Maeda F. Hanafi

FULL STACK SOFTWARE ENGINEER | JAVA AND D3.JS PROGRAMMER ENTHUSIAST

📞 +971 52 927 7403 | ✉ maeda.hanafi@nyu.edu | 🏠 http://maedahanafi.info

Research-Based Projects

`WhyFlow`: Automated Debugging Tool for Explaining Errors in Data Extraction Pipelines
May 2017 - May 2020

- Implemented an intuitive interface with React.js and Angular.js and visualization of the pipeline with d3.js.
- Integrated PostgreSQL database to capture, store, and interactively handle the direct-acyclic graphical structure of the pipeline's provenance data.
- Implemented a Java-based program synthesizer that generates user-friendly explanations of errors, which are based on researched-methods in Explainable Artificial Intelligence and Interpretable Machine Learning models.
- Experimented and tested methods for analyzing errors with Bayesian networks and inference, Gibbs sampling, and other statistical approaches.

`Texture`: Extraction Pipeline for PDF Documents by Structure Identification (Paper)
May 2014 - May 2019

- Implemented AdaBoost algorithm, a machine learning meta-algorithm, in Java to improve the performance of user-developed heuristics that identify structures (titles, sections, lists, figures, tables) in PDF documents.
- Setup and integrated PostgreSQL database for storing ground-truth data and identified structures to facilitate collaborative efforts of extracting structure across the user groups in the data extraction pipeline, i.e. end-users, annotators, developers.

`SEER`: Auto-Generating Extraction Programs from User-Highlighted Texts (Demo, Paper)
May 2015 to May 2017

- Designed and programmed an intuitive, jQuery-based interface for the user to highlight text and inspect extractions directly in the documents.
- Implemented Java-based program synthesizer that searches for valid extraction programs to suggest to the user.

Handwritten Recognition using Neural Networks
Aug. 2011 to Dec. 2011

- Programmed Java-based artificial neural network and back-propagation algorithm to train the neural network.

Technical Skills: Languages and Frameworks

Front-End JavaScript, jQuery, d3.js, React.js, Angular.js, node.js, SASS, CSS
Back-End Java, Python, SQL, PostgreSQL, Spring MVC, C++/C

Working Experience

Graduate Student Research Assistant
May 2014 - May 2020

HUMAN AND DATA INTERACTION LAB, NEW YORK UNIVERSITY - ABU DHABI
Abu Dhabi, United Arab Emirates

- Implemented full stack architecture of several automated data extraction tools.
- Designed and programmed several Java-based back-end logic to facilitate automation in data tasks, including several program synthesizers.
- Presented