PI Barbour) Collaborative Research: NSF INCLUDES: An Integrated Approach to Retain Underrepresented Minority Students in STEM Disciplines (2016-2019, $117K). NSF award 1649226. The University of Georgia, Florida International University, Savannah State University, Clark Atlanta University and Fort Valley State University will lead this Design and Development Launch Pilot to address enhancing recruitment, retention, productivity and satisfaction of historically underrepresented minority (URM) undergraduate students who enroll in STEM graduate programs at primarily white (PWI) and research intensive (RI) universities.

2. (Co-I Gutierrez, PI Galinski) Malaria Host-Pathogen Interaction Center (MaHPIC - 2012-2017, $19.5M) NIH's NIAID contract HHSN272201200031C. PI Mary Galinski. MaHPIC involves the multidisciplinary study of malaria infections, immunity and pathogenesis of P. falciparum, P. vivax and P. knowlesi in the context of host-pathogen interactions, in humans and nonhuman primates, using a systems biology approach. Three nonhuman primate malaria species will be studied: P. coatneyi to model P. falciparum, P. cynomolgi to model P. vivax, and P. knowlesi, a monkey malaria species that has been causing illness and cases of death in humans in Southeast Asia. My role in MaHPIC: mathematical modeling based on 'omics data (functional genomics, lipidomics, proteomics, metabolomics).

3. (PI Herrera, PI of sub-award Gutierrez) International Centers for Excellence in Malaria Research - Center for non-Amazonian regions of Latin America (2012-2017, $159K for UGA out of $5.5M) - CLAIM, NIAID cooperative agreement U19AI089702-01, 2010-2017. PI Socrates Herrera. CLAIM was divided into three projects: Project 1 evaluating the diversity of the ecology and parasite populations related to the epidemiology and clinical findings to establish a scientific framework to support the development of new intervention strategies for malaria elimination in non-Amazonian areas of Latin America. Project 2 addressing major gaps in understanding of the ecology, behavior, vector potential, and control of Anopheles malaria vectors to guide the development and implementation of more effective integrated vector management (IVM) strategies of National Malaria Control Programs (NMCPs). Project 3 determining the clinical outcomes and their association with parasite and host features of malaria-infected individuals living in non-Amazon regions of LA with different intensities of malaria transmission. My role in CLAIM: Data manager and mathematical modeler.

Graduate Students

2018 Valerie N. Flint. Ph.D. in Bioinformatics. *Shield: SNV heuristic identification, exploration, and location detector*. Committee Chair: Juan B Gutierrez. Committee Members: Juan B Gutierrez, Shaying Zhao, Liang Liu, Jonathan Arnold.

2018 Matthew T. Houston. Ph.D. in Mathematics. *The FRiND model: a mathematical model for representing immunological interactions in muscular dystrophy pathogenesis*. Committee Chair: Juan B Gutierrez. Committee Members: Juan B Gutierrez, Qing Zhang, Caner Kazanci, Jonathan Arnold

2018 Elizabeth D. Trippe. Ph.D. in Bioinformatics. *Data Integration for Systems Biology* (embargo until 6/2019). Committee Chair: Juan B Gutierrez. Committee Members: Juan B Gutierrez, Jonathan Arnold, Jessica Kissinger, David Peterson.

2018 Bolanle O. Salaam. Masters in Applied Mathematical Sciences.

2017 Karen E. Aguar, Ph.D. in Computer Science. *SAIL: A system for adaptive interest-based learning in STEM education*. Committee Chairs: Juan B Gutierrez, Hamid R. Arabnia. Committee Members: Juan B Gutierrez, Hamid R. Arabnia, Thiab R. Taha, Walter D. Potter.

2017 Yi H. Yan, Ph.D. in Bioinformatics. *Multi-Omic and multi-scale data integration for the characterization of malaria infection in non-human primates*. Committee chair: Juan B Gutierrez. Committee Members: Juan B Gutierrez, Ying Xu, Julie Moore, Jonathan Arnold.

Media Coverage

2019 Hispanic Outlook on Education Magazine. *Latin American And Latino STEM Education. Technology Program Helps Latinos (And All) Learn STEM.* Michelle Adam (USA). Jan, 2019. https://www.hispanicoutlook.com/articles/latin-american-and-latino-stem-education [Online; accessed 5-Feb-2019]

2009 Conservation Magazine. *Operation Sex Change.* Cynthia Mills (WA, USA). Conservation Magazine, a publication of the Society for Conservation Biology, Sep 2009. http://conservationmagazine.org/2009/07/operation-sex-change/ [Online; accessed 25-Feb-2015]

2008 ScienceLine. *Supermales to the rescue.* Rachel Mahan. Jan, 2008. New York, NY. http://scienceline.org/2008/01/11/env-mahan-invasives/ [Online; accessed 25-Feb-2015].

2007 Nature News. *Sex change wipes out invasive species.* Louis Buckley. July, 2007. London, UK. http://dx.doi.org/10.1038/news070723-9 [Online; accessed accessed 25-Feb-2015].

2007 Trends in Ecology & Evolution. *Control of introduced species using Trojan sex chromosomes.* Samuel Cotton and Claus Wedekind (Switzerland). Trends in Ecology & Evolution 22(9), pp. 441-3, 09-2007. DOI: 10.1016/j.tree.2007.06.010.

2007 NCR Hansdelsblad. *Vrouwtjes verdrijven (Females away).* Sander Voormolen. 2007. Rotterdam, Netherlands. https://www.nrc.nl/nieuws/2007/08/16/vrouwtjes-verdrijven-11375285-a1260938 [Online; accessed 5-Feb-2019].

