Niki Gitinabard

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GitHub: /nikign | LinkedIn: /nikign | https://nikign.github.io/

Education

NC State University

- Master of Computer Science
  2015 - 2019 (en Route to Ph.D.)
- Ph.D. Candidate in Computer Science
  2015 - 2020 (expected)
  GPA: 3.83/4.0

University of Tehran

- B.Sc. in Computer Engineering
  2010-2014
  GPA: 3.79 / 4.0

Teaching Experience

- Programming Concepts- Java
- Software Engineering
- Data Structures for Computer Scientists
- Intelligent Systems
- Artificial Intelligence
- Theory of Formal Languages and Automata
- Introduction to Computing Systems and Programming

Research Project

"*ModSoc*" and ***"Concert"*** Ph.D. thesis with Dr. Collin Lynch | NC State University
(2015-current)

- Won **NC State Computer Science outstanding research award** in 2020
- Educational data mining: identify useful **behavioral patterns** and **predict students' performance** using Machine Learning models based on their **online behavior** and **teamwork habits** in CS courses
- Modeling student online activities as a **social network** and analyzing the structure of the network and **student communities**, analyzing the sequences of student actions by **sequence mining**
- Design and implementation of a centralized platform for collecting and analyzing students' activities on online platforms.
- Managing and mentoring masters and undergraduate students working on the project.
- Developed in **Python** and **R**, using **MongoDB**, **iGraph**, **Pandas**, **Numpy**, **Scikit Learn**

Internships

- **Software Engineering Intern | Google** (May - Aug. 2020 | Working Remotely)
  - Designed and implemented changes to a concrete fuzzer towards concolic execution
  - Integrated a concrete fuzzer (AFL) with a symbolic one (KLEE) to use the coverage information from the concrete fuzzer and improve the seed selection in the symbolic fuzzer.
  - Changed how Basic Block IDs are assigned in a new LLVM pass to make sure of consistency in different runs and avoid collisions.
  - Used C++ and Python, writing new **LLVM passes** to include in and extract information from code instrumentations

- **Data Science Intern** | **Spreedly** (Jun - Jul 2018 | Durham, NC)
  - Leed Scoring of Customers: Collected data on customers' activities and general information from different sources such as MixPanel and Datanyze. Defined features based on user activities such as their view patterns on the website, their use of the API, and their sessions of work. Using these features we predicted the users' subscription to the service using the data from only one week after starting a trial account, identifying on average 90% of the prospect customers.
  - Used Python's data analysis libraries such as **Pandas**, **Numpy**, and **Scikit Learn**.

- **AI Group Intern** | **O'Reilly Media** (Jun - Aug. 2017)
  - Collaborated in revising O'Reilly's text summary project using deep learning methods and Tensor-Flow
  - Collected and prepared data for training the deep learning model
  - Trained a text clustering model to categorize user responses to a survey, using **Scikit Learn** and **Pandas**.

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- **Software Engineering Intern** | **MaxPoint (Valassis Digital)** (May - Jul. 2016 | Morrisville, NC)
    - Collaborated with cross-functional teams in building large, distributed, and multi-threaded software applications that allow MaxPoint's platform to respond to billions of events each day
    - Designed and built advanced software solutions that scale across hundreds of servers and meet aggressive fault tolerance standards, also implemented architecture and design patterns to help ensure that systems scale well into the future
    - Changed **Apache Impala** access code to use **Apache Spark** because of the change in company policies
    - Team collaborations using **Git** and **Jira**

Skills

- **Experience in Agile Methodologies:** Scrum, XP, Kanban
- **Programming:** Python, Java, C/C++, SQL, MATLAB, R
- **Tools:** Pandas, Scikit Learn, Numpy, iGraph, MongoDB, TensorFlow, PostgreSQL, Git, SVN, MySQL, SQLite, Apache Spark, Jira, Jenkins, Apache Impala, Maven, Ibis on Impala, South, Docker, Django

