

Curriculum Vitae

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Dimitris Papamichail

Assistant Professor

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Research Interests

Bioinformatics, algorithms and data structures, optimization, decision support systems.

Education

Ph.D. Computer Science, SUNY at Stony Brook, USA, 8/02-8/07

M.S. Computer Science, University of Arizona, USA, 8/96-5/98

B.E. Computer Engineering and Informatics, University of Patras, Greece, 9/91-6/96

Work Experience

- Assistant Professor, Department of Computer Science, University of Miami, 8/07 - date
- Research Assistant, Brookhaven National Laboratory, Upton, USA, 10/04 - 8/07
- Research Assistant, Computer Science department, SUNY at Stony Brook, Stony Brook, USA, 9/03 - 8/07
- Teaching Assistant, Computer Science department, SUNY at Stony Brook, Stony Brook, USA, 8/02 - 7/03
- Computer Programmer, Division of Research and Informatics, Greek Army, Greece, 9/00 - 3/02
- Site Engineer, Modular Mining Systems Inc., Tucson, Arizona, USA, 8/98 - 4/00
- Teaching assistant, Computer Science department, University of Arizona, Arizona, USA, 8/97 - 5/98
- Programmer, Lunar and Planetary Laboratory, University of Arizona, Tucson, Arizona, USA, 1/97 - 6/97
- Programmer, National Electric Company of Greece, Athens, Greece, 6/94 - 8/94
- Systems Operator, Computer Institute of Technology, Patras, Greece, 6/92 - 9/93

Awards/Distinctions

- University of Miami Faculty Learning Community (FLC) Fellow, 2010.
- Best paper award, Graduate Research Conference 2004, Computer Science Dept. SUNY at Stony Brook.
- Scholarship and state fellowship awarded by the Department of Computer Science of the SUNY at Stony Brook for the academic year 2002-2003.

- Academic merit tuition waiver awarded by the Department of Computer Science of the University of Arizona for the first year of the master degree.
- Entered the top engineering and science department in Greece. Ranked in the top 100 among more than 40,000 candidates for the Entrance Exams.

Publications in Journals

1. J. R. Coleman, D. Papamichail, M. Yano, L. Pirofski, **Designed control of bacterial protein expression via synthetic changes in codon-pair bias**, submitted.
2. S. Mueller, J. R. Coleman, D. Papamichail, B. Futcher, S. Skiena and E. Wimmer, **Live Attenuated Influenza Vaccines by Computer-Aided Rational Design**, *Nature Biotechnology*, to appear.
3. C. Tryfonas, D. Papamichail, A. Mehler and S. Skiena, **Call admission control algorithm for pre-stored VBR video streams**, *Journal of Multimedia*, Vol. 4 (4), pp. 169-181, August 2009.
4. D. Papamichail and G. Papamichail, **Improved algorithms for approximate string matching**, *BMC Bioinformatics*, Vol. 10 (Suppl. 1):S10, January 2009.
5. J. R. Coleman, D. Papamichail, S. Skiena, B. Futcher, E. Wimmer and S. Mueller, **Virus attenuation by genome-scale changes in codon-pair bias: a novel method for developing viral vaccines**, *Science*, Vol. 320, no. 5884, pp. 1784 - 1787, 27 June 2008.
 - Featured in *News of the Week*: **VIROLOGY: 'Biased' Viruses Suggest New Vaccine Strategy for Polio and Other Diseases**, *Science*, Vol. 320, 1709, 27 June 2008.
 - Featured in Nature Reviews: **Silent mutations cause a stir**, *Nature Reviews Microbiology* 6, 574-575, August 2008
 - Covered by *Reuters*: **Fake virus could make safe New Vaccines** and picked up by *Scientific American*, *Yahoo News*, *AOL News*, *News Daily*, *National Post*, *ABC News*, *MSNBC*, *Comcast*, *Impact Lab*, and many other newscasters around the globe.
 - Also featured in *NewsWise*: **Team Designs customized 'Wimpy' Polioviruses - A New Path to Vaccines?** and picked up by *ScienceDaily*, *ScienceCentric* and others.
 - Featured in *ScienceNews*: **Viruses rewritten**.
6. C. C. Lesaulnier, D. Papamichail, S. McCorkle, S. Skiena, B. Ollivier, S. Taghavi, D. Zak and D. Van Der Lelie, **Elevated CO₂ Affects Soil Microbial Diversity Associated with Trembling Aspen**, *Environmental Microbiology*, Vol. 10 (4), 926-941, April 2008.
7. S. Mueller, D. Papamichail, J.R. Coleman, S. Skiena and E. Wimmer, **Reduction of the rate of poliovirus protein synthesis through large scale codon deoptimization causes virus attenuation of viral virulence**, *Journal of Virology*, Vol. 80, No. 19, pp. 9687-9696, October 2006.
 - In the press: Aldhous, P. **'Alien code' leads to faster vaccines**, *New Scientist*, June 3, 2006
8. B. Wang, D. Papamichail, S. Mueller, and S. Skiena, **Two Proteins for the Price of One: The Design of Maximally Compressed Coding Sequences**, *Natural Computing*, Vol. 6 (4), 359-370, December 2007.
9. D. Papamichail and N. Delihias, **Outer membrane protein genes and their small non-coding RNA regulator genes in *Photobacterium luminescens***, *Biology Direct* 2006, 1:12

