

Nicholas D Pattengale, Ph.D.

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Sandia National Laboratories
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OBJECTIVE To obtain a position in advanced software development or algorithm design requiring ingenuity, problem solving skills, and team development experience.

RESEARCH AND EXPERIENCE **Senior Member of the Technical Staff, Computational Biology and Information Systems Analysis** **Sandia National Laboratories Albuquerque, NM**

Aug 2002-Present Algorithm design and implementation for large-scale informatics problems. Advanced research and development in computer security. Principal Investigator, project lead, developer.

Staff Programmer **Los Alamos National Laboratory Los Alamos, NM**

Jan-July 2002 Worked on adaptive control systems and diagnostic visualization tools for the Spallation Neutron Source (SNS) Accelerator in Oak Ridge Tennessee.

Summer 2000 Wrote a tool for managing archived control systems data. Also wrote an extension to a stripchart package to support viewing "historical" data.

Software Engineer, Interferometry Systems **Jet Propulsion Laboratory Pasadena, CA**

Summer 2001 Wrote a library for the facilitation of control systems design to be used in projects such as the Keck Interferometer and the Terrestrial Planet Finder.

Owner **Hidden Semantics Software Socorro, NM**

Jan-Dec 2001 Operated a sole-proprietorship consulting firm specializing in odd-job programming.

EDUCATION Ph.D., Computer Science, May 2010
Dissertation granted distinction (top 5-10%)
University of New Mexico, Albuquerque, NM

M.S., Computer Science, May 2005
Thesis granted distinction (top 5-10%)
University of New Mexico, Albuquerque, NM

B.S., Computer Science, December 2001
New Mexico Institute of Mining and Technology, Socorro, NM

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JOURNAL ARTICLES	N.D. Pattengale, A.J. Aberer, K.M. Swenson, B.M.E. Moret, "Uncovering Hidden Phylogenetic Consensus in Large Datasets" <i>IEEE/ACM Transactions on Computational Biology and Bioinformatics</i>, accepted A. Aberer, N.D. Pattengale, A. Stamatakis, "Parallelized phylogenetic post-analysis on multi-core architectures" <i>Journal of Computational Science</i>, June 2010 N.D. Pattengale, M. Alipour, O.R.P. Bininda-Emonds, B.M.E. Moret, A. Stamatakis, "How many bootstrap replicates are necessary?" <i>Journal of Computational Biology</i>, April 2010 N.D. Pattengale, E.J. Gottlieb, B.M.E. Moret, "Efficiently Computing the Robinson-Foulds Metric" <i>Journal of Computational Biology</i>, June 2007
REFEREED CONFERENCE PROCEEDINGS	A. Aberer, N.D. Pattengale, A. Stamatakis, "Parallel computation of phylogenetic consensus trees" <i>10th International Conference on Computational Science ICCS'10</i>, May 2010 N.D. Pattengale, K.M. Swenson, B.M.E. Moret, "Uncovering hidden phylogenetic consensus", <i>6th International Symposium on Bioinformatics Research and Applications ISBRA'10</i>, May 2010 N.D. Pattengale, M. Alipour, O.R.P. Bininda-Emonds, B.M.E. Moret, A. Stamatakis, "How many bootstrap replicates are necessary?" <i>13th International Conference on Research in Computational Molecular Biology RECOMB'09</i>, May 2007 N.D. Pattengale, B.M.E. Moret, "A Sublinear-Time Randomized Approximation Scheme for the Robinson-Foulds Metric" <i>10th International Conference on Research in Computational Molecular Biology RECOMB'06</i>, April 2006 K.M. Swenson, N.D. Pattengale, and B.M.E. Moret, "A Framework for Orthology Assignment from Gene Rearrangement Data," <i>Proc. 3rd RECOMB Workshop on Comparative Genomics RECOMBCG'05</i>, September 2005
TECHNICAL REPORTS	N.D. Pattengale "Efficient Algorithms for Phylogenetic Post-Analysis" <i>Ph.D. Dissertation, University of New Mexico</i>, May 2010 N.D. Pattengale "Phylogenetic Postprocessing" <i>Master's Thesis, University of New Mexico</i>, May 2005 N.D. Pattengale "Transactional Semantics" <i>Num. CLIP3/04.0, 24 pages, Technical University of Madrid (UPM)</i> February 2004 N.D. Pattengale, C.K. Allen "The Software Anatomy of a Flexible Accelerator Simulation Engine" <i>LANL Technical Report 2002</i>, July 2002 C.K. Allen, N.D. Pattengale "Simulation of Bunched Beams with Ellipsoidal Symmetry and Linear Space Charge Effects" <i>LANL Technical Report 2002</i>, July 2002

