Pranjal Vachaspati

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EDUCATION

University of Illinois — PhD in Computer Science
*Fall 2014 - **Spring 2019 (expected)*** — Urbana, IL
Developed high-performance, scalable, and accurate phylogenetic species tree estimation methods used for numerous biological analyses. Coursework focused on high-performance computing and algorithms.

MIT — B.S. in Physics
Class of 2014; 4.2 GPA — Cambridge, MA
Computer Science: Numerical Simulation, Computer Vision, Machine Learning, Computer Architecture, Complexity Theory
Physics: Solid State Physics, Junior Lab, Quantum Mechanics, Stat. Mechanics & Thermodynamics, Special Relativity, Electricity and Magnetism

PROFESSIONAL EXPERIENCE

University of Illinois at Urbana-Champaign — Fall 2014-Present
Research Assistant for Professor Tandy Warnow — Urbana, IL
- Designed and evaluated methods for phylogenetic species tree estimation in the presence of various sources of gene tree incongruence

MIT Center for Theoretical Physics — Fall 2012 - Summer 2014
Research Assistant for Professor Will Detmold — Cambridge, MA
- Developed lattice quantum chromodynamics simulations on CPUs and GPUs

Freelance & Internships — Ongoing
Software & Data Engineer
- Avatech Corp. (2014): Developed data processing methods to improve avalanche safety equipment
- Milliman, Inc. (2014): Analyzed machine learning techniques for insurance pricing and underwriting
- Oblong Industries (2012): Developed apps for gestural control of 3D spatial environments
- Discovery Engine (2011): Built infrastructure for web search and large-scale data manipulation, network filesystems, and compiler tools.
- Additional work experience with blockchain technologies, embedded development, and more

ADDITIONAL EXPERIENCE

Champaign County Board — Member
August 2018-Present — Champaign County, IL
- Member of a 22-member elected board governing a county with over 200,000 residents and a $130 million budget

***Jeopardy!* Champion**
2016-2017 — Culver City, CA
- Six-time champion and Tournament of Champions semi-finalist, with winnings of over $140,000

SKILLS

Languages: C++, C, Python, SQL, Javascript, CSS, HTML, Go, Mathematica, MATLAB, Java, Haskell, Lex, Yacc, LaTeX, English, Hindi
Tools: Pandas, Jupyter, Emacs, Git, Linux/Bash, GCC, GDB, GNU Make, Eclipse

See reverse for publications and awards

PUBLICATIONS

10. P. Vachaspati and T. Warnow. "SVDquest: Improving SVDquartets species tree estimation using exact optimization within a constrained search space". Molecular Phylogenetics and Evolution, 2018.
9. P. Vachaspati and T. Warnow. "Enhancing Searches for Optimal Trees Using SIESTA". RECOMB International Workshop on Comparative Genomics, 2017
8. S. Christensen, E. Molloy, P. Vachaspati, and T. Warnow. "Optimal Completion of Incomplete Gene Trees in Polynomial Time". 17th International Workshop on Algorithms for Bioinformatics (WABI) 2017.
7. B.M. Boyd, J.M. Allen, N.P. Nguyen, P. Vachaspati, Z.S. Quicksall, T. Warnow, L. Mugisha, K.P. Johnson, and D.L. Reed. "Primates, Lice, and Bacteria: Speciation and Genome Evoluition in the Symbionts of Hominid Lice". Molecular Biology and Evolution, 2017.
6. J.M. Allen, B. Boyd, N.P. Nguyen, P. Vachaspati, T. Warnow, D.I. Huang, P.G. Grady, K.C. Bell, Q.C. Cronk, L. Mugisha, and B.R. Pittendrigh. "Phylogenomics from Whole Genome Sequences Using aTRAM". Systematic biology, 2017. Vancouver
5. P. Vachaspati and T. Warnow. "FastRFS: Fast and accurate Robinson-Foulds Supertrees using constrained exact optimization", RECOMB-Comparative Genomics and Bioinformatics, 2016.
4. P. Vachaspati and T. Warnow. "ASTRID: Accurate Species TRees from Internode Distances", RECOMB-Comparative Genomics and BMC Genomics, 2015.
3. R. Davidson, P. Vachaspati, S. Mirarab, and T. Warnow. "Phylogenomic species tree estimation in the presence of incomplete lineage sorting and horizontal gene transfer", RECOMB-Comparative Genomics, and BMC Genomics, 2015.
2. P. Vachaspati, W. Detmold (2014). "Fast Evaluation of Multi-Hadron Correlation Functions". LATTICE 2014.
1. S. Li, P. Vachaspati, D. Sheng, N. Dural, M. V. Romalis. "Very large optical rotation generated by Rb vapor in a multi-pass cell". Phys. Rev. A 84, 061403(R) (2011)

AWARDS AND RECOGNITION

Graduate Research Fellowship 2016-2021
National Science Foundation Urbana, IL
Ira and Debra Cohen Fellow 2015-2016
UIUC College of Engineering Urbana, IL
Saburo Muroga Fellow 2015-2016
UIUC College of Engineering Urbana, IL
Roy J. Carver Fellow 2014-2015
UIUC College of Engineering Urbana, IL

Last Updated September 19, 2018.
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