Publications

Peer-Reviewed Scientific Publications (27)

2018 Houston MT, Cameron AN, Juan B Gutierrez. A Review of Mathematical Models for Muscular Dystrophy: A Systems Biology Approach. PLOS Currents Muscular Dystrophy. 2018 Feb 16 . Edition 1. doi: 10.1371/currents.md.6af74d0cec0834554dac78f0045cfded.

2017 Sáenz, Fabián E., Andrea Arévalo-Cortés, Gabriela Valenzuela, Andrés F. Vallejo, Angélica Castellanos, Andrea C. Poveda-Loayza, Juan B Gutierrez, et al. Malaria epidemiology in low-endemicity areas of the northern coast of Ecuador: high prevalence of asymptomatic infections. Malaria journal 16, no. 1 (2017): 300.

2017 Karen Aguar, Hamid R. Arabnia, Juan B Gutierrez, Walter D. Potter, Thiab R. Taha. Towards Interest-based Adaptive Learning and Community Knowledge Sharing. The 13th International Conference on Frontiers in Education: Computer Science and Computer Engineering. FECS'17: July 17-20, 2017, Las Vegas, USA.

2017 Aguar, K., Arabnia, H. R., Juan B Gutierrez, Potter, W. D., and Taha, T. R. Towards Interest-based Adaptive Learning and Community Knowledge Sharing. International Conference Frontiers in Education: CS and CE. FECS'17. CSREA Press, 2017, pp 58-61.

2017 PROCEEDINGS. Pouriyeh, Seyedamin, Sara Vahid, Giovanna Sannino, Giuseppe De Pietro, Hamid Arabnia, and Juan B Gutierrez. A comprehensive investigation and comparison of Machine Learning Techniques in the domain of heart disease. In Computers and Communications (ISCC), 2017 IEEE Symposium on, pp. 204-207. IEEE, 2017. DOI: doi:10.1109/ISCC.2017.8024530

2016 CHAPTER. Tseng, Wei-Chia, Mumingjiang Munisha, Juan B Gutierrez, and Scott T. Dougan. Establishment of the Vertebrate Germ Layers. In Vertebrate Development, pp. 307-381. Springer International Publishing, 2017. doi:10.1007/978-3-319-46095-6_7

2016 PROCEEDINGS. Aguar, Karen, Hamid R. Arabnia, Juan B Gutierrez, Walter D. Potter, and Thiab R. Taha. Making CS inclusive: An overview of efforts to expand and diversify cs education. In Computational Science and Computational Intelligence (CSCI), 2016 International Conference on, pp. 321-326. IEEE, 2016. DOI: 10.1109/CSCI.2016.0067

2015 Yi Yan, Brian Adam, Alberto Moreno, Mary Galinski, Jessica Kissinger, Juan B Gutierrez. Mathematical model of susceptibility, resistance, and resilience in the within-host dynamics between a Plasmodium parasite and the immune system. Mathematical Biosciences. Volume 270, Part B, December 2015, Pages 213–223. DOI: 10.1016/j.mbs.2015.10.003

2015 Myriam Arevalo-Herrera, Mary Lopez-Perez, Luz Medina, Alberto Moreno, Juan B Gutierrez, Socrates Herrera Clinical profile of Plasmodium falciparum and Plasmodium vivax infections in low and unstable malaria transmission settings of Colombia. Malaria Journal 2015, 14:154. DOI: 10.1186/s12936-015-0678-3

2015 Juan B Gutierrez, Ming-Jun Lai, George Slavov. Bivariate Spline Solution of Time Dependent Nonlinear PDE for a Population Density over Irregular Domains. Mathematical Biosciences. Volume 270, Part B, December 2015, Pages 263–277. DOI: 10.1016/j.mbs.2015.08.013

2015 Juan B Gutierrez, Mary R. Galinski, Stephen Cantrell, Eberhard O. Voit. From Within Host Dynamics to the Epidemiology of Infectious Disease: Scientific Overview and Challenges. Mathematical Biosciences. Volume 270, Part B, December 2015, Pages 143–155. DOI: 10.1016/j.mbs.2015.10.002

2015 Juan B Gutierrez, Omar S. Harb, Jie Zheng, Daniel J. Tisch, Edwin Charlebois, Christian J. Stoeckert Jr., and Deirdre A. Joy. A Framework for Global Collaborative Data Management in Malaria Research. Am J Trop Med Hyg. 2015 Sep 2; 93(3 Suppl): 124–132. DOI: 10.4269/ajtmh.15-0003

2015 M Lopez-Perez, A Alvarez, JB Gutierrez, A Moreno, S Herrera and M Arevalo-Herrera. Malaria-Related anemia in patients from unstable transmission areas in Colombia. Am J Trop Med Hyg. 2015 Feb 4;92(2):294-301. DOI: 10.4269/ajtmh.14-0345.

2014 DA Forero-Pena, P Chaparro, A Vallejo, Y Benavides, JB Gutierrez, M Arevalo-Herrera, and S Herrera. Knowledge attitudes and practices on malaria in Colombia. Malaria Journal 2014, 13:165 DOI: 10.1186/1475-2875-13-165.

2013 JB Gutierrez, S Kouachi, RD Parshad. Global existence and asymptotic behavior of a model for biological control of invasive species via supermale introduction. Communications in Mathematical Sciences. 11(4):971-992. DOI: 10.4310/CMS.2013.v11.n4.a4

2013 JL Teem, JB Gutierrez. Combining the Trojan Y Chromosome and Daughterless Carp Eradication Strategies. Biological Invasions, May 2013. DOI: 10.1007/s10530-013-0476-1.

