Stephen Winters-Hilt Resume

Contact Information:

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Professional Preparation:

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
California Institute of Technology	B.S..	1987	EE & Physics
California Institute of Technology	M.S.	1990	Applied Physics
Oxford		1994	1st-yr D.Phil in Math. Phys.
University of Wisconsin	Ph.D.	1997	Theoretical Physics
University of California	Ph.D.	2003	Comp Sci. & Bioinformatics

Positions and Employment:

2009-present, Assoc. Prof., Dept. of Computer Science, University of New Orleans, LA
2009-present, CSO (Co-Founder), Meta Logos Inc., Santa Cruz, CA & New Orleans, LA
2003-2009, Asst. Prof., Dept. of Computer Science, University of New Orleans, LA
2003-2009, Director, the Biophysics Lab, Children's Hospital, New Orleans, LA
1997-present, Sole Proprietor; Meta-Logos Systems; Santa Cruz, CA, New Orleans, LA
1997, Bioinformatics Programmer/Analyst; Neomorphic, Berkeley, CA

Synopsis of Expertise:

- Director of interdisciplinary research group with eight computer scientists/programmers and seven biochemists/physicists. Obtained over $2.4 Million in direct funds as an academic (over past 7 years), and over $350,000 in direct funds (over past 2 years) with a biotech start-up: Meta Logos.
- Created a machine learning software suite, for pattern recognition and signal analysis, using Perl/C in a distributed computational setting. I then extended the software suite to Perl/C/C++/Java in a distributed computational setting with the help of graduate student researchers. Graduate student degrees produced as thesis advisor: 3 PhD and 9 MS.
- Directly constructed nanopore devices used in experiments, so most of 2.4M and 350K grant funds (above) spent on researcher and technician salaries. Use of lasers was done to demonstrate some operational capabilities, for such nanopore detector experiments most of the equipment cost was in the lasers.

- Pattern recognition informed nanopore device operations were performed by the research group. The resulting cyberinfrastructure capability enables numerous nanopore detector enhancements for pattern recognition informed sampling and for drug discovery.
- 21 patents on topics in biophysics, machine learning, and signal analysis. Invented meta-HMM signal processing; Invented NTD Nanoscope. Co-founded Meta Logos Inc., a Machine Learning signal analysis and Nanoscope biomolecular analysis company in 2009. Meta logos obtained exclusive license to the “21-patent” IP in 2010.
- Expert with Hidden Markov Model (HMM), Support Vector Machine (SVM), and other machine learning methods. Expert with nanopore channel current analysis and gene-structure identification. Have ten years of publications in these areas dating back to PhD work with David Haussler at UCSC.
- Expert with mathematical physics, modeling, and signal analysis beginning with studies at Caltech (BS,MS), Oxford, and Univ. Wisconsin (PhD), with advisors Kip Thorne, Nick Woodhouse, Roger Penrose, Leonard Parker, John Friedman, and Nick Papastamatiou.
- Book Published in 2011: Machine-Learning based sequence analysis, bioinformatics & nanopore transduction detection”. ISBN: 978-1-257-64525-1**,** with expert reference material derived from prior peer-reviewed publications, and with student textbook material derived from an eight-course Machine-Learning/Cheminformatics Curriculum created during the period from 2003-2011.
- 49 publications; 21 Invited/Keynote speaking engagements; 71 presentations and co-presentations at professional meetings; President MCBIOS Bioinformatics Society 2006-2007. Extensive service as Journal and Grant reviewer as well, including Co-editor for five BMC Bioinformatics Proceedings.

Publication preprints are available at http://www.meta-logos.com. The titles indicated there can also be directly searched for the publications, since most publications are with open access journals.