10. G. Papamichail and D. Papamichail, **The k-means range algorithm for personalized data clustering in e-Commerce**, *European Journal of Operational Research*, Vol. 177 (3), pp.1400-1408, March 2007
11. G. Papamichail and D. Papamichail, **Personalized Trust Management in Decision Making: A dynamic clustering approach**, *Journal of Computing and Information Technology*, Vol 12 (1), 47-53, 2004.
12. G. Papamichail and D. Papamichail, **Towards using computational methods for real-time negotiations in electronic commerce**. *European Journal of Operational Research*, Vol 145 (2), pp. 3-9, March, 2003.

Publications in books

13. D. Papamichail, J.R. Coleman, S. Mueller, **Virus Attenuation by Genome-Scale Changes in Codon Pair Bias**, in Gene Synthesis: Methods and Protocols, *Methods in Molecular Biology*, Springer, to appear.
14. **Synthetic Biology: Synthesis and Modification of a Chemical Called Poliovirus** (with S. Mueller, J. Coleman, J. Cello, A. Paul, S. Skiena and E. Wimmer), *Future Trends in Microelectronics: The Nano, the Giga, the Ultra, and the Bio*, Wiley Interscience, 2007.

Publications in Conferences with Proceedings

15. D. Papamichail, C. C. Lesaulnier, S. Skiena, S. McCorkle, B. Ollivier, S. Taghavi and D. van der Lelie, **Towards a Taxonomical Consensus: Diversity and Richness Inference from Large Scale rDNA Analysis**, submitted.
16. D. Papamichail, G. Papamichail, **Improved Algorithms for Approximate String Matching**, *7th Asian-Pasific Bioinformatics Conference (APBC 2009)*, Beijing, China, 13-16 January 2009.
17. D. Papamichail, S. McCorkle, D. van der Lelie, and S. Skiena, **Bacterial Population Assay via k-mer Analysis**. *Third Asia-Pacific Bioinformatics Conference (APBC 2005)*, Singapore, January 17-21, 2005. *Series on Advances in Bioinformatics and Computational Biology 1* (2005) 299-308.
18. B. Wang, D. Papamichail, S. Mueller, and S. Skiena, **Two Proteins for the Price of One: The Design of Maximally Compressed Coding Sequences**, *11th International Meeting on DNA Computing (DNA11)*, June 6-9, 2005. *Lecture Notes in Computer Science 2006*, Vol. 3892, pp. 387-398.
19. G. Papamichail and D. Papamichail, **Real-Time Concept Creation in distributed e-learning systems**. *3rd IASTED Conference on Web-Based Education*, Innsbruck, Austria, 16-18 February, 2004.
20. G. Papamichail and D. Papamichail, **Supporting small groups in distributed cooperative reasoning tasks**. *Proceedings of the European Conference on Intelligent Management Systems in Operations*, Salford, England, March 25-27, 1997.
21. G. Papamichail and D. Papamichail, **Application of the 'cross' rectangle intersection method in negotiation decision making**. *Proceedings of the European-Hellenic Conference on Mathematics and Informatics*, Athens University of Economics and Business, 630-635, September 1996.
22. G. Papamichail and D. Papamichail, **An experimental investigation of the impact of mediated group memory on collaborative Small Group Decision Making**. *Proceedings of the 7th meeting of the European Working Group on Decision Support Systems*, 89-102, Ispra, Italy, 6-8 June, 1996.

