



Address:

Department of Information Systems and Computer Science
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Ateneo De Manila University
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CURRENT AFFILIATIONS

Professor, Department of Information Systems and Computer Science,
School of Science and Engineering, Loyola Schools, Ateneo De Manila University
(Faculty member from 1986 – Present)

AREAS OF EXPERTISE

Teaching, Research & Development in Computer Science (Specialization: Algorithms; Artificial Intelligence)

University Administration

Data Science and Analytics

Information Systems Consulting

EDUCATION

- Ph.D. Computer Science and Applications, 1997
Virginia Tech—Virginia Polytechnic Institute and State University
(Blacksburg, Virginia, U.S.A)
Graduate Student Award Recipient: Scholarly Performance in Graduate Study
- M.S. Computer Science and Applications, 1990
Virginia Tech
- B.S. Mathematics/Computer Science, 1986
Ateneo de Manila University
National Science and Technology Agency Scholar
- Philippine Science High School, 1982

HONORS AND AWARDS RECEIVED

- 2001 Outstanding Young Scientist
July 2001 National Academy of Science and Technology
Republic of the Philippines
- DuPont Miracles of Science Award
July 2001 DuPont Far East, Inc., Philippines
- Scholarly Performance in Graduate Study
May 1997 Department of Computer Science
Virginia Tech, Virginia, U.S.A.

ACADEMIC POSITIONS HELD

Ateneo De Manila University (Administration)

- Vice President for the Professional Schools June 2019 to May 2022
Professional Schools:
Graduate School of Business
School of Law
School of Medicine and Public Health
School of Government
- Director for Strategy and Quality Management August 2016 to December 2018
- Vice President for the Loyola Schools April 2010 to May 2016
Loyola Schools:
School of Humanities
John Gokongwei School of Management
School of Science and Engineering
School of Social Sciences
- Vice President for Administration & Planning April 2009 to March 2010

DISCS (formerly CS Program), School of Science and Engineering Loyola Schools, Ateneo De Manila University

- Professor April 2006 to present
- Department Chairman April 2008 to March 2009
- Associate Professor April 2000 to March 2006
- Department Chairman April 1998 to March 2002
- Assistant Director June 1997 to March 1998
- Assistant Professor April 1997 to March 2000
- Officer-in-Charge April 1993 to June 1993
- Instructor June 1991 to March 1997 (study leave 1994-97)
- Assistant Instructor April 1986 to August 1988

Graduate Program Division, Ateneo Information Technology Institute (formerly ACTC)

- Associate Director July 2001 to March 2006
- Lecturer June 1997 to March 2006
June 1991 to October 1993
- Program Coordinator October 1997 to March 2001

Ateneo Graduate School of Business

- Cluster Chair for Information Technology August 2005 to March 2010
- Lecturer May 2007 to present

Department of Computer Science, Virginia Tech

- Visiting/Adjunct Professor
January 2018 to May 2018
May 2015 to July 2015
January 2008 to May 2008
June 2003 to May 2004
May 2001 to July 2001
May 2000 to July 2000
May 1999 to July 1999
- Instructor
July 1994 to December 1996
- Graduate Teaching Assistant
January 1989 to May 1991

COURSES TAUGHT

- DISCS, Ateneo De Manila University
 - Introduction to Computing (Pascal, C, Java)
 - Data Structures and Algorithms
 - Automata and Formal Languages
 - Theory of Computation
 - Combinatorics and Graph Theory
 - Artificial Intelligence
 - Data Mining
 - Introduction to Software Engineering
 - Database Systems
 - Object-Oriented Systems Development
 - Computer Graphics
 - Computational Complexity
 - Methods of Research
 - Introduction to Bioinformatics
 - Cryptography and Network Security
 - Programming Languages and Paradigms
 - Object-Oriented Software Design and Implementation
 - Introduction to Applications Development (C#)
 - Enterprise Systems Programming (Java Enterprise Edition)
 - Introduction to Statistical Analysis
 - Introduction to Mobile Applications Development
- Ateneo Graduate School of Business
 - Business Intelligence for Managers
 - Health Informatics Management
 - Managerial Statistics
- Graduate Program Division, Ateneo Information Technology Institute
 - Java Programming and Object-Oriented Languages
 - Theory of Algorithms
 - Compiler Design
 - Organization of Databases
 - Programming Paradigms
 - Object-Oriented Programming
- Department of Computer Science, Virginia Tech
 - Introduction to Computer Science
 - Introduction to Programming (Pascal, Java, C, C++)
 - Operating System Tools (Windows and FreeBSD Unix)
 - Object-Oriented Software Design and Construction
 - Data Structures and File Management
 - Data Structures and Object-Oriented Development
 - Data and Algorithm Analysis
 - Programming Languages

