

Matthew J. Howard

Education

Master of Science, Computer Science, UC Santa Cruz

JAN 2019 — JUN 2019

Bachelor of Science, Computer Science, University of Delaware

SEP 2010 — JUN 2014

Bachelor of Mechanical Engineering, University of Delaware

SEP 2010 — JUN 2014

Experience

Adobe, Data Scientist Intern

OCT 2015 — MAR 2016. SAN JOSE, CA

Extended school-term internship with Adobe Research:

- Designed machine learning models with Probabilistic Soft Logic (PSL) on Adobe Analytics web log data to classify anonymous visit sessions to known user profiles
- Improved user classification F-score by up to 32% over state-of-the-art classifiers
- Developed feature clustering and de-noising strategies to distill high activity users into unique feature profiles

Xerox PARC, Research Scientist Intern

JUN 2015 — SEP 2015. PALO ALTO, CA

Summer internship with the PARC Computer Science Laboratory:

- Orchestrated Python and SQL pipeline (Pandas, SQLAlchemy, PostgreSQL) to digest 5+ TB size DeviceAnalyzer dataset into internal feature databases
- Built ML models over mobile device usage data to capture device context and predict future user behavior, improving past predictive accuracy within 1-minute from 68% to 75%

UC Santa Cruz, Graduate Student Researcher

OCT 2014 — MAR 2016. SANTA CRUZ, CA

Research conducted as PhD student in Machine Learning:

- Programmed graphical model training strategies in probabilistic soft logic (PSL) for learning to rank problems on social graphs (e.g., recommendations, link prediction)
- Implemented numerical optimization strategies to calculate convex approximations for the non-convex ranking loss function NDCG
- Agile-style research process with diverse responsibilities: coordinated research discussions; taught lectures; built special event websites; advised younger students

Projects

SpotifyMap, spotifymap.com

LAUNCHED JUL 2020. Tech Stack: JavaScript, React.js, Python

- Interactive dashboard for users to visually explore and listen to the most streamed and viral songs on Spotify, updated daily for 60+ countries (data scraped via Spotify Charts).

Mining Semantic Relationships from Source Code Comments

MAY 2013. Research Paper — <https://doi.org/10.1109/MSR.2013.6624052>

- Invented algorithm to mine and extract semantic relationships from source code by applying NLP techniques on comments and associated function names (**Winner, Best Paper Award**)

Predicting Substance Abuse Facility Admission Rates via RNNs

OCT 2019. Research Paper — <https://doi.org/10.1109/GHTC46095.2019.9033095>

- Developed recurrent neural network model which classifies U.S. geographic regions expected to see a year-over-year increase in substance use facility admissions with a 70% prediction accuracy

Contact

Email

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Portfolio

www.matthoward.dev

LinkedIn

[/in/matthew-j-howard](https://in.linkedin.com/in/matthew-j-howard)

Skills

Programming: Python, Java, R, Go, JavaScript, Bash, Unix, Git

Databases & Cloud:

SQL, Postgres, Docker, AWS EC2, Amplify, RDS

Web Dev: React.js,

Django, Bootstrap, HTML, CSS/SCSS, REST, GraphQL

Data Science: Pandas,

NumPy, scikit-learn, SciPy, TensorFlow, Keras, PyTorch, SQLAlchemy

Data Visualization:

Matplotlib, Seaborn, Amcharts