Publications in Conferences with Abstracts

23. D. Papamichail, **Design Tools and Algorithms for Synthetic Biology**, *2010 CMOS Emerging Technologies Workshop*, Whistler, BC, Canada, May 19-21, 2010.
24. D. Papamichail and S. Skiena, **Design Tools for Synthetic Virology**, *First International Workshop on Bio-Design Automation (IWBDA 2009)*, San Francisco, June 27, 2009.
25. S. Mueller, J. R. Coleman, D. Papamichail, S. Skiena, B. Futcher and E. Wimmer, **Whole Viral Genome Synthesis in Synthetic Biology**, *4th International Meeting on Synthetic Biology (SB 4.0)*, Hong Kong, October 10-12, 2008.
26. G. Papamichail and D. Papamichail, **SOCRATES: A methodology for translating group decision making needs into groupware products**. *International Joint Conference of the European Operational Research Society and the INFORMS 'EURO XV – INFORMS XXXIV'*, Barcelona, July 14-17, 1997.
27. G. Papamichail and D. Papamichail, **Intelligent Facilitation in Small Group Decision making: Experience from the lab**. *International Informis Conference 'managing Services in the next millennium'*, San Diego, USA, May 4-7, 1997.
28. G. Papamichail and D. Papamichail, **Distributed group decision support: An experiment with small groups carrying out Business Process Reengineering tasks**. *7th Mini Euro Conference*: Bruges, Belgium, March 24-27, 1997.
29. G. Papamichail and D. Papamichail, **Knowledge effects of the impact of mediated group memory on Group Decision Making**. *Euroconference on Management Information Systems*, Porto, Portugal, September, 1996.

Posters

30. V. Patsalo, D. Papamichail, S. Skiena, and D. Green, **Designing the World's Shortest Gene**. *Synthetic Biology 4.0*, Hong Kong, October 10-12, 2008.
31. V. Patsalo, D. Papamichail, S. Skiena and D. Green, **Design and Synthesis of Minimal and Persistent Protein Complexes**, *Chemistry Research Day 2007*, SUNY at Stony Brook.
32. D. Papamichail, C. C. Lesaulnier, S. McCorkle, S. Skiena, B. Ollivier and D. van der Lelie, **Computational Limitations Associated with Large DNA Datasets for Comparative Community Profiling**, *Computational Biology Workshop 2006*, SUNY at Stony Brook.
33. C. C. Lesaulnier, D. Papamichail, S. McCorkle, D. Zak, B. Ollivier, S. Skiena, S. Taghavi and D. van der Lelie, **Population Dynamics in the Rhizosphere: How Elevated CO₂ Transforms Microbial Community Composition**, *American Society for Microbiology (ASM) 106th General Meeting* 2006.
34. C. C. Lesaulnier, D. Papamichail, S. McCorkle, B. Ollivier, S. Taghavi, S. Skiena and D. van der Lelie, **Phylogenetic Identification of the Rhizosphere of Poplar: Effects of Elevated CO₂ on Microbial Community Composition**, *American Society for Microbiology (ASM) 105th General Meeting* 2005.

Thesis

35. **Analysis and Design of Genomic Sequences** (Doctoral Dissertation), advisor: Steven S. Skiena, Department of Computer Science, Stony Brook University, Stony Brook, NY, August 2007

Professional Activities

- Reviewer for the journals *Bioinformatics*, *In Silico Biology*, *Bioinformatics and Biological Insights* and *INFORMS Journal on Computing*.
- Book reviewer for *Choice – Current Reviews for Academic Libraries*, in the algorithms and bioinformatics fields.
- Member of *bioinformatics.org*.

