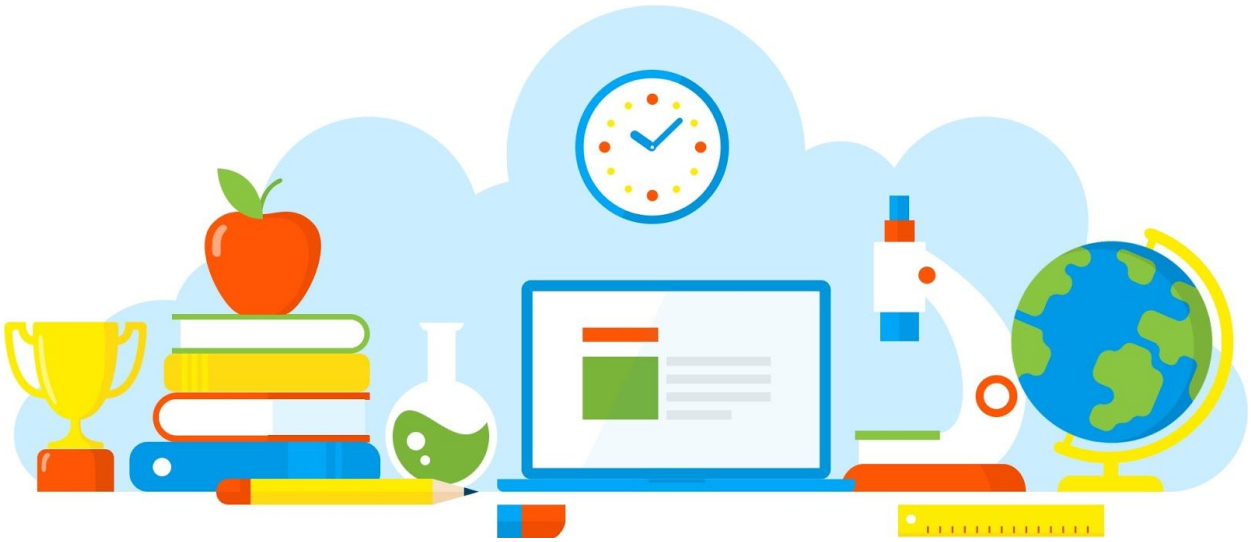

Maria Doliashvili

Portfolio Guide

Evidence of Core Competency

I have received a master's degree in Computer Science from the University of Hawai‘i at Mānoa in December 2017. GPA 3.7

My employment history, accomplishments and awards are listed in my CV: https://li-jj.github.io/bio/

ACCOMPLISHMENTS AND AWARDS

Twitter Fellowship	2019
Winner of the Geostat and "UN Women" Data Visualization Hackathon	2019
Speaker at United Nations Assembly (Tbilisi, Georgia)	2019
Top 150 finish on Google Code Jam with invitation to Google I/O	2018, 2019
Google Women Techmakers funding for TensorFlow Developer Conference	2018
Facebook invitation and funding for Women in Research Lean In	2018
Google scholarship for Grace Hopper Celebration	2016
Honorable mention at ACM ICPC Pacific Northwest Regional Contest	2015
Georgian presidential scholarship for high ranked students	2011, 2012, 2013, 2014
Top 10 finish at HackTbilisi International Hackathon	2014
Honorable mention at ACM ICPC Northeastern European Regional Contest	2012, 2013, 2014
III Diploma at Southern Caucasus Programming Championship	2012, 2013
Finalist of Geolymp Programming Competition	2013
Speaker on The Georgian - German School and Workshop in Basic Sciences	2012
Third place at Tbilisi State University Calculus Competition	2011
Full bachelor's degree scholarship from georgian government for top 5% of students based on the National Examination Center results	2010

WORK EXPERIENCE

Facebook — September - December 2018
Research Engineering Intern (ML) — *Menlo Park, CA, USA*

- Scoring search query interpretations
- Team: Facebook Search

DeepMind — April - August 2018
Research Engineering Intern — *Mountain View, CA, USA*

- Worked on Population Based Training for Neural Networks.

Google — May - August 2017
Software Engineering Intern — *Mountain View, CA, USA*

- Predicting probabilities for a multi-class problem using various machine learning models with C++ / Tensorflow / Python.
- Team: Knowledge Graph

Google — June - September 2016
Software Engineering Intern — *Zurich, Switzerland*

- Trained an LSTM neural network on a query stream, using Tensorflow / Python.
- Team: Geo Growth and Analytics

JSC. Georgian Card — March - July 2012
Software Developer — *Tbilisi, Georgia*

- Developing software for e-banking and ATMs using Java, PL/SQL.