2013 JL Teem, JB Gutierrez, RD Parshad. A Comparison of the Trojan Y Chromosome and Daughterless Carp Eradication Strategies. Biological Invasions, May 2013. DOI: 10.1007/s10530-013-0475-2

2012 S Herrera, ML Quinones, JP Quintero, V Corredor, DO Fuller, JC Mateus, JE Calzada, JB Gutierrez, A Llanos, E Soto, C Menendez, Y Wu, P Alonso, G Carrasquilla, M Galinski, J Beier, M Arevalo-Herrera. Prospects for malaria elimination in non-Amazonian regions of Latin America. Acta Tropica. Volume 121, issue 3 (March, 2012), p. 315-323. DOI: 10.1016/j.actatropica.2011.06.018

2012 JB Gutierrez, MK Hurdal, RD Parshad, JL Teem. Analysis of the Trojan Y Chromosome Model for Eradication of Invasive Species in a Riverine System. Journal of Mathematical Biology. Volume 64, Numbers 1-2 (2012), 319-340. DOI: 10.1007/s00285-011-0413-9.

2011 CHAPTER. John Teem and Juan B Gutierrez. A theoretical strategy for eradication of Asian carps using a Trojan Y chromosome to shift the sex ratio of the population. In Duane C. Chapman, editor, *Bigheaded Carps in North America*. Published by the American Fisheries Society, AFS Symposium 74, Bethesda, MD, 2011. ISBN: 978-1-934874-23-3.

2010 RD Parshad, JB Gutierrez. On the Well Posedness of the Trojan Y Chromosome Model. Boundary Value Problems, vol. 2010, Article ID 405816, Nov. 2010. 10.1155/2010/405816

2010 RD Parshad, JB Gutierrez. On the Global Attractor of the Trojan Y Chromosome Model. Communications in Pure and Applied Analysis, 10(10):339-359, January 2010. 10.3934/cpaa.2011.10.339

2008 MK Hurdal, JB Gutierrez, C Laing, and DA Smith. Shape analysis for automated sulcal classification and parcellation of MRI data. *Journal of Combinatorial Optimization*, 15(3):257–275, 2008. DOI: 10.1007/s10878-007-9096-y.

2008 PROCEEDINGS. Monica K. Hurdal, Juan B Gutierrez, Christian Laing, Aaron D. Kline, and Deborah A. Smith. Geometric invariants for classification of cortical sulci. In *IEEE International Conference on Image Processing*. IEEE, pages 1156–1159, San Diego, CA, October 2008. DOI: 10.1109/ICIP.2008.4711965

2008 PROCEEDINGS. Juan B Gutierrezand Mark C Marino. Literatronica. Adaptive Digital Narrative. In ACM's Hypertext'08. Creating '08: Proceedings of the hypertext 2008 workshop on Creating out of the machine: hypertext, hypermedia, and web artists explore the craft, pages 5-8, New York, NY, USA. DOI: 10.1145/1379153.1379156

2006 PROCEEDINGS. Juan B Gutierrez. Literatronic: Use of Hamiltonian cycles to produce adaptivity in literary hypertext. In *The Bridges Conference 2006: Mathematical Connections in Art, Music, and Science*, pages 215–224, London, UK, August 2006. The Bridges Organization. `http://archive.bridgesmathart.org/2006/bridges2006-215.html`.

2006 JB Gutierrez and JL Teem. A model describing the effect of sex-reversed YY fish in an established wild population: the use of a Trojan Y chromosome to cause extinction of an introduced exotic species. *Journal of Theoretical Biology*, 241(22):333–341, July 2006. DOI: 10.1016/j.jtbi.2005.11.032.

Pre-Prints (10)

2018 **arXiv**. Saeid Safaei, Vahid Safaei, Solmazi Safaei, Zerotti Woods, Hamid R Arabnia, Juan B Gutierrez. The SWAG Algorithm; a Mathematical Approach that Outperforms Traditional Deep Learning. Theory and Implementation. arXiv:1811.11813 [stat.ML]

2017 **arXiv**. Karen Aguar, Charles C. Sanchez, Diego Boada Beltran, Saeid Safaei, Mehdi Asefi, Jonathan Arnold, Pedro Portes, Hamid R. Arabnia, Juan B Gutierrez. Considerations on Interdisciplinary Instruction and Design Influenced by Adaptive Learning. A Case Study Involving Biology, Computer Science, Mathematics, and Statistics. arXiv:1703.06010 [physics.ed-ph]

2017 **arXiv**. Mehdi Allahyari, Seyedamin Pouriyeh, Mehdi Assefi, Saied Safaei, Elizabeth D. Trippe, Juan B Gutierrez, Krys Kochut. A Brief Survey of Text Mining: Classification, Clustering and Extraction Techniques. arXiv:1707.02919 [cs.CL] Mehdi Allahyari, Seyedamin Pouriyeh, Mehdi Assefi, Saeid Safaei, Elizabeth D. Trippe, Juan B Gutierrez, Krys Kochut. Text Summarization Techniques: A Brief Survey. arXiv:1707.02268 [cs.CL]

2017 **arXiv**. Elizabeth D. Trippe, Jacob B. Aguilar, Yi H. Yan, Mustafa V. Nural, Jessica A. Brady, Mehdi Assefi, Saeid Safaei, Mehdi Allahyari, Seyedamin Pouriyeh, Mary R. Galinski, Jessica C. Kissinger, Juan B Gutierrez. A Vision for Health Informatics: Introducing the SKED Framework.An Extensible Architecture for Scientific Knowledge Extraction from Data. arXiv:1706.07992 [q-bio.QM].