Talks and presentations

- “Design Tools and Algorithms for Synthetic Biology”, 2010 CMOS Emerging Technologies Workshop, Whistler, BC, Canada, May 19-21, 2010.
- “Design Tools for Synthetic Virology”, First International Workshop on Bio-Design Automation (IWBD 2009), San Francisco, USA, June 27, 2009.
- “Analysis and Design of Genomic Sequences”, Computer Science Department, Athens University of Economics and Business, Athens, Greece, July 2, 2009.
- “Improved Algorithms for Approximate String Matching”, 7th Asian-Pacific Bioinformatics Conference (APBC 2009), Beijing, China, January 15, 2009.
- “Networks in Genomic Sequence Design”, UM Symposium on Networks, University of Miami, Miami, USA, October 11, 2008.
- “Design and Classification of Genetic Sequences”, Biomedical Research Foundation of the Academy of Athens, Athens, Greece, June 20, 2008.
- “Opportunities at the borders of Biology, Computer Science and Mathematics”, Computer Science Department, University of Miami, Miami, USA, November 28, 2007.
- “Analysis and Design of Genomic Sequences”, Computer Science Department, University of Texas at San Antonio, San Antonio, Texas, USA, April 3, 2007.
- “Analysis and Design of Genomic Sequences”, Ohio St. Jude’s Medical Center, Columbus, Ohio, USA, March 26, 2007.
- “Analysis and Design of Genomic Sequences”, Computer Science Department, University of Miami, Miami, Florida, USA, March 19, 2007.
- “Analysis and Design of Genomic Sequences”, College of Information Science and Technology, Peter Kiewit Institute, Omaha, Nebraska, USA, January 31, 2007.
- “Bacterial Population Assay via k-mer Analysis”, Asia-Pacific Bioinformatics Conference 2005, Singapore, January 20, 2005.
- “Short sequence distribution statistics for bacterial identification in homogeneous and mixed samples”, Graduate Research Conference 2004, Computer Science Department, SUNY at Stony Brook, May 7, 2004.

Grants

- PI for the grant: “Tools and Algorithms for Synthetic Genome Design”, DOE Early Career Research Program, Exploratory Innovations in Biomedical Computational Science and Technology (R21), NIH, 02/01/2011- 01/31/2013, \$260,500 (submitted).
- PI for the grant “Genetic Sequence characterization and clustering using oligonucleotide distribution classification”, General Research Support Awards, University of Miami, 02/06/2008-01/06/2009, \$6,009.
- Participated in the creation and listed as supporting personnel in the grant: “Synthetic Viral Genome Design for Rapid Vaccine Development” (PI: E. Wimmer, co-PI: S. Skiena), NIH, 4/1/08-3/31/13, \$2,867,678.

Patents

Attenuated viruses useful for vaccines (with Wimmer E., Skiena S., Mueller S., Futcher B. and Coleman R.), submitted to US patent office in March 2008.

Teaching Experience

- Scientific Computing, Spring/Fall 2009, Spring 2010.
- Bioinformatics Algorithms, Fall 2008/2009.
- Software Engineering, Spring 2008/2009/2010.
- Bioinformatics, Fall 2007

Thesis and Dissertation Advising/Post-Doctoral student supervision

- Dissertation committee member of Zhouyi Xu.
- Dissertation committee member of Indika Kuruppu Appuhamilage.

University Committee and Administrative Responsibilities

- Member of the Parking Appeals Committee.
- Member of the Admissions and Academic Standards Committee.
- Advisor of the University of Miami Table Tennis club.
- UM Citizens Board Research & Creativity Forum (RCF) judge, 2008/2009/2010.

Extracurricular activities

- Member of the Archimedean Academy Board of Directors since August 2009.
- Served for two academic years as the president of the Graduate Table Tennis club of Stony Brook. In Fall 2006 I organized the 1st SUNY at Stony Brook campus wide table tennis tournament, the finalists of which formed the teams that competed in the NYC division of NCTTA. I secured funding for both the enrolment to NCTTA and our tournament trips. I was the intramural singles champion in the University of Miami in 2007, won 1st position in doubles at the FIU tournament in Fall 2007 and 1st position in faculty singles at the Barry University tournament in Spring 2009.
- Studied classical guitar since the age of 9. Acquired the classical guitar degree in Greece on January 1996. Performed in numerous concerts, including three in Stony Brook, for the Adult Chamber Music Workshop, accompanying flute and soprano soloists.

References

Available upon request.