JOURNAL PUBLICATIONS

- L.B. Sumpaico-Tanchanco, A.B. Dy, A.M. Amit, J Wong, K. Angeles, and J.P. Vergara, "The Prevalence of SARS-CoV-2 Antibodies within the community of a private tertiary university in the Philippines: A serial cross-sectional study", *PLoS One* 17:12 (2022).
- R. Tan, K. Ikeda, and J.P. Vergara, "Hindsight-Combined and Hindsight-Prioritized Experience Replay", *Lecture Notes in Computer Science: Neural Information Processing* (2020), 429-439.
- G.A. Sanchez, P. Fernandez, and J.P. Vergara, "Some Heuristics for the 2-Poset Cover Problem", *Philippine Computing Journal* 9:2 (2015), 26-32.
- P. Fernandez, L.S. Heath, N. Ramakrishnan, M. Tan, and J.P. Vergara, "Mining Posets from Linear Orders", *Discrete Mathematics, Algorithms, and Applications* 5:4 (2013).
- J.P. Vergara, "Satisfied with Satisfiability?—A Note on the First NP-Complete Problem", *Philippine Computing Journal* 7:1 (2012), 12-15.
- L.S. Heath and J.P. Vergara, "Sorting by Short Swaps", *Journal of Computational Biology* 10:5 (2003), 775-789.
- P.I. Echevarria, J.C. Punzalan, J.P. Vergara, "Microarray Image Analysis Program", *Loyola Schools Review* 2 (2003), 1-14.
- L.S. Heath and J.P. Vergara, "Sorting by Short Block-moves", *Algorithmica* 28 (2000), 323-352.
- L.S. Heath and J.P. Vergara, "Edge-packing Planar Graphs by Cyclic Graphs", *Discrete Applied Mathematics* 81 (1998), 169-180.
- L.S. Heath and J.P. Vergara, "Sorting by Bounded Block-moves", *Discrete Applied Mathematics* 88--- Special Issue on Computational Biology (1998), 181-206.
- L.S. Heath and J.P. Vergara, "Edge-packing in Planar Graphs", *Theory of Computing Systems* 31 (1998), 629-662.
- J.P. Vergara, "Mathematical Induction in Computer Algorithms", *Matimyas Matematika*, 16:3 (1993), pp. 18-29.

CONFERENCE PAPERS

- G. De Jesus, C. Mendoza, A.N. Ty, and J.P. Vergara, "A Randomized Data Obfuscation Approach for Cluster Analysis", presented (by C. Mendoza) at the 19th Philippine Computing Science Congress (PCSC 2019), National University, Manila, Philippines, March 2019.
- M. Lucena and J.P. Vergara, "Finding the Short Swap Distance for Decreasing Permutations", presented (by M. Lucena) at the 18th Philippine Computing Science Congress (PCSC 2018), Capitol University, Cagayan de Oro, Philippines, March 2018.
- C.C. Diez, E.M. Tria, and J.P. Vergara, "Global Alignment of Protein-Protein Interaction Networks Using Subgraph and Sequence Similarity", presented (by C.C. Diez and E.M. Tria) at the 17th Philippine Computing Science Congress (PCSC 2017), University of San Carlos, March 2017.
- J.P. Vergara, "On the Alignment of Protein-Protein Interaction Networks: Comparing Maximum Matching and Graph Isomorphism Problem Formulations", presented at the Symposium on Graph Theory and Applications (SGTA 2016), Ateneo de Manila University, January 2016.
- J.E. Bangayan, J.R. Bunyi, J. Gigataras, and J.P. Vergara, "An Analysis of Bubble-sort based Heuristics for Minimum Sorting by Short Rearrangements", presented (by J.R. Bunyi and J. Gigataras) at the 15th Philippine Computing Science Congress (PCSC 2015), University of Saint Louis, March 2015.