(REFEREED)
POSTERS

N.D. Pattengale, K.M. Swenson, M.M. Morin, B.M.E. Moret, “Higher Fidelity Subtree Merging for Disk-Covering Methods” (poster and extended abstract) *Algorithmic Biology* November 2006

N.D. Pattengale, B.M.E. Moret, “Phylogenetic Postprocessing” (poster) *4th IEEE Computational Systems Bioinformatics CSB2005*, August 2005

K.M. Swenson, N.D. Pattengale, B.M.E. Moret, “Identifying orthologs: The cycle-splitting problem on the breakpoint graph” (poster) *4th IEEE Computational Systems Bioinformatics CSB2005*, August 2005

N.D. Pattengale, B.M.E. Moret, “Algorithmic Decomposition of Most Parsimonious Sets” (poster) *2004 Mt. Baldy Conference on Geometry, Algebra, and Phylogenetic Trees*, October 2004

C. Chu, J. Galambos, W.D. Klotz, T.A. Pelaia, A. Shishlo, D. Ottavio, C.K. Allen, C.A. McChesney, N. Pattengale, “Application Programming Structure and Physics Applications” (poster) *Particle Accelerator Conference PAC2003*, May 2003

C.K. Allen, C.A. McChesney, C. Chu, J. Galambos, T.A. Pelaia, A. Shishlo, W.D. Klotz, N.D. Pattengale, “A Modular On-line Simulator for Model Reference Control of Charged Particle Beams” (poster) *Particle Accelerator Conference PAC2003*, May 2003

J. Galambos, C.M. Chu, T.A. Pelaia, A. Shishlo, C. Allen, N. Pattengale “SNS Application Programming Environment” (poster) *8th European Accelerator Conference EPAC2002*, June 2002

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SPECIAL SKILLS

- Algorithm Design and Experimentation (incl. advanced techniques such as approximation algorithms)
- Distributed Algorithms and Protocols, Cryptography, Networking
- Languages: Python, Java, C/C++/C#, Matlab, Common Lisp, Ciao Prolog
- Development Target Environments: Linux, Windows, vxWorks, RTLinux, Solaris
- UML modeling, Agile Development
- Web (App) Programming with PHP, GWT, JSP, AJAX
- Oracle PL/SQL, MySQL SQL
- Verilog, AHDL (Altera)
- Project leadership, scoping research to deliver on time and budget

PERSONAL AND NOTABLE

- Winner of 2010 QForma Best Thesis or Dissertation involving computation from the UNM School of Engineering, Academic Year 2009-2010
- Winner of 2006 UNM Award for Innovation in Informatics
- Winner of 2001 IBM Linux Scholar Challenge
 - Details: 1 of 25 winners worldwide (1 of 6 nationally) out of 1400 entries from 700 universities (<http://ideasys.sourceforge.net>)
- Member of International ACM (Association for Computing Machinery)
- Member of Sidewalk Astronomers (Builds Telescopes by Hand)
- Classical Musician (Cello) for 26 years
- Programming Contest Participant (ACM in college and www.topcoder.com now)

SERVICE

- Reviewer, Pacific Symposium on Biocomputing 2010
- Publicity Chair, 4th Annual Computer Science Student Conference, University of New Mexico, March 2008
- Publicity Chair, 3rd Annual Computer Science Student Conference, University of New Mexico, March 2007
- Publicity Chair, 2nd Annual Computer Science Student Conference, University of New Mexico, March 2006
- Reviewer, Parallel Computing, Elsevier Publishing