Publications

- Gitinabard, N., Okoilu, R., Xu, Y., Heckman, S., Barnes, T., Lynch, CF. (2020). **Student Teamwork on Programming Projects What can GitHub logs show us?** Proceedings of the 13th International Conference on Educational Data Mining (p. 409-416).
- Gitinabard, N., Lynch, C. F., Long, R., Meyer, C., & Woodman, L. –**SOCIAL MEDIA FRAMEWORKS AND IMPROVED LEARNING ENGAGEMENT IN GIFT**. Design Recommendations for Intelligent Tutoring Systems, 153.
- Gitinabard, N., Heckman, S., Barnes, T., Lynch, CF. (2019). **How Widely Can Prediction Models be Generalized? Performance Prediction in Blended Courses**. In *IEEE Transactions on Learning Technologies*, vol. 12, no. 2, pp. 184-197, 1 April-June 2019.
- Gitinabard, N., Heckman, S., Barnes, T., Lynch, CF. (2019). **What will you do next? A sequence analysis on the student transitions between online platforms in blended courses.** Proceedings of the 12th International Conference on Educational Data Mining (p. 59-68). Montreal (Canada).
- Gitinabard, N., Heckman, S., Barnes, T., Bergner, Y., Mcnamara, D., Lynch, CF. (2019). **Piazza Data Analysis Tool.** In CSEDM Workshop @ AIED 2019, Chicago (US).
- Xu, Y., Gitinabard, N., Lynch, CF., Barnes, T. (2019). **What You Say is Relevant to How You Make Friends: Measuring the Effect of Content on Social Connection.** Proceedings of the 12th International Conference on Educational Data Mining (p. 679-682). Montreal (Canada).
- Gitinabard, N., Khoshnevisan, F., Lynch, CF., Wang, EY. (2018). **Your Actions or Your Associates? Predicting Certification and Dropout in MOOCs with Behavioral and Social Features.** Proceedings of the 11th International Conference on Educational Data Mining (p. 404-410). Buffalo (US).
- Sheshadri, A., Gitinabard, N., Lynch, CF., Barnes, T., Heckman, S. (2018). **Predicting Student Performance Based on Online Study Habits: A Study of Blended Courses.** Proceedings of the 11th International Conference on Educational Data Mining (p. 411-417). Buffalo (US).
- Gitinabard, N., Lynch, C., Heckman, S., Barnes, T. (2017). **Identifying Student Communities in Blended Courses**. Proceedings of the 10th International Conference on Educational Data Mining (p. 378-379). Wuhan (China).
- Gitinabard, N., Xue, L., Lynch, C., Heckman, S., Barnes, T. (2017). **A Social Network Analysis on Blended Courses**. GEDM 2017 proceedings(p. 22-26). In EDM 2017 Workshop Proceedings. Wuhan (China).

Volunteering Experience

- Board member in the Iranian Student Association at North Carolina State University (2019-2020)
- Reviewer in Educational Data Mining Conference in 2019, Journal for Educational Data Mining (JEDM) in 2019, SIGCSE conference in 2018 and 2019, and AI in Education Conference in 2019.
- Student Volunteer in Educational Data Mining Conference (2018) and SIGCSE Conference (2016 and 2017)
- Co-organizer and reviewer in the third international workshop on **Graph-Based Educational Data Mining(GEDM 2017)**, in conjunction with **EDM 2017**, Wuhan, China.

Related Courses

Personal Interests

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- Social Computing
- Graph Theory
- Data Driven Decision Making
- Educational Data Mining
- Natural Language Processing

- Reading: Interest in classics, fiction, and psychology.
- Traveling: One of my dreams is having a map all marked, of places I have visited.
- Theater: Started a live theater group in Cafe Bazaar.

Course Projects

- **Riot Predictor |** Data Driven Decision Making Course
  - Predicting how likely it is for a protest to turn into a riot based on the target of the protest, the issue, number of participants, crime rating in the area, and violence rating of the articles or social media posts. Information was extracted using **natural language processing** from articles on **Bing** and **DuckDuckGo**.
  - Developed in Python, used machine learning methods such as **Neural Networks**, **Naive Bayes**, **logistic regression**, and **random forest**

- **Github Behavior: Bad Smell Detector |** Software Engineering Course
  - Collected and analyzed **GitHub activity data** from 14 “Software Engineering Teams”, defined “Bad Smells” in their behaviors including use of issues, milestones, commits and comments, and provided a case-study on them.
  - Built “Bad Smell” **early detectors** based on our definition
  - Developed in Python, practiced data collection, pre-processing, anonymization, feature extraction, and used z-score for finding outliers.

- **Retweet Count Predictor |** Social Computing Course
  - Predicting number of retweets of a tweet, based on its links, hash-tags, mentions, author, etc.
  - Developed in Python and R, Using **Snap**, **MASS**, and **Neural Networks**

Additional Experience

- **Cafe Bazaar |** Software Engineer and Web Developer (June 2013 - Aug. 2015 | Tehran- Iran)
  - Maintained the server side of Cafe Bazaar, the leading app store in the Iranian market, installed on more than 23 million devices
  - Python-Django developer, using Django's internal ORM, South migrations, PostgreSQL, Nginx
  - Worked in a team of ten people practicing Kanban, Scrum, and XP
  - Experienced in using Git, Clean Coding, Pair Programming, Code Review, being Scrum Master
  - Utilized Dockers to implement separate test environments and databases on a test server for developers
  - Designed a new architecture for page layouts based on JSON instead of SQL DB
- **LabOS, EPFL |** Research Intern (July - Sept. 2014 | Lausanne- Switzerland)
  - Worked on a distributed graph analyzing system called X-Scale which was the distributed version of their former Project X-Stream
  - Implemented graph algorithms like Triangle Counting and Betweenness Centrality based on the scatter-gather model of the system
  - Ran an analysis on twitter data to compare the runtime of X-Stream and X-Scale
  - Developed in C++