- G.A. Sanchez, P. Fernandez, and J.P. Vergara, “Some Heuristics for the 2-Poset Cover Problem”, presented (by G.A. Sanchez) at the Symposium on the Mathematical Aspects of Computer Science 2014 (SMACS 2014), Ateneo de Naga University, November 2014.
- M.R. Estuar, D. Batangan, A. Coronel, F.E.V. Castro, A.C.M. Ammara, R.A.C. Caliso, and J.P. Vergara, “eHealth Tablet: A Developing Country Perspective in Managing the Development and Deployment of a Mobile – Cloud Electronic Medical Record For Local Government Units”, presented (by M.R. Estuar) at the 15th IEEE International Conference on Mobile Data Management (MDM 2014), Brisbane, Australia, July 2014.
- A. Avancena, A. Nishihara, and J.P. Vergara, “Development of Online Cognitive and Algorithm Tests as Assessment Tools in Introductory Computer Science Courses”, presented (by A. Avancena) at the IADIS International Conference on Cognition and Exploratory Learning in the Digital Age (CELDA 2012), Madrid, Spain, October 2012
- N. Sundaravaradan, K. S. M. Tozammel Hossain, V. Sreedharan, D. J. Slotta, J.P. Vergara, L. S. Heath, and N. Ramakrishnan, “Extracting Temporal Signatures for Comprehending Systems Biology Models”, presented (by N. Ramakrishnan) at the 16th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD’10), Washington DC, U.S.A. July 2010.
- J.A. De Vera, M.V. Gonzalez, and J.P. Vergara, “Web-based Business Game Engine Using a Cross-Impact Matrix”, presented (by J.A. De Vera) at the International Simulation and Gaming Association (ISAGA 2009) 40th Annual Conference, Singapore, July 2009.
- J.P. Vergara, “Automated Image Analysis for Microarray Experiments”, presented at the 1st Annual Bioinformatics Conference and NIMBUS Convention, IRRI, Los Banos, Philippines, October 2004.
- J.P. Vergara, “Sorting By Short Swaps”, presented at the DLSU Computing Conference 1999, De La Salle University, December 1999.
- J.P. Vergara, “Computational Problems and Algorithms in Molecular Biology”, presented at MODEL ’99—Workshop and Conference on Modeling, Simulation, and Scientific Computing, Ateneo De Manila University, November 1999.
- J.P. Vergara, “Edge-packing Planar Graphs by Cyclic Graphs”, presented at the Eighth SIAM Conference on Discrete Mathematics, Johns Hopkins University, June 1996.
- J.P. Vergara, “Sorting by Bounded Block-moves”, presented at the Computational Biology Conference to honor the 50th Anniversary of ENIAC, Princeton University, May 1996.
- S.A. Guyer, L.S. Heath, and J.P. Vergara, “Subsequence and Run Heuristics for Sorting by Transpositions”, presented at the Fourth DIMACS Algorithm Implementation Challenge, Rutgers University, August 1995.
- A.D. Del Rosario and J.P. Vergara, “A PC-Based Text Retrieval System”, presented (by A. D. Del Rosario) at the South East Asian Regional Computer Conference, Bali, Indonesia, December 1991.

LECTURES AND TALKS GIVEN

- “Computation and Intelligence”, presented at the Department of Computer and Information Sciences, Fordham University, September 2022
- “Open Data in the Academic Sector”, presented at the 14th National Convention in Statistics, Crowne Plaza, Quezon City, October 2019.
- “The Power of Data”, presented at AI Training and Proposal Workshop (organized by the Department of Science and Technology), The Bellevue Manila, September 2019.

