DAVE SPIEGEL, Ph.D.

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Stitch Fix

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HEADLINE: "Hands-on Player/Coach"

SUMMARY

I'm driven by the feeling of collaborative energy and teamwork that leads to outcomes better than any individual could have achieved on their own. New situations and experiences offer challenges that provide opportunities for learning and growth. I've done impactful work as an IC, a people manager, and a leader. Whether through organization (managing people) or influence, I effectively lead large projects with empathy, curiosity, and humility, cultivating a diverse range of perspectives, always grateful for feedback. I'm practical and resourceful, I emphasize outcomes not output, and I produce business impact through improving the customer experience.

How do I know my efforts have favorable business impact? Because I'm deeply skeptical of intuition & business narratives: See my coauthored article on the importance of experimentation in business and blog post on using interpretable statistical learning models to avoid narrative fallacies. In other words: I rely on experiments & empirical measurements to tell me the impact of my efforts.

Prior to becoming a professional data scientist, I obtained a Ph.D. (Columbia U.) in theoretical astrophysics and was a postdoctoral researcher (first at Princeton U., then at the IAS). I taught, published broadly (over 40 papers with close to 5000 citations), and gave nearly 100 lectures at universities, conferences, and fundraising events around the world. Most rewardingly, I mentored students, supervised research projects (leading to multiple published papers), and developed and taught college courses in local prisons.

I seek a leadership position where I can help create the conditions for good people to do great work together.

Following a practice introduced to me by an mentor at Stitch Fix, I keep a list of values that are important to me so that I can both define them for myself and review them as I navigate work and life: **Vision & Values Statements**

EXPERIENCE

Stitch Fix
San Francisco, CA

Data Scientist - Data Science Manager - Data Science Tech Lead/Architect   *August 2015 — Present*

There are 3 themes throughout my time at Stitch Fix: experimentation, pricing data science, and developing data interfaces with the software engineering team. In these three domains, I've acted as a principal developer and led projects, teams, and groups as a manager or a tech lead/architect. A few highlights:

- Co-developed the virtual warehouse (VW) infrastructure that enables A/B-test experimentation with inventory strategies. The VW capability, unique in retail, has produced insights responsible for more than 100% of company net margin (10s of millions of $/yr).
- Led development of pricing experimentation infrastructure ("Similar Items tests", client-randomized tests, strikethroughs, etc.).
- Identified the need to rebuild the core data model representing real and potential physical inventory, so as to allow for successful internationalization, and led team that did so; developed a domain-specific language to enable human experts to define & express attribute-mapping logic for 600 attributes in machine-readable way.
- Co-developed the Hive Meta-metastore infrastructure to keep historical records of Hive Metastore data & changes.
- Partner with the Diversity Equity & Inclusion team to model promotion & attrition rates and recommend hiring & promotion targets for underrepresented demographics across all company functions and seniority levels.

Sum Labs
Manhattan, NY

R&D Data Scientist   *September 2014 — May 2015*

I joined Sum Labs when there were 20 employees and had the opportunity to help the company nearly double in size in a year. I worked on problems from hardware to firmware to back-end data analysis, using skills from physics, engineering, and machine learning. I also managed external contractors and relationships with medical and physiological experts.

- Developed activity-recognition for wrist-based wearable by using machine learning techniques to classify accelerometer/gyro data.
- Led team that developed Gaussian Process Regression technique for improving the accuracy of heartrate determination.
- Developed and wrote the firmware for wrist-worn optical heartrate determination algorithm that outperformed industry-standard wrist heartrate monitor for heartrate variability at rest.
- Optimized the LED wavelength and positioning for wrist-worn photoplethysmography (PPG) when fingers are in motion.
- Provisional patent for low-energy method of determining respiration from PPG.

Institute for Advanced Study   **Princeton, NJ**

Research Member, W.M. Keck Fellow   *September 2011 — July 2014*

As an astrophysicist at IAS, and at Princeton University and Columbia previously, I made fundamental contributions to exoplanetary science, and at the same time tried to give back to the community by volunteering to teach families about astronomy, by teaching in prisons, and by giving numerous public talks. A highlight of my time in astro was developing an essentially optimal solution to the oldest problem in computational astrophysics — the problem of numerically calculating trajectories of objects under the influence of a force.

• Co-developed a nearly-optimal algorithm for calculating trajectories of objects under the influence of forces (open source, with simple Python bindings).
• Developed the most widely-used set of ∼40,000 atmosphere spectrum models for observations of young Jupiter-like planets.
• Led independent research in astrobiology, statistical astrophysics, and cosmology, with analytic and numerical approaches.
• Ran the Princeton Astrophysics Undergraduate Summer Research Program (USRP) for 3 years (summers of 2011-2013).
• Designed and taught a research course for Princeton astrophysics undergraduates in USRP.
• Designed and taught a course in Astrobiology at Quest University.
• Reviewed NASA grant applications and observing proposals for major telescopes.
• Peer reviewed ∼12 papers per year for top journals in astrophysics and astrobiology.
• Taught algebra, precalculus, and astronomy in 3 New Jersey prisons.

Princeton University Department of Astrophysical Sciences   **Princeton, NJ**

Postdoctoral Research Fellow   *August 2008 — August 2011*

• Led independent research projects in atmospheric radiative transfer, stellar structure and evolution, and habitability.
• Developed visualization software for hydrodynamical models of atmospheres.
• Developed the first set of realistic atmosphere models of Neptune-class exoplanets and the first models of planets visible to *Kepler*.
• Guided undergraduate research projects that led to 4 coauthored papers.

Columbia University   **New York, NY**

Graduate Research Fellow   *2001-2008*

• Developed and ran thousands of climate models to redefine our concept of the habitable zone.
• Identified a major mystery: that the early universe appeared to be deficient in atoms.
• Won the "Outstanding Teaching Assistant Award".

Scripps Institution of Oceanography   **La Jolla, CA**

Predoctoral Researcher   performed statistical analysis of climate models   *2000 — 2001*

MIT, Center for Space Research and NASA Goddard   **Cambridge, MA; Greenbelt, MD**

Scientific Programmer   used images from Mars Global Surveyor to build coordinate system database   *1999 — 2000*

Harvard School of Public Health   **Boston, MA**

Summer Researcher   measured cell stiffness with magnetometry, leading to first published paper   *1996, 1997*

EDUCATION

Columbia University	**Ph.D., Astronomy, 2008**		**New York, NY**
Amherst College	**B.A., Mathematics, 1999**	(*summa cum laude*)	**Amherst, MA**