

David Freeman

212 Palmita Pl., Mountain View, CA 94041 USA (+1) 650.644.8192 dfreeman@cs.stanford.edu

EXPERIENCE

LinkedIn Corporation Mountain View, California USA

Senior Manager, Software Engineering 2015–present

- Responsible for data science and engineering efforts to combat fraud and abuse in the LinkedIn product.
- Worked with greater LinkedIn machine learning community to build modeling and scoring infrastructure.
- Partnered with product, analytics, and operations to measure and prioritize anti-abuse efforts.
- Published 4 original research papers, filed for 9 patents, co-chaired international workshop on AI+Security.

Manager, Security Data Science 2014–2015

- Led team of data scientists charged with preventing fraud and abuse across the LinkedIn ecosystem.
- Worked with partners in product and engineering to build security models into LinkedIn products and ensure accurate tracking and reporting.
- Revamped and standardized team’s hiring process, including development of a take-home “data challenge.”

Senior Security Data Scientist 2012–2014

- Owned domain of finding fraudulent LinkedIn accounts, including setting priorities and measuring success.
- Trained and implemented classifiers using Logistic Regression, Decision Trees, SVM, and Naive Bayes.
- Developed models from prototype through to production using Python, R, Pig, Hive, and SQL.

Insight Data Science Palo Alto, California USA

Data Science Fellow Summer 2012

- Modeled causes of airline delays using DOT database of 120 million flights.

Stanford University Computer Science Department Stanford, California USA

NSF Postdoctoral Scholar 2008, 2010–2012

- Designed algorithms to authenticate cloud computing and improve security of network routing.
- Created specialized cryptographic mechanisms resistant to attacks by a quantum computer.
- Developed and taught masters-level course on elliptic curve cryptography, with exercises in Python/Sage.
- Published 7 original research papers.

Centrum Wiskunde en Informatica (CWI) & Universiteit Leiden Amsterdam & Leiden, Netherlands

NSF International Postdoctoral Fellow 2009

- Devised framework to improve efficiency of certain cryptographic protocols.
- Designed algorithms to generate parameters for efficient cryptosystems; prototyped in Pari and Magma.
- Published 5 original research papers.

EDUCATION

University of California, Berkeley Berkeley, California USA

Ph.D. in Mathematics, May 2008.

Thesis: “Constructing Abelian Varieties for Pairing-Based Cryptography”

Thesis awarded Bernard Friedman Memorial Prize in Applied Mathematics.

University of Cambridge Cambridge, United Kingdom

Master of Advanced Study in Mathematics, with Distinction, June 2003.

Harvard University Cambridge, Massachusetts USA

A.B. Summa Cum Laude in Chemistry and Physics and Mathematics, June 2002.

SKILLS AND INTERESTS

- Programming: Python, Hadoop (Pig, Hive, MapReduce), R, SQL.
- Travel: Visited 27 countries; created Python web app to find frequent flyer award seats.
- Spoken languages: English (native), French (proficient), Dutch (elementary).
- Classical music education: co-creator of www.ClassicalCDGuide.com.

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SELECTED PUBLICATIONS

1. D. M. Freeman, “Can You Spot the Fakes? On the Limitations of User Feedback in Online Social Networks,” *WWW 2017*.
2. D. M. Freeman, S. Jain, M. Dürmuth, B. Biggio, and G. Giacinto, “Who are You? A Statistical Approach to Measuring User Authenticity,” *Network and Distributed Security Symposium — NDSS 2016*.
3. C. Xiao, D. M. Freeman, and T. Hwa, “Detecting Clusters of Fake Accounts in Online Social Networks,” *Workshop on Artificial Intelligence and Security — AISec 2015*.
4. D. M. Freeman, “Using Naive Bayes to Detect Spammy Names in Social Networks,” *Workshop on Artificial Intelligence and Security — AISec 2013*.
5. S. Agrawal, D. M. Freeman, and V. Vaikuntanathan, “Predicate Encryption from Learning With Errors,” *Advances in Cryptology — Asiacrypt 2011*.
6. D. Boneh and D. M. Freeman, “Homomorphic Signatures for Polynomial Functions,” in *Advances in Cryptology — Eurocrypt 2011*.
7. D. M. Freeman and T. Satoh, “Constructing Pairing-Friendly Hyperelliptic Curves using Weil Restriction,” *Journal of Number Theory* **131**:5 (May 2011).
8. D. M. Freeman, “Converting Pairing-Based Cryptosystems From Composite-Order Groups to Prime-Order Groups,” in *Advances in Cryptology — Eurocrypt 2010*.
9. D. Freeman, M. Scott, and E. Teske, “A Taxonomy of Pairing-Friendly Elliptic Curves,” *Journal of Cryptology* **23**:2 (Apr 2010).
10. D. Freeman, P. Stevenhagen, and M. Streng, “Abelian Varieties with Prescribed Embedding Degree,” in *Algorithmic Number Theory Symposium — ANTS-VIII* (2008).

Full list of publications available at <http://cs.stanford.edu/~dfreeman>.