2017 **arXiv**. Yi H. Yan, Diego M. Moncada, Elizabeth D. Trippe, Juan B Gutierrez. Correlates of severity of disease in Macaca mulatta infected with Plasmodium cynomolgi. arXiv:1706.08836 [q-bio.TO].

2017 **arXiv**. Derek Onken, Eric Marty, Roberto Palomares, Rui Xie, Leyao Zhang, Jonathan Arnold, Juan B Gutierrez. The lunar cycle's influence on sex determination at conception in humans. arXiv:1706.08151 [q-bio.OT].

2017 **arXiv**. Yi H. Yan, Jacob B. Aguilar, Elizabeth D. Trippe, Juan B Gutierrez. Quantification of Healthy Red Blood Cell Removal and Preferential Invasion of Reticulocytes in Macaca mulatta during Plasmodium cynomolgi Infection. arXiv:1706.08139 [q-bio.CB].

2017 **arXiv**. Elizabeth D. Trippe, Jacob B. Aguilar, Yi H. Yan, Mustafa V. Nural, Jessica A. Brady, Juan B Gutierrez. Introducing Data Primitives: Data Formats for the SKED Framework. arXiv:1706.08131 [q-bio.QM].

2017 **arXiv**. Jacob B. Aguilar, Juan B Gutierrez. An Epidemiological Model of Malaria Accounting for Asymptomatic Carriers. arXiv:1611.04668 [q-bio.PE].

2016 **arXiv**. Yi H. Yan, Elizabeth D. Trippe, Juan B Gutierrez. A Method for Massively Parallel Analysis of Time Series. arXiv:1612.08759 [q-bio.QM].

Non-Scientific Peer-Reviewed Publications (11)

2010 Chapter: L Borràs, JB Gutierrez. The Global Poetic System (GPS): A System of Poetic Positioning. Chapter 15, pp. 345-364. Beyond the Screen: Transformations of Literary Structures, Interfaces and Genre. Peter Gendolla, Jörgen Schäfer, Eds. Transcript Verlag, 2010. Bielefeld, Germany.

2009 Journal: JB Gutierrez, Mark C. Marino, Pablo Gervás, Laura Borràs Castanyer Electronic Literature as an Information System. In Hyperrhiz: New Media Cultures. Issue 6, Summer 2009.

2008 Proceedings: JB Gutierrez and MC Marino. Literatronica. Adaptive Digital Narrative. In Creating '08: Proceedings of the hypertext 2008 workshop on Creating out of the machine: hypertext, hypermedia, and web artists explore the craft, pages 5-8, New York, NY, USA

2007 Chapter: JB Gutierrez. The Limits of Digital Narrative: A Functional Analysis. Chapter 5, pp. 85-103. Literatures in the Digital Era: Theory and Praxis. Amelia Sanz, Dolores Romero, Eds. Cambridge Scholars Press, 2007. UK/Spain.

2006 Proceedings: JB Gutierrez. Literatronic: The use of Hamiltonian cycles to produce adaptivity in literary hypertext. In The Bridges Conference 2006: Mathematical Connections in Art, Music, and Science, pages 215-224, London, UK, August 2006.

2006 Proceedings: JB Gutierrez, MC Marino. Entretenimientos de N-Capas: Literatura Electrónica Como un Sistema de Información (N-Tier Entertainments: Electronic Literature as an Information System). Proceedings of the III Congreso ONLINE del Observatorio para la CiberSociedad. Barcelona, Spain, November 2006.

2004 Journal: JB Gutierrez. Hipertexto Literario: Replantemianto de las premisas. (Literary Hypertext: Rethinking the premises.) Hojas Universitarias. Journal of the School of Humanities of the Universidad Central, (56):128-132. Bogota, Colombia, October 2004.

2004 Proceedings: JB Gutierrez. Literatrónica: Hipertexto Literario Adaptativo. (Literatronic: Adaptive Literary Hypertext.) in Proceedings of the 2o Congreso del Observatorio para la Cibersociedad. (2nd Congress of the Observatory for the Cibersociety.) Barcelona, Spain, November 2004.

2002 Proceedings: JB Gutierrez. Literatrónica: Sobre Cómo y Porqué Crear Ficción para medos digitales (Literatronic: About how and why create fiction for digital media.) in Proceedings of the 1er Congreso del Observatorio para la Cibersociedad (1st Congress of the Observatory for the Cibersociety.) Barcelona, Spain, September 2002.

2000 Journal: JB Gutierrez. Hipertexto en Contexto III. (Hypertext in context III.) In Signo y Pensamiento. Journal of the School of Communication of the Pontificia Universidad Javeriana, XIX(36):111-118. Bogota, Colombia, 2000.

1999 Journal: JB Gutierrez. Hipertexto en Contexto (Hypertext in Context.) In Revista de Literatura Hispanoamericana. (Journal of Latin-American Literature). Journal of the School of Literature of the Zulia University (38):83-90, Jan-Jun 1999. Maracaibo, Venezuela, 1999. ISSN: 0252-9017.

