

Nathan E. Mirman

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EDUCATION	Cornell University , Ithaca, New York PhD & MS Experimental Particle Physics University of Minnesota , Minneapolis, Minnesota BS Physics & Mathematics	2010 – 2017 2006 – 2010
EXPERIENCE	Insight Data Science , New York, New York <i>Fellow</i> <ul style="list-style-type: none">• Consulted for the <i>Covetly</i> mobile marketplace to develop a recommender system for collectibles.• Employed a collaborative filtering algorithm with a cosine similarity metric to generate personalized recommendations for Covetly users.• Performed cross validation to demonstrate a 5x improvement in recommendation precision over previous non-personalized approaches.• Developed a web application using Flask and AWS. Employed MongoDB and PostgreSQL to obtain and store Covetly user data. Further details at collectorizer.nathanmirman.com. Cornell University , Ithaca, New York <i>Graduate Research Assistant</i> <ul style="list-style-type: none">• Worked in a collaboration with 3500+ members at the Large Hadron Collider (CERN).• Led a research program in fundamental physics measurements and developed analysis tools for identifying rare phenomena in petabyte-scale datasets.• Leveraged statistical modeling, parameter determination, and Gaussian process regression techniques to drive a 25% improvement in measurement precision.• Contributed to large C++ code databases, and utilized the WLCG distributed computing grid.• Served as contact person for a key collaboration analysis group. Provided data analysis recommendations for more than 50 ongoing analyses, reviewed analysis documents and preliminary results, and contributed to projections of future performance.• Contributed to one first-author, and two co-author publications. Gave talks and poster research presentations at major international conferences, workshops, and university seminars. Cornell University , Ithaca, New York <i>Graduate Teaching Assistant</i> <ul style="list-style-type: none">• Led discussion sections for courses on <i>Mechanics</i>, <i>Electromagnetism</i>, and <i>Special Relativity</i>.• Engaged with over 150 engineering and physics students through weekly office hours, discussions, and quizzes.• Contributed to a particle physics research camp for undergraduates. Prepared lectures on research best practices, and mentored students in their research projects.	Sept 2017 – present Sept 2010 – Jan 2017 Sept 2010 – Dec 2011
SKILLS	Analysis: Statistical inference and modeling, data mining, hypothesis testing, parameter determination, maximum likelihood estimation, optimization, Fisher information. Machine Learning: Regression analysis, Gaussian processes, recommender systems, collaborative filtering, gradient boosted decision trees. Programming: Python, C/C++, SQL, No-SQL, PostgreSQL, MongoDB, NumPy, Pandas, scikit-learn, Flask, jekyll, AWS. Spoken Languages: English, Russian.	