- “Using Order Based Machine Learning Algorithms for the Classification and Characterization of Malware”, presented at the Department of Computer and Information Sciences, Fordham University July 2015.
- “NP-Completeness and Nondeterministic Polynomial Computation”, presented at the 13th Philippine Computing Science Congress (PCSC 2013), Ateneo de Manila University, March 2013.
- “Recent Developments on the Problem of Sorting by Short Rearrangements”, presented at the UP-ADMU CS Theory and Bioinformatics Seminar, Ateneo de Manila University, March 2012.
- “Modeling Linear Orders with Partial Orders: Applications”, presented at the Workshop on Mining Orders from Linear Orders and Chains, Ateneo de Manila University, November 2009.
- “Poset Cover Problems: Modeling Linear Orders with Partial Orders”, presented at the 4th Symposium on the Mathematical Aspects of Computer Science (SMACS 2008), University of the Philippines-Cebu Colleges, August 2008.
- “Research and Innovation: Data Mining Research”, presented at the Trend-Micro eCamp 2008, Legenda Hotel, Subic Bay, July 2008.
- “Monte Carlo Simulation”, presented at the Seminar-Workshop in Computational Finance, Ateneo de Manila University, December 2007.
- “On Linear Extensions of Posets”, presented at the Algorithms and Combinatorics Conference 2006, Ateneo de Manila University, April 2006.
- “Graph Algorithms and Computational Biology”, presented at the Philippine Science High School Foundation Week, PSHS, September 2005.
- “Bioinformatics from the Computational Point of View”, presented at the 24th NAST Annual Scientific Meeting, Manila Hotel, Manila, July 2002.
- “Bioinformatics”, presented at the Science Information Forum of the National Academy of Science and Technology, Ateneo de Manila University, September 2001
- “Introduction to Bioinformatics”, presented at special seminars in Ateneo De Manila University and University of the Philippines, February 2001
- “Genetic Algorithms”, presented at the Seminar on High Performance Scientific Computing, Ateneo De Manila University, September 2000.
- “A Practical Approach to Designing and Implementing Object-Oriented Applications”, presented at a seminar conducted by PSSI, Heritage Hotel, Manila, March 1999.
- “Mathematics in Computer Science”, presented at the Mathematics Teachers Association of the Philippines-DECS NCR Convention and Seminar-Workshop, Stella Maris College, October 1998.
- “Developing Windows-based and Web Solutions in Java”, presented at Microsoft Developer Days '98, Dusit Hotel, Makati City, September 1998
- “Linking IT Education with Industry and the World of Work”, presented at the Bikol Foundation for Higher Education Annual General Assembly, Colegio de Santa Isabel, Naga City, August 1998
- “Strategies for IT Curriculum Development”, presented at the PSITE First Monthly Membership Meeting, ACEED Conference Center, Makati City, April 1998.
- “Freshman Java: Incorporating Object Technology in Undergraduate Computer Science Curricula”, presented at the 9th Information Technology Week, University of the East, February 1998.
- “How Far are Humans from Mice—Unraveling the Tangles of Evolution”, presented at the Virginia Tech CS Seminar Series, Virginia Tech, April 1996.

CONSULTING ENGAGEMENTS

- Co-Founder and Chief Analytics/Technology Officer, Cobena Business Analytics and Strategy Inc.
April 2016 to December 2021
 - Co-founded this startup which grew to be a leading Data Science and Analytics firm in the country
 - Provided technical leadership and direction for the firm's Data Science and Analytics projects
- Consultant, DANATEQ Philippines, Inc.
December 2013 to February 2014
 - Assisted the firm in the formulation, analysis, and research of various problems involving data analytics
- Consultant, CARANA Corporation/Bureau of Internal Revenue (BIR)
September 2008
 - Managed the implementation of a Performance Management Information System for BIR Offices
- Consultant, CARANA Corporation/Bureau of Internal Revenue (BIR)
June 2008 to August 2008
 - Managed the development of a zonal value encoding system (systems developed in PERL and Visual Basic for Microsoft Excel and Access)
- Consultant, CARANA Corporation/Bureau of Internal Revenue (BIR)
January 2008
 - Assisted the BIR in the process reengineering of filing and payment processes
- Consultant, CyberSoft Data Networks Inc.
July 2007 to October 2007
 - Managed the development of an image analysis program (in C) for detecting ads in yellow pages
- Lead Consultant, Economic Policy Reform and Advocacy (EPRA) /
Bureau of Internal Revenue (BIR)
June 2007 to November 2007
 - Assisted the BIR in the process reengineering of filing and payment processes
- Consultant/Subject Specialist for Information Technology, EPRA / BIR
January 2007 to July 2007
 - Provided technical oversight and review on ICT projects
- Consultant, CARANA Corporation / Bureau of Customs (BOC)
March 2007 to May 2007
 - Developed a rewards framework for performance management for the BOC
- Consultant/Team Leader, AIM SRF / Land Transportation Office (LTO)
April 2006 to October 2006
 - Assisted the LTO in the process reengineering of vehicle registration transactions
- Consultant/Systems Integrator, CARANA Corporation / Bureau of Internal Revenue (BIR)
April 2006 to June 2006
September 2006 to present
 - Managed the design and development of an information system for performance management for the BIR
 - Developed a rewards framework for performance management
- Consultant, INQ7 Interactive Inc
August 2005 to November 2005
 - Managed the development of web-based modules for the administration of content (stocks, currencies, weather, ads, and polls) for inq7.net.