Fiction (8)

References to articles, thesis and dissertations about my literary work at: http://euler.math.uga.edu/cms/People/Juan-B-Gutierrez/Literary-Publications#Others

1996-2006 El primer Vuelo de los Hermanos Wright (The first Flight of the Wright Brothers). Written with support from the National Grants of The Ministry of Culture of Colombia (COLCULTURA), 1996. Grant COLCULTURA-SECAB 014/1996. Bogota, Colombia. With contributions by Carlos E. Herrera P. (programmer). Version 2: 2006. Currently available at http://www.literatronica.com

1998-2005 Condiciones Extremas (Extreme Conditions). Version 1: Multimedia novel (book and CD-ROM). Written with support from the Repository of Artistic Projects of the Institute of Culture of Bogota. Grants 514/1997 and 410/1998, Bogota, Colombia. Published by Multimedia Lab, Repository of Artistic Proposals 1997, Institute of Culture of Bogota. Version 2: 2002. Version 3: 2005. Currently available at http://www.literatronica.com

2000 Las Fricciones de San Sebastián. (The Frictions of St. Sebastian). Revista Avianca. Magazine of Avianca Airlines. Number 254. Bogota. Colombia. Mar, 2000. Pag. 66-69. Bogota, Colombia. 2000

2000 La Sagrada Geometría (The Sacred Geometry.) In Antología Colombiana de Ciencia Ficción (Companion of Colombian Science Fiction). Pag. 93-96. Rene Rebetez (ed.) Espasa, 2000. Bogota, Colombia. ISBN: 958-614-804-1. Also in In (CREA: An Expedition through the Colombian Culture). Ministry of Culture of Colombia (formerly Colcultura), 1995.

1999 Las Exquisitas Disquisiciones de Fray Leonardo Baz. (The exquisite reasoning of Father Leonardo Baz.) Gaceta. Magazine of the Ministry of Culture of Colombia. Pag. 150-145. Num. 44-45. Bogota, Colombia. 1999. ISSN: 0121-7194

1996 Siete Curiosas Formas de Morir. (Seven Curious Ways to Die). Unidad de Publicaciones. Facultad de Ingeniería. Universidad Nacional de Colombia (Publishing Unit. School of Engineering. National University of Colombia.) 1996.

1996 González, Archivos y Documentos. (Gonzalez, Files and Documents.) In Sunday Readings of El Tiempo (Sunday Readings from The Times), newspaper. 475,000 copies (ISSN: 0121-9790). Also in Carta Universitaria, Journal of the National University, December 1996. Bogota, Colombia. ISSN: 0122-2929. Winner of the International Story Award 'Carlos Castro Saavedra', 1996, Medellin, Colombia.

1995 Atyseikuiwandiú, o los Avatares de la Cruel Sangre (Atyseikuiwandiú, or the Fortune of the Cruel Blood). In Lecturas Dominicales de El Tiempo (Sunday Readings from The Times), newspaper. 01/15/1995. Bogota, Colombia. 475,000 copies (ISSN: 0121-9790). Also in Ko'eyú, Journal of Cultural and Politic Analysis. Number 64, April-June 1994. Caracas, Venezuela. Winner of the International Story Award 'Ko'eyú Latinoamericano', 1995, Caracas, Venezuela.

Teaching Experience

At the University of Georgia:

2018 BINF8950 (3h). Spring - Systems Biology.

2018 LACS1000 (3h). Spring - Introduction to Latin American and Caribbean Studies.

2017 MATH4500/6500 (3h). Fall - Numerical Analysis.

2017 FYOS1001 (1h). Fall - Modes of Knowledge.

2017 STAT4510/6510'(3h). Summer - Mathematical Statistics.

2017 MATH4780/6780 (3h). Spring - Mathematical Biology.

2016 FYOS1001 (1h). Fall - History of Science.

2016 GRSC8015 (1h). Fall - Data Management.

2016 BINF8950 (3h). Spring - Mathematical Biology.

2015 GRSC8015 (1h). Fall - Data Management.

2015 MATH2700 (3h). Fall - Differential Equations.

2015 BINF4005/6005 (3h). Spring - Computational Skills for Biology.

2014 MATH4780/6780 (3h). Fall - Mathematical Biology.

2014 MATH4750/6750 (3h). Spring - Transforms.

2013 MATH4780/6780 (3h). Fall - Computational Skills for Biology.

2013 MATH4780/6780 (3h). Spring - Mathematical Biology.

2012 BINF4005/6005 (3h). Fall - Computational Skills for Biology.

At other institutions:

2011 Instructor of MAT152. Spring - Calculus I, Ohio State University, Columbus, Ohio.

2010 Instructor of MTH300/BIL385. Spring - Mathematical Models in Biology and Medicine, University of Miami, Coral Gables, Florida.

2009 Instructor of MAC-1140.23 Spring - Pre-calculus, Florida State University, Tallahassee, Florida.

2008 Instructor of MAP-2480.02,04 Fall - Biocalculus Computer Laboratory, Florida State University, Tallahassee, Florida.

2008 Online instructor of the Máster de estudios literarios en la era digital (M.A. Literary Studies in the Digital Age, *Universitat Oberta de Catalunya* (UOC), Barcelona, Spain.

Organized Workshops

2014 Organizer of the *Current Topic Workshop: "From Within Host Dynamics to the Epidemiology of Infectious Disease"*. Mathematical Biosciences Institute, April 7-11, 2014. https://mbi.osu.edu/event/?id=715 As a result of this workshop, a special issue was organized in the journal Mathematical Biosciences. Volume 270, Part B, Pages 143-278 (December 2015) https://www.sciencedirect.com/journal/mathematical-biosciences/vol/270/part/PB

2018 Organizer of the *Emphasis Workshop: "Multiscale Dynamics of Infection"*. Mathematical Biosciences Institute, April 23-27, 2018. https://mbi.osu.edu/event/?id=1140 As a result of this workshop, a special issue is being organized with a target date of December 2019.

