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Education:

- University of New Mexico, Albuquerque, M.S. (1993) Computer Science.
- University of Southern Colorado, Pueblo, B.S. (1987) Computer Science Technology.
- University of Colorado, Boulder, additional classes in Molecular Biology, Organic Chemistry, Biochemistry, and Physical Chemistry for further understanding of application areas.

Experience:

- 2010 – present: Support Engineer, Northwest Research Associates, Boulder, Colorado.
  Open-source software for time-distance inversions related to Helioseismology (C, Python).

- 2007 – 2009: Software Engineer, Digi-Data Corporation, Broomfield, Colorado.
  Web service for online data storage service (C#, relational database, PHP, JavaScript).

- 2003 – 2004: Consultant, Thermo BioStar, Louisville, Colorado.
  Software to control camera and platform for image analysis (Java).

- 1998 – 2000: Member Technical Staff, Lucent Technologies, Westminster, Colorado.
  System-level scheduling process (similar to cron) to start, stop, signal and monitor concurrent processes at regular time intervals using signals and interrupts (Java and C++).

- 1993 – 1998: Research Assistant, NeXstar Pharmaceuticals, Inc., Boulder, Colorado.
  Multiple sequence alignment using pattern recognition algorithms.
  Statistical secondary structure covariation analysis to find structural motifs in functionally related RNA and DNA sequences.
  3-D lattice model for predicting RNA structures given secondary structure constraints.
  Primer design for polymerase chain reaction (PCR) amplification of DNA pools.

- 1990 – 1993: Research Assistant, Santa Fe Institute, Albuquerque, New Mexico.
  Research in parallel and distributed algorithms and pattern recognition techniques by modeling the immune system with genetic algorithms and other function optimization techniques.

- Summer 1990: Intern, ARCO Oil and Gas, Plano, Texas.
  Expert systems and genetic algorithms for oil exploration.

Publications:

Leka, K.D., Barnes, G., Birch, A.C, Gonzales-Hernandez, I., Dunn, T., Javornik, B., Braun, D.C.: Helioseismology of Pre-emerging Active Regions. I. Overview, Data, and Target Selection Criteria. The Astrophysical Journal, Vol. 762, No. 2. (2013)

A. C. Birch, D. C. Braun, K. D. Leka, G. Barnes, and B. Javornik: Helioseismology of Pre-Emerging Active Regions. II. Average Emergence Properties. The Astrophysical Journal, Vol. 762, No. 2. (2013)

Timur Shtatland, Stanley C. Gill, Brenda E. Javornik, Hans E. Johansson, Britta S. Singer, Olke C. Uhlenbeck, Dominic A. Zichi and Larry Gold: Interactions of Escherichia coli RNA with bacteriophage MS2 coat protein: genomic SELEX. Nucleic Acids Research, Vol. 28, No. 21 e93 (2000)

J.P. Davis, N. Janjic, B.E. Javornik and D.A. Zichi: Identifying Consensus Patterns and Secondary Structure in SELEX Sequence Sets. Methods in Enzymology. Vol. 267, pages 302-315 (1996).

Stephanie Forrest, Robert E. Smith, Brenda Javornik, Alan S. Perelson: Using Genetic Algorithms to Explore Pattern Recognition in the Immune System. Evolutionary Computation 1(3): 191-211 (1993)

Patents:

U.S. Patent Number: 6,855,496 Truncation SELEX method February 15, 2005 Inventor(s) Nikos Pagratis (Boulder CO United States of America), Larry Gold (Boulder CO United States of America), Timur Shtatland (Boulder CO United States of America), Brenda Javornik (Boulder CO United States of America) U.S. Patent Number 6,261,774 Truncation selex method July 17, 2001