- Consultant/Systems Integrator, CARANA Corporation / Bureau of Internal Revenue (BIR)
April 2005 to October 2005
 - Managed the design and development of an information system for performance management in the Large Taxpayer Service of the BIR
 - Developed a rewards framework for performance management
 - Served as officer-in-charge of the performance management system project
- Consultant, Change Consultants, Inc. / National Anti-Poverty Commission (NAPC)
May 2003 to June 2003
 - Assisted the National Anti-Poverty Commission in the reengineering of its processes
- Consultant/Systems Integrator, Development Alternatives, Inc. / Bureau of Internal Revenue
November 2001 to May 2003
 - Assisted the BIR in the reengineering of its tax administration processes
 - Assisted the Commissioner and the BIR in the evaluation of IT-related projects
- Research and Development Consultant, Pygmalion Software Corporation
June 1997 to May 2003
 - Developed Application Program Generators (in C and Java) for Informix-NewEra, Microsoft Visual Foxpro, and Oracle, for a Fund Management System
 - Conducted Research and Presentations on Business Processing Models Using INCOME Software
- Systems Consultant, Financial Software Technologies / Bureau of Treasury
February 2000 - April 2000
 - Designed and developed a Bid Server Interface (in Java)
- Systems Consultant, SmithKline Beecham Philippines
March 2000
 - Designed and developed a Budget Management System
- Systems Consultant, Marketing Group, BPI Family Bank
August 1997 to December 1999
 - Designed and developed a Budget Management System
 - Designed and developed several Customer Monitoring Systems
- Systems Consultant, Financial Software Technologies, Inc.
April 1999
 - Developed a Report Formatter for Stock Certificate Printing (in Informix 4-GL)
- Systems Consultant, Searle
May 1998
 - Developed an interactive Question-and-Answer Computer Game (in Java)
- Consultant/Lecturer, American International Underwriters Corporation---RDC
January 1997
 - Conducted Training on "Object-Oriented Systems Development"
- Consultant/Lecturer, AxSys Philippines Inc.
August 1996
 - Conducted Training on "Relational Database Design"
- Systems Consultant, Pygmalion Software Corporation
May 1995 to August 1995
 - Developed Menu and Report Program Generators (in C) for Informix-4GL
- Consultant/Lecturer, AxSys Philippines Inc.
August 1995
 - Conducted Training on "Object-Oriented Systems Development"

- Consultant/Lecturer, Strategic Partners International
June 1995
 - Conducted Training on “Object-Oriented Database Design”
- Systems Consultant, Sara Lee Philippines Inc.
July 1993 to August 1993
 - Developed a Menu System and a Menu Generator (in C) for Progress-4GL
- Systems Consultant, RCT International (Chicago, Illinois, U.S.A.)
June 1992 to August 1993
 - Conducted a system study and managed a team that developed a prototype for a Travel Consolidation System (in Progress-4GL)
- Systems Consultant, United Automation/San Miguel Corporation
June 1991 to December 1993
 - Designed and developed a Stock Transfer System (in Informix-4GL)
- Systems Consultant, La Campana Fabrica de Tobaccos
November 1991 to March 1992
 - Conducted a system study for the company’s Manufacturing, Sales, and Marketing Departments
- Systems Consultant, Fasttrack - Consumer Access Technology
December 1991 to August 1994
 - Designed and developed several Consumer Monitoring Systems

MEMBERSHIPS IN CORPORATIONS AND ORGANIZATIONS

- Member, Board of Directors, Cobena Business Analytics and Strategy Inc.
- Member, Board of Directors, Human Capital Asia
- Member, Board of Trustees, Parish Pastoral Council for Responsible Voting (PPCRV)
- Member, Outstanding Young Scientists, Inc.
- Member, Computer Science Honor Society (Upsilon Pi Epsilon), Virginia Tech Chapter.

MISCELLANEOUS

- Member, Technical Working Group for Graduate Education, Commission on Higher Education (CHED), Philippines
- Member, Technical Panel for Information Technology Education, Commission on Higher Education (CHED), Philippines
- Member, Information and Communications Technology Technical Panel, Philippine Council for Industry, Energy, and Emerging Technology Research and Development, Department of Science and Technology (DOST), Philippines
- Referee for the following journals:
 - Algorithms for Molecular Biology
 - Discrete Applied Mathematics
 - Information Processing Letters
 - International Journal of Foundations of Computer Science
 - Journal of Algorithms
 - Journal of Bioinformatics and Computational Biology
 - Journal of Parallel and Distributed Computing
 - Journal of Theoretical Computer Science
 - Philippine Computing Journal
 - PLoS One
 - SciEnggJ