Invited Talks

2018 From Molecular Dynamics to Epidemiological Processes of Malaria. International Congress of Mathematics, Satellite Meeting for Mathematical Biology. University of Miami, July 26-29, Coral Gables, FL.

2018 Talk & Showcase of literary work: De arcilla y bytes (Of clay and bytes). Lorem Bitsum, Festival de Literatura Electrónica. Casa del Lector, Junio 9, Madrid, Spain.

2018 Multiscale Systems Biology: A Case Study Linking Molecular Dynamics to Epidemiological Processes of Malaria. Emphasis Workshop: Multiscale Dynamics of Infection. Mathematical Biosciences Institute, Ohio State University, April 23-27, 2018, Columbus, OH.

2017 Talk & Poster: Challenges and Future Directions in Big Data Analytics and its Application in Health Informatics. 23rd ACM SIGKDD Conference of Knowledge, Discovery, and Data Mining. August 13-17, 2017, Halifax, Nova Scotia, Canada. http://videolectures.net/kdd2017_panel_big_data_analytics/

2017 Multi-scale analysis of malaria: How molecular patterns of disease emerge at continental scales. Center for Infectious Disease Dynamics, Pennsylvania State University. September 4, 2017, University Park, PA.

2017 Multi-scale analysis of malaria: How molecular patterns of disease emerge at continental scales. Systems Biology and Bioinformatics Seminar, Emory University. August 2, 2017, Atlanta, GA.

2017 Malaria Systems Biology: From Genes to Environment. Georgia Scientific Computing Symposium 2017. February 25, 2017, Athens, GA.

2016 Multiscale Systems Biology: From Genes to Environment. Emphasis Workshop: Population Models in the 21st Century. Mathematical Biosciences Institute, Ohio State University, June 13-22, 2016, Columbus, OH. https://mbi.osu.edu/video/player/?id=4181.

2016 A most urgent contribution: Systems Biology of Malaria. Math Honors Day, Mercer University. March 24, 2016, Macon, GA.

2016 Vector-Borne Diseases. US-Canadian Institutes Epidemiology Summer School: Mathematical Modeling of Infectious Disease Spread. Mathematical Biosciences Institute, Ohio State University, June 13-22, 2016, Columbus, OH. https://mbi.osu.edu/video/player/?id=4023

2015 The case for science engineering: Systems Biology of Malaria. Georgia Scientific Computing Symposium 2015. June 4, 2017, Georgia Institute of Technology, Atlanta, GA.

2014 Systems Biology of Malaria: From Genes to Environment. The Secret Life of Malaria... A Global Journey to Cure and Prevention. One Health at UGA. March 19, 2014, University of Georgia, Athens, GA. https://www.youtube.com/watch?v=PQ12Z5qPbIk

2014 From Within-Host to Between-Host Dynamics. Systems Biology of Epidemiology. Mini-symposium "Mathematical Models in Biology and Epidemiology" of SIAM-Life Sciences 14. August 5-6, Charlotte, NC.

2013 Systems Biology of Malaria: From Genes to Environment. Seminar of the Department of Mathematics, Georgia State University, October 14, 2013, Atlanta, GA.

2013 Information System-Based Research: A scientific foundation to optimize use of resources and guide public health policies. II Simposio Perspectivas de Eliminación de la Malaria en América Latina. July 27-29, Bogota, Colombia.

2010 Genetic Control of Invasive Species: Population Dynamics of the Predator Within. Florida Atlantic University. February 11, 2010, Boca Raton, FL.

Contributed Talks & Posters

2017 Talk: Modeling Across Scales: From Data Sparsity to Data Overload. 2017 Annual Meeting of the Society for Mathematical Biology. July 20, 2017, Salt Lake City, UT.

2016 Poster: Within-Host Mathematical Models of Malaria Built from Multi-omic Datasets. 65th Annual Meeting of the American Society of Tropical Medicine and Hygiene. November 13-17, 2016, Atlanta, GA.

2015 Talk: Multiscale analysis of malaria. The Fourth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems: Mathematical Modeling of Complex Dynamics from Cells to Ecosystems. October 4-6, Lubbock, TX.

2015 Talk: Hemodynamic model of malaria infection with detailed immune response. The Ninth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory. April 1-4, 2015, Athens GA.

2013 Talk: Systems Biology of Epidemiology. The Mathematical Congress of the Americas. August 6, 2013, Guanajuato, Mexico.

2013 Poster: Species Propagation Fronts in Dendritic Domains. The Mathematical Congress of the Americas. August 7, 2013, St. John's College, Santa Fe, New Mexico.

2013 Systems Biology of Epidemiology: From Genes to Environment. Systems Biology of Infection Symposium. June 24-27, 2013. Monte Verità, Ascona, Switzerland.

2012 Poster: Mathematical Analysis of Asymptomatic Malaria as a Species Competition Problem. Multiscale Modelling in Medicine and Biology. September 3-4, 2012, University of Nottingham, Nottingham, UK.

2012 Poster: Mathematical Analysis of Asymptomatic Malaria as a Species Competition Problem. 61st Annual Meeting of the American Society of Tropical Medicine and Hygiene. November 13-17, 2012, Atlanta, GA.

2012 Talk: Asymptotic Estimates of Asymptomatic Malaria Persistence in Low Endemicity Areas of Latin America. Annual meeting of the Bio Medical Engineering Society (BMES). October 24-27, 2012, Atlanta, GA.

2010 Talk: An Application of Global Attractors in Spatial Ecology: How to Predict the Success of Intervention against Invasive Species. 7th International Conference on Differential Equations and Dynamical Systems, University of South Florida. December 15-18, 2010, Tampa, FL.

