Li Tai Fang, Ph.D.

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Professional Experience:

UCSF Medical Center San Francisco, CA
Statistical Analyst, Postdoctoral March, 2011 – Present

- Contribute computational expertise to a team of physicians, molecular biologists, and geneticists, in order to understand the massive amount of genetic data associated with different types of lung cancers.
- Participated the *"Idea to IPO 2012"* bioentrepreneurship course sponsored by Burrill & Co., by building a business plan as a group and pitching it to the venture capitalists, around a new technology aimed at improving musculoskeletal health.
- Administer a 56-CPU computing cluster and the group website: *kimlab.surgery.ucsf.edu*

Vicaya Energy Los Angeles, CA
Policy & Data Researcher, Voluntary September, 2010 – March, 2011

- Advised a start-up renewable energy company on scientific and science policy issues relating to solar energy.

The Hebrew University of Jerusalem Jerusalem, Israel
Theoretical Biophysicist, Postdoctoral March, 2010 – September, 2010
Completed and formalized a mathematical theory regarding the secondary structure of RNA molecules during a 6-month research fellowship. The work has resulted in two first-authored publications in the *Journal of Physical Chemistry B* and the *Journal of Chemical Physics*.

- Developed an intuitive RNA-folding model and implemented its computer simulation algorithm based on the work by Professor Ben-Shaul
- Discovered a scaling law between RNA's 3D size and its linear length
- Presented my theory of Randomly Self-Paired Polymers to the faculty of Fritz Haber Research Center for Molecular Dynamics

UCLA Department of Chemistry Los Angeles, CA
Teaching Assistant (during grad school) 2004 – 2010
Led a total of 9 discussion and laboratory sections for upper division courses in:

- Statistical Mechanics • Quantum Mechanics • Physical Biochemistry
- Chemical Thermodynamics • Biochemistry Methods

National Institutes of Health Bethesda, MD
Visiting Biochemist Winter, 2007
Contributed both experimental and computational expertise in an effort to understand the DNA packaging process in bacterial viruses using Small Angle X-ray Scattering (SAXS). The results are published in *Physical Review Letters*.

- Trained my NIH collaborators to purify viruses, viral DNA, and proteins
- Presented single-molecule experimental results on viruses at the National Institute of Child Health and Human Development
- Contributed calculation to the DNA packaging problem

USDA - Agricultural Research Service Albany, CA
Student Researcher 2001 – 2003
Conducted a series of laboratory and on-the-field studies under the direction of Plant Mycotoxin Research division, related to the fungal problems affecting California's nuts industry.

- Identified a number of yeast strains as biocontrol agents against aflatoxin-producing fungi, resulting in the development of an all-natural pesticide

Education:

University of California, Los Angeles — Los Angeles, CA

Ph.D. Biochemistry — September, 2003 – March, 2010

Conducted both experimental and theoretical research on viruses and their genetic materials. On my own initiative, implemented my ideas to solve a problem regarding the physical properties of RNA molecules.

- Thesis Advisors: Professors William M. Gelbart and Charles M. Knobler
- The **only** student in Prof. Gelbart's 35-year career and the Biochemistry Department during my time to publish a **sole**-authored peer-reviewed research article
- Dissertation: The Physics of DNA, RNA, and RNA-like Polymers
  - ⋆ Developed a mathematical model to calculate the end-to-end distance of RNA molecules
  - ⋆ Discovered an additional entropic force involved in the release of virus genome
  - ⋆ Measured the bending and electrostatic energies of DNA in viruses
  - ⋆ Contributed to the fundamental understanding of viruses, relevant to genetic engineering efforts using viruses as delivery vehicles

University of California, Berkeley — Berkeley, CA

B.A. Molecular and Cell Biology — August, 1999 – May, 2003

- GRE scores: 800 in quantitative; 770 in analytical (out of 800)
- SAT scores: 800 in math; 730 in physics

Selected Peer-reviewed Publications:

Li Tai Fang. The End-to-End Distance of RNA as a Randomly Self-Paired Polymer. *Journal of Theoretical Biology, 280: 101-107.* ***(2011)***

Li Tai Fang, William M. Gelbart, and Avinoam Ben-Shaul. The Size of RNA as an Ideal Branched Polymer. *Journal of Chemical Physics, 135(15): 155105.* ***(2011)***

Li Tai Fang, Aron M. Yoffe, William M. Gelbart, and Avinoam Ben-Shaul. A Sequential Folding Model Predicts Length-Independent Secondary Structure Properties of Long ssRNA. *Journal of Physical Chemistry B, 115(12): 3193-3199.* ***(2011)***

Other Information:

Technical Expertise:

- MATLAB programming
- Linux/UNIX/BASH scripting
- LaTeX typesetting
- Sun Grid Engine to manage computer simulation
- Built PC from individual components
- Host home server using HTTP and SSH protocols
- X-ray Scattering at Stanford Synchrotron Radiation Lab (SSRL)
- Neutron Scattering at National Institute of Standards & Technology (NIST)

Leadership:

Co-organizer of Business Club at UCSF — 2011 – Present

- Manage the website (*www.businessatucsf.org*), LinkedIn groups, mass email list, and all things IT
- Co-organize monthly seminars and talks featuring highly successful business professionals in life science

Tournament Director/Treasurer of UCLA Club Tennis (100+ members) — 2008 – 2010

- Ran two club tournaments per quarter, including a Tennis on Campus event sponsored by the U.S. Tennis Association, with 100+ participants from 11 colleges from Southern California
- Resolved a crisis that developed 18 hours before a tournament, when Facility Management did not book the requested courts, by securing an alternative site
- Organized 40 members for a trip to the Indian Wells Masters Tennis Tournament
- Managed the club's budget, finance, and procurement of equipment