

# Ryan Applegate

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## EXPERIENCE

### **Data Scientist - Staples, (2014 - present)**

- Build product recommender systems with collaborative filtering and probabilistic approaches.
- Optimize personalized recommendations via click prediction algorithms.
- Utilize Apache Spark to process and monitor event data of critical application services.
- Automate data transformation and summarization using Spark, SQL, and pandas.
- Deliver analytics from user data to evaluate model A/B tests and communicate business impact.

### **Education Design Consultant - Knack Systems Inc, (2013)**

- Prototype and design features for an online textbook hosted on AWS used to teach physics.
- Bring education domain expertise to engineers and designers of education applications.

### **Physics and Programming Instructor - UC Davis Extension Center, (2012 - 2013)**

- Develop curricula, give lectures, oversee labs/demonstrations, evaluate student performance.

### **Graduate Student Researcher - UC Davis, (2007 - 2012)**

- Collaborate and publish novel results with leading researchers in condensed matter physics.
- Create a robust codebase for repeated simulation of new theories in a fast paced research setting.
- Maintain domain knowledge in a rapidly changing scientific research environment.
- Implement time series Monte Carlo simulations and exact diagonalization models.

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## TECHNICAL SKILLS

**Machine Learning** - regression - classification - neural networks - matrix factorization

**Quantitative Analysis** - hypothesis testing - Bayesian inference - graphical models

**Languages** - Python (scikit-learn, numpy, scipy, pandas, matplotlib, Edward) - SQL - Matlab - C/C++

**Tools** - Apache Spark - AWS - git - TensorFlow - Docker

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## COMMUNICATION SKILLS

**Presentation** of scientific findings and data insights to colleagues and stakeholders with varying technical backgrounds at conferences, workshops, and meetings.

**Publication** of original research to academic journals in solid state physics and molecular dynamics.

**Discussion** with students, colleagues, and professors on topics spanning introductory physics, machine learning, statistics, programming, solid state materials and more.

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## EDUCATION

### **2012 - Ph.D., Physics, University of California, Davis**

Dissertation: *Quantum Magnetism in the Iron-Pnictides and Rare Earth Pyrochlores.*

With extensive collaboration between theory and experiment, my computational studies helped show that a "Quantum Spin Ice" model can explain many aspects of an entire class of materials that exhibit a before unrealized phase of matter.

### **2005 - B.S., Physics, University of California, Davis**

Honors Thesis: Physics of the Bank Shot in the Game of Basketball.