2009 Talk & Poster: A Trojan Y Chromosome Model for Eradication of Exotic Species in a Riverine System. Second SIAM Gators Student Conference. University of Florida. March 3-5, 2009, Gainesville, FL.

2008 Workshop Presentation: Creating out of the Machine. Hypertext 2008. ACM Conference on Hypertext and Hypermedia. June 19-21, 2008 - Pittsburgh, Pennsylvania.

2007 Poster: Summer 2007 Program on on the Geometry and Statistics of Shape Spaces. Statistical and Applied Mathematical Sciences Institute (SAMSI). Presented a poster about brain pattern classification and the Bio-Structural Classification Database. July 7-13, Research Triangle Park, NC.

2007 Showcase: Literatronica. Presented at the Exhibit of Mathematical Art of the National Meeting of the American Mathematical Society. Jan 5-8, New Orleans, LA.

2007 Talk: Generalized Trojan Gene Hypothesis. Presented at the National Meeting of the American Mathematical Society. Jan 5-8, New Orleans, LA.

2006 Paper & Talk: Literatronic: Use of Hamiltonian Cycles to Produce Adaptivity in Literary Hypertext. Presented at The Bridges Conference 2006: Mathematical Connections in Art, Music, and Science. Aug 4-9, London, UK.

2006 Talk: A Cost-Based Approach to Adaptivity in Literary Hypertext. Presented at the National Meeting of the American Mathematical Society. Jan 12-15, San Antonio, TX.

2005 Talk: Trojan Genes. A Guide to Get Rid of Invasive Species. Presented at Mathematical Association of America 26th Big Bend Region Annual Meeting. Oct 28, Tallahassee, FL.

2005 Talk: A Graph-Based Algorithm for Adaptive Literary Hypertext. Presented at Disjunctions 2005: Theory Reloaded, University of California, Riverside's Twelfth Annual Humanities Conference. Apr 8-9, Riverside, CA.

Programmatic Meetings

2017 Principal investigators meeting of the Technologies for Host Resilience program, DARPA. October 20, 2017, Arlington, VA.

2017 Programmatic meeting of the systems biology groups of the National Institute of Allergies and Infectious Diseases (NIH's NIAID). May 7-10, 2017, Chicago, IL.

2016 Systems Biology Data & Modeling Working Groups of the NIH's NIAID. December 1, 2016, New York, NY.

2016 Programmatic meeting of the systems biology groups of the NIH's NIAID. April 11-13, 2017, New York, NY.

2016 Systems Biology Data & Modeling Working Groups of the NIH's NIAID. Jan 21-23, 2016, Seattle, WA.

2016 Programmatic meeting of the International Centers for Excellence in Malaria Research (ICEMR), NIH's NIAID. August 15-20, 2016. Kampala, Uganda.

2015 Programmatic meeting of the ICEMRs, NIH's NIAID. August 17-21, 2015. Cali, Colombia.

2014 Programmatic meeting of the ICEMRs, NIH's NIAID. August 26-28, 2014. Lima, Peru.

2013 Programmatic meeting of the ICEMRs, NIH's NIAID. August 19-24, 2013, Guilin, China.

2012 Programmatic meeting of the ICEMRs, NIH's NIAID. August 22-25, 2012. Goa, India.

2011 Programmatic meeting of the ICEMRs, NIH's NIAID. August 15-19, 2012. Lusaka, Zambia.

Workshops

2016 Quantitative Biology Workshop at Spelman College, Friday, March 11, 2016, Atlanta, GA.

2011 SACNAS Summer Leadership Institute. July 25-29, 2011. AAAS National Office, Washington D.C.

2011 BIRS Workshop 11w5106, Emerging Challenges at the Interface of Mathematics, Environmental Science and Spatial Ecology. July 3-8, 2011. Banff International Research Station, Alberta, Canada.

2011 AIM Workshop: Careers in academia. June 20-24, 2011. American Institute of Mathematics, Palo Alto, CA.

2010 Using Glenn, the IBM Opteron 1350 at the Ohio Supercomputer Center. OSC. October 19-20, 2010, Columbus, OH.

2010 Mathematical Modeling of Plant Development. Mathematical Biosciences Institute, OSU. September 27-October 1, 2010, Columbus, OH.

2010 Bootcamp in Cancer Modeling. Mathematical Biosciences Institute, OSU. September 7-10, 2010, Columbus, OH.

2010 Workshop for Young Researchers in Mathematical Biology. Mathematical Biosciences Institute, OSU. August 30 - September 1, 2010, Columbus, OH.

2010 Mathematical Neuroendocrinology. Mathematical Biosciences Institute, OSU. August 9-13, 2010, Columbus, OH.

2007 Image Processing for Random Shapes, Applications to Brain Mapping, Geophysics and Astrophysics. Institute for Pure and Applied Mathematics, UCLA. May 21-25, 2007, Los Angeles, CA.

2007 Program on the Geometry and Statistics of Shape Spaces. Statistical and Applied Mathematical Sciences Institute (SAMSI). July 2007, Research Triangle Park, NC.

2006 SC06 - The International Conference for High Performance Computing Networking and Storage. Nov 11-17, 2006, Tampa, FL.

Outreach

I have developed materials in English and Spanish for a mini-course in Monster Epidemiology to introduce middle and high-school students to applied mathematical thinking. http://euler.math.uga.edu/cms/Monster-Epidemiology. I plan to offer this annual event for the foreseeable future.

