Alexey N. Spiridonov

http://fb.me/lesha

Languages: English and Russian (fluent), Spanish and French (reading, basic conversation)

Career objectives

To solve quantitative, research-focused problems, improving human lives, technology, and knowledge.

To have freedom in selecting those problems and inventing solutions.

To work together with bright, motivated individuals who have similar goals.

Education

Ph.D., Applied Mathematics, Massachusetts Institute of Technology, GPA 5/5	2004–2009
A.B. with honors, Mathematics, Princeton University, GPA 3.8/4 Certificate (minor) in Computer Science	2000–2004

Employment

Consultant, Algynomics, Inc. Developed software for finding associations between multiple SNPs and phenotype. Analyzed a cohort of fibromyalgia patients and controls.	2008 part-time
Chief Engineer/Researcher, WorkSmart Labs, Inc. Built a product prototype for a fitness technology start-up. Developed sensor hardware for a stationary exercise bike. Designed and programmed a beautiful 3D game with one-of-a-kind gameplay to motivate the bike's user.	Summer 2007
Engineering Intern, Google, Inc. Designed and implemented most of the back-end for the "user-created content" search on Google Maps, see patent [1].	Summer 2006
Engineering Intern, Google, Inc. Designed and implemented a sophisticated parallel algorithm for removing cycles from huge oriented graphs.	Summer 2005
Development Intern, VMware, Inc. Rearchitected and expanded parts of the performance monitoring infrastructure; maintained and improved tools.	Summer 2003
Software Design Engineer (Intern), Microsoft Corporation. Created a new status bar architecture, enabling customization, skinning, and new controls. Rebuilt Word and Excel status bars, see Office 2007.	Summer 2002
Research Assistant, Princeton University. Continuing work from the 2000–2001 academic year. Created new user interfaces and an automated data entry tool for the database of election and economic data. Doubled the database size.	2001–2002
Research Intern, National Center for Biotechnology Information, National Institutes of Health. Conducted a large-scale analysis of overlapping genes in prokaryotes, and found patterns suggesting that Darwinian selection operates in novel overlapping regions (2 publications).	Summer 2001
Research Assistant, Princeton University. Redesigned and maintained a database of election and economic data from Eastern European countries.	2000–2001

Communication and collaboration

Taught college-level mathematics recitations for two semesters, ≈**90 contact hours**.	2007–2008
Spoke regularly in various MIT graduate student seminars. Gave over **10 talks**.	2005–present
Wrote or co-authored **12 papers** spanning combinatorics, computational biology, and computer science: 6 published, 1 to appear, 1 submitted, 4 preprints. Cited 166+ times.	2000–present
Presented **5 posters** of the above work at conferences.	2000–present

Skills and interests

Computer science	Graduate-level coursework and research experience in: algorithms, complexity, machine learning, artificial intelligence.
Mathematics	Graduate-level coursework in algebra, geometry, analysis, probability, discrete math. Research in geometric, bijective, structural combinatorics, graph theory, spectra of random graphs.
Computational biology	Research in evolution of sequence function, mutation biases, function of non-coding DNA, sequence design, SNP–phenotype associations.
Software engineering	Worked with multi-million line codebases (Google, Microsoft). Passed "Google C++ readability" — a set of standards for maintainable software development. Single-handedly wrote over 300KB of clean, concise and 100% stable C++ in 2.5 months. Wrote a maintainable 100KB+ scientific Python project over a few weeks. Regularly use: C++, Python, MATLAB/Octave, bash+textutils, JavaScript. Worked in 11 more.
Web	Designed and built a production, cross-browser compatible, XHTML/CSS-compliant site: `http://chai3.chgk.info`. Wrote a pure JavaScript application to generate Dynkin diagrams. Have experience with GWT client-side, PHP and Python server-side programming.
Miscellaneous	Familiar with major office suites, LaTeX. Competent bicycle mechanic and computer technician. Can build simple microcontroller-based devices. Competent at graphic design (and corresponding tools).

Patent

1. Petakov, A., Minogue, D., Spiridonov, A.N. "Searching Structured Geographical Data", 20080189249 (pending), filed February 5, 2007

Scholarships and Awards

National Science Foundation Graduate Fellowship	2005–2007, 2008–2009
MIT Presidential Fellowship	2004–2005
The Shapiro Prize for Academic Excellence, Princeton University	2000–2001
Richard V. Stringham Cornell Fingerlakes Credit Union Scholarship	2000
National AP Scholar	2000
American Regions Mathematics League: Team High Scorer	1999
Tests of Engineering Aptitude, Mathematics and Science: National Finalist Team	1999
National Champion Team	1998
New York State Mathematics League: Team High Scorer	1998