

Karen Sittig

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Education

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| MEng Massachusetts Institute of Technology , Electrical Engineering and Computer Science | Cambridge, MA
Jan 2012 – June 2013 |
| <ul style="list-style-type: none">• Thesis: An affordance-inspired tool for automated web page labeling and classification 🔗• Advisors: Dr. Catherine Havasi and Dr. Kevin Gold | |
| BS Massachusetts Institute of Technology , Computer Science | Cambridge, MA
Sept 2008 – June 2012 |
| <ul style="list-style-type: none">• Relevant coursework: Introduction to Psychology, Artificial Intelligence, Robotics: Science and Systems I | |

Leadership Experience

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| Broad Institute of Harvard and MIT , Engineering Manager - Hail Team | Cambridge, MA
Sept 2024 – Nov 2024 |
| <ul style="list-style-type: none">• Recruited to drive diversity, equity, and inclusion in the department.• Managed a team of five technical contributors creating solutions for 50+ genomics analysts. Determined the direction of the team and platform after an org-wide restructuring in the partner engineering department. Worked closely with internal partners to identify and fill gaps in existing technical solutions, resulting in new on time delivery dates for all previously-delayed projects. Discovered and mitigated multiple significant organizational risks. | |
| Firefly Arts Collective , Safety / Operations Cluster Lead | Somerville, MA
Feb 2020 – Nov 2023 |
| <ul style="list-style-type: none">• Directed six volunteer teams consisting of over 100 individual volunteers for a week-long, 1400 person arts festival. Volunteers provided festival attendees with first aid, mental health, fire safety, and logistical support.• External event safety and liability reviewer for Firefly Arts Collective's Art Grants. Secured alternative funding for several health and safety projects outside the scope of the Art Grants program.• Restructured and re-scoped the priorities of multiple failing teams to better meet the organization's needs. Led the organization through multiple critical incidents including the COVID-19 pandemic and an on-site natural disaster. | |
| Mobi Systems , Lead Engineer - Data Infrastructure | Somerville, MA
Jan 2022 – Aug 2023 |
| <ul style="list-style-type: none">• Hired, managed and mentored a diverse team of four early career software engineers.• Architected a scalable, performant, cost-effective data platform using Amazon Web Services. Designed the data model and process for normalizing and merging multiple distinct datasets containing point-of-interest data. Supported team members in migrating the legacy data pipeline to the new data platform.• Authored and maintained developer tooling for the team's Python monorepo to support automated code deployments to multiple AWS services such as Lambda, Sagemaker, and Glue. Created local development environments using Docker that greatly increased the team's iteration speed. All migration work was completed in approximately six weeks, substantially ahead of schedule. | |

Meta, Intern Director

- Managed and mentored intern managers in the Meta Boston office.
- Reviewed and approved intern project proposals for technical scoping and feasibility. Coached intern managers in evaluating intern performance and in delivering intern feedback.

Cambridge, MA
June 2019 – Aug 2019

Meta, Women@ Co-Lead

- Coordinated with Meta employee resource group leadership to support and advocate for self-identified women in the Meta Boston office.
- Recruited and appointed the first man-identified Women@ lead in Meta company history. Greatly increased the investment and participation of allies in critical Women@ initiatives.

Cambridge, MA

Technical Experience

TrueNorth, Senior Software Engineer

- Architected and implemented V2 of the organization's payroll product for independent contractors. Optimized the full stack web application to work performantly on low bandwidth connections.
- Partnered with nontechnical staff to identify high leverage opportunities for process improvements using automated tooling. Designed and implemented solutions. Saved one end user ~15 hours a week of manual data entry.

Remote
Jan 2021 – Aug 2021

Meta, Software Engineer

- **Security Infrastructure:** Machine learning technical specialist. Designed, implemented, and evaluated machine learning classifiers and streaming data structures to support the automated detection of personally-identifiable information (PII) in the Meta Hive data warehouse. Over 90% of data in the multi-petabyte data warehouse was automatically labeled, eliminating months of manual review.
- **SoMA:** Technical lead for team's automated testing framework and hardware test bed. Mentored and supervised two junior contributors. Provided on site support during field tests of the team's custom OpenWRT firmware for mesh networking. Prepared framework for a potential September 2019 release to open source.

Cambridge, MA
Jan 2015 – Jan 2021

Twitter, Data Scientist II

- Machine learning technical specialist. Designed, implemented, and evaluated machine learning models to determine the country of origin for tweets without geolocation information.
- Partnered with internal stakeholders to define, implement, and track the precision, recall, and accuracy of a third party IP to geolocation mapping dataset.
- Researched, designed, and implemented graphical models to predict live user and IP address locations. Experimental models were up to 30% more accurate than existing solutions at geolocating IP addresses, even down to the zip code level.

New York, NY
July 2013 – Oct 2014

Research Experience

MIT Lincoln Laboratory, Research Assistant

- **PI: Dr. Kevin Gold**
- Leveraged commonsense data from the Open Mind Common Sense project to create simulated agents that could "understand" text topics and act with intention. Implemented classifiers to detect affordances on live web pages.

Lexington, MA
June 2012 – June 2013

Simulated agents that used these classifiers in conjunction with the commonsense knowledge base were able to successfully execute complex goal-directed web browsing behaviors on live web pages without additional input.

- Designed and ran experiments to assess the utility of various methods of topic identification and the semantic coherence of the topics produced.

McGovern Institute for Brain Research, Undergraduate Research Assistant

- **PI: Dr. Ann Graybiel**

Cambridge, MA
Jan 2009 – Aug 2009

Teaching Experience

Firefly Arts Collective, Officer of the Day / Board on Call - Trainer

- Wrote and ran joint team-building and skill development training for critical event volunteers for the 2022 and 2023 events. Volunteers learned to lead emergency responses, mediate and de-escalate conflicts, coordinate with local authorities, and delegate / escalate issues as appropriate.
- Trainings resulted in significant improvements in self-reported volunteer experience and a significant decrease in the average amount of volunteer time required to close incidents.

Meta, Jedi Academy - Co-Instructor

- Proposed, wrote, and ran additional cultural onboarding to support experienced engineers joining the Meta Boston office.
- Six biweekly sessions covered important topics such as code review best practices, maintaining work / life balance, and the performance review process. Participants reported feeling a greater sense of belonging and improved productivity compared to non-attendees.
- Training structure and topics were adopted by other remote offices with the support of Meta's Learning and Development team.

Massachusetts Institute of Technology, Lead Instructor, Introduction to Python (6.S090)

Jan 2011, Jan 2012, Jan 2013

Massachusetts Institute of Technology, Teaching Assistant, Computation Structures (6.004)

Feb 2012 – May 2012

Massachusetts Institute of Technology, Lab Assistant, Computation Structures (6.004)

Sept 2010 – Dec 2011

Press

Security First: 5 tips for building a secure mobile app from the ground up [↗](#)

Oct 2016

Karen Sittig

App Developer Magazine

How Facebook blocks bad code from the outset [↗](#)

May 2016

Malena Carollo

The Parallax View

Conference Talks

Engineering Better Security at Facebook [↗](#)

Mar 2017

Karen Sittig

Goa, India

[nullcon](#) [↗](#)

Automatically Detecting PII

Nov 2015

Karen Sittig

Boston, MA

[Security@Scale](#) [↗](#)

Note: the contents of this talk were not made publicly available.

Publications

Modeling how thinking about the past and future impacts network traffic with the gosmr architecture

May 2013

Kevin Gold, Zachary J. Weber, Ben Priest, Josh Ziegler, **Karen Sittig**, William W. Streilein, Mark Mazumder

dl.acm.org/doi/10.5555/2484920.2484944 [↗](#) (AAMAS '13: Proceedings of the 2013 international conference on Autonomous agents and multi-agent systems)

Grants Awarded

Sparklepony Express (Art)

Bethel, VT
July 2024

[A Friend in the Dark](#) [↗](#) (Art)

Masontown, WV
Feb 2024

[Float On](#) [↗](#) (Art)

Coventry, CT
Oct 2023

Bowl of Paperclips (Art)

Bethel, VT
July 2022

Projects

safety.fireflyartscollective.org [↗](#)

- Developed an [informational website](#) [↗](#) for the Firefly Arts Collective's Safety team. Provided a browsable, searchable interface for important volunteer announcements and sign-up forms. Streamlined volunteer communications by providing easy-to-recall static links for each post.
- Tools used: Ruby (Jekyll), Markdown, CSS, HTML

Technologies

Programming Languages and Frameworks: Python (Django, pydantic, falcon), JavaScript (React), Git

Project Management: Agile / Scrum, JIRA, GitHub Projects

Cloud Compute Platforms: Amazon Web Services (AWS), Google Cloud Platform (GCP)