2018 Workshop for middle and high-school students in the Athens/Clarke/Oconee tri-county area: Monster Epidemiology. University of Georgia, July 9-13, 2018, Athens, GA.

2017 Invited Talk: True, Right, Correct, or Proven? A guide to modes of thinking. Acropolis - Athens Innovation Festival. April 24, 2017, Athens, GA.

2016 Workshop for middle and high-school students in the Athens/Clarke/Oconee tri-county area: Monster Epidemiology. University of Georgia, July 18-22, 2016, Athens, GA.

2015 Workshop for middle and high-school students in the Athens/Clarke/Oconee tri-county area: Monster Epidemiology. Athens Academy, February 4, 2015, Athens, GA.

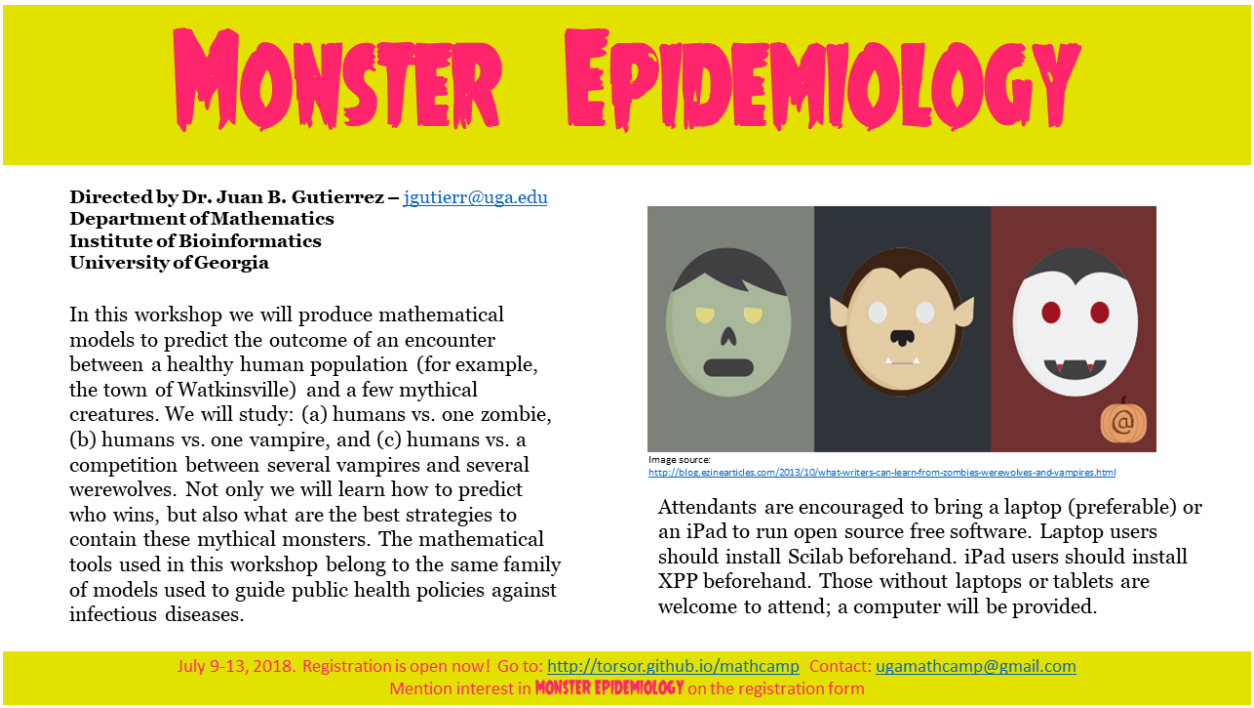

Figure 1: See section '*Outreach*' for a description of the Monster Epidemiology workshop

Service

Current Member of the Editorial Board of Mathematical Biosciences (Elsevier).

Current Member of the Personnel Committee, department of mathematics, UGA.

Current Member of the Public Affairs and Government Relations committee at SACNAS.

Current Member of the Data Literacy Committee in charge or charting the requirement that all students gain some level of competency in data, UGA.

Current Member of the numerous past and present recruitment committees in mathematics, bioinformatics, statistics, and LACSI, UGA.

2014-17 Member of the Executive Committee of the Latin American and Caribbean Studies Institute, UGA.

2015-17 Member of the Steering Committee of the UGA Big Data Consortium, UGA.

2015-17 Member of the Advisory Committee of the Georgia Advanced Computing Resource Center, UGA.

2014-16 Member of the Facilities Committee, department of mathematics, UGA.

Information Technology Skills

I have know-how and experience in designing and implementing complex multi-tier information systems that integrate numerical algorithms (microcontrollers to supercomputers), relational databases, data mining, remote sensing & GIS, telecommunication, and user interfaces.

- *Operating Systems*: OS compatibles with the Portable Operating System Interface (POSIX) (UNIX, Linux, MacOS, Windows), DOS.

- *Computer Languages*: C++, C, Fortran, Python, VB.NET, C#, ASP.NET, Java, JSP, JavaScript, SQL (ANSI and vendor variants such as T-SQL and PL-SQL).
- *Mathematics Software*: MATLAB, Maple, Scilab, R.
- *Database Management Systems*: SQL Server, Oracle, MySQL, MS Access.
- *Geographic Information Systems*: Map Windows, ArcGIS, MATLAB Mapping Toolbox.
- *Development Tools and Technologies*: Visual Studio, Eclipse, and productivity tools (LaTeX, MS Project/Office, HTML, XML/XSL, ArcXML).
- *Certifications*: MCSD.NET - Microsoft Certified Solution Developer for .NET.