

WORK EXPERIENCE

SecureBio

Co-Lead (Near-Term Detection)

6.2022-present

- Lead team building an early warning system to detect novel pandemics
- Analyze metagenomic sequencing data from wastewater and nasal swabs
- Model the efficacy of monitoring system designs in pandemic detection

Google

Staff Software Engineer

9.2017-6.2022

- Optimize ad loading and rendering
- Work with Chrome on new APIs for ads
- Manage team of four engineers

Wave

Senior Software Engineer

1.2017-6.2017

- Develop back-end software for mobile money transfer
- Analyze performance and reliability

Google

Senior Software Engineer

4.2012-1.2017

- Develop mod_pagespeed web optimization software
- Port mod_pagespeed to the Nginx web server

CogoLabs

Software Engineer

12.2010-4.2012

- Create websites for new incubated businesses with Ruby on Rails
- Optimize designs with A/B testing

BBN Technologies

Associate Scientist

9.2008-12.2010

- Write tools for manipulating and validating language annotation
- Assist in research in automatic parsing, semantic role labeling, word sense tagging, and coreference resolution

EDUCATION

Swarthmore College

- *Degree:* BA in Computer Science and Linguistics with High Honors
- *Courses included:* Natural Language Processing, Artificial Intelligence, Distributed Systems, Linear Algebra, Multi-variable Calculus, Discrete Math

SKILLS AND COMPUTER EXPERIENCE

- *Languages:* Python, C, C++, Java, JavaScript, bash, HTML, SQL.
- *Systems:* GNU/Linux (Ubuntu, Debian, Red Hat), Windows, Macintosh

PUBLICATIONS

- *Liu et al. 2025* METAGENE-1: Metagenomic Foundation Model for Pandemic Monitoring (*arXiv preprint*).
- *Grimm et al. 2023* Inferring the sensitivity of wastewater metagenomic sequencing for virus detection and monitoring (*medRxiv preprint*).
- *Weischedel et al. 2013* OntoNotes Release 5.0 (*Linguistic Data Consortium*).
- *Weischedel et al. 2011* OntoNotes Release 4.0 (*Linguistic Data Consortium*).