Evidence of Scholarly Ability / Evidence of Professional Capacity

Literature Review can be found here: https://li-jj.github.io/essays/lit_review.html; Master's thesis can be found under Essays here: https://li-jj.github.io/essays/master_thesis.html

The literature Review is about Meta-Learning:

Abstract:

Learning to learn by solving many tasks is called meta-learning. The idea behind meta-learning for neural networks is to train a system on many tasks with the goal that it can solve new tasks and adapt to new environments quickly; by observing how different machine learning approaches perform on a wide range of learning tasks. Current artificial intelligence systems excel at constructing a single approach for a singular task, however fail to generalize and perform adequately when the task or the approach is being altered. There are several promising meta-learning approaches being developed and several success stories that will be surveyed in this literature review.

The Master's Thesis is about Predicting Emoji Usage for Emoji Recommender System:

Abstract

Emojis are used frequently in social media and private conversations. They are significant means of communication that help us express emotions and describe objects visually. Previous studies have shown positive impact of emojis in human relations, memorization and user engagement with web content. Unicode version 6 includes 2923 emojis, which makes it hard to make full use of them without a recommender system. We formulate recommending emojis as a complex prediction problem based on its diverse usage as a word and as a sentiment marker.

People have individual usage of emojis, and different representation of emojis across different platforms also leads to different interpretations based on device.

Therefore, we introduce a recommender system that is able to suggest various emojis and apply personalization to increase the accuracy of the recommending process.

Exploring whether it is possible or not to extract knowledge from emoji datasets and using it to predict emoji usage, we implemented several baseline models and trained Long Short-Term Memory (LSTM) recurrent neural networks.

All the essays are listed here: https://li-jj.github.io/essays/
Other projects are listed here: https://li-jj.github.io/projects/

Scholarships and fellowships I have received are listed in my CV:
https://li-jj.github.io/bio/

- *Twitter Fellowship 2019*
- *Top 150 finish on Google Code Jam with invitation and funding to Google I/O 2018, 2019*
- *Google Women Techmakers funding for TensorFlow Developer Conference 2018*
- *Facebook invitation and funding for Women in Research Lean In 2018*
- *Google scholarship for Grace Hopper Celebration 2016*
- *Georgian presidential scholarship for high ranked students 2011, 2012, 2013, 2014*
- *Full bachelor's degree scholarship from georgian government for top 5% of students based on the National Examination Center results 2010*

I have reviewed papers for IEEE International Conference on Data Engineering (ICDE) 2017.

Statement of purpose

I am a Computer Science Ph.D. student at the University of Hawai‘i at Mānoa advised by Prof. Martha Crosby. My research interests are in machine learning and natural language processing (sentiment analysis, recommender systems, next word prediction).

My master’s thesis was about a recommender system for emojis. I was an intern at Google Maps and Google Search teams, DeepMind and Facebook. I will spend Spring’20 at Twitter.

While doing an internship at Google DeepMind I have worked on Population Based Training for Hyperparameters and developed an interest in Meta-Learning that is surveyed in my literature review.
Before graduate school, I received a Bachelor's degree in Computer Science from Tbilisi State University. Where I got involved in research by doing a project in ‘modeling with partial differential equations’. My bachelor’s thesis was about ‘Implementation and Analysis of Parallel Algorithms’.
I taught algorithms and data structures during my undergraduate degree. As a graduate student I was a teaching assistant for the following courses:

- **Fall’15**:
  - ICS 311 Algorithms
- **Spring’16**:
  - ICS 241 Discrete Mathematics
- **Fall’16**:
  - ICS 321 Data Storage & Retrieval
- **Spring’17**:
  - ICS 321 Data Storage & Retrieval
  - ICS 211 Data Structures
- **Fall’17**:
  - ICS 321 Data Storage & Retrieval
  - ICS 423 Data Security and Cryptography
  - ICS 415 Intro to Programming for the Web
- **Spring’18**:
  - ICS 321 Data Storage & Retrieval
- **Fall’19**:
  - ICS 222 Concepts of Computer Science

I have been participating in programming competitions since I took the advanced algorithms course from Eldar Bogdanov at Tbilisi State University. I have been coaching and preparing teams for algorithms competitions for the past 5 years.

In addition, I am passionate about increasing diversity in STEM. I have organized several meetups and lectures devoted to the issue, including Google Women Techmakers meetup in Tbilisi, Georgia in July of 2019. I have participated in the gender data visualization hackathon organized by “GeoStat” and “UN Women” where I have analyzed the newly surveyed data and designed creative ways for presenting it to the general audience.

I have organized this file as a short guide for the requirements for the ICS portfolio, please follow the links for additional information. Any feedback is appreciated.

Department of Information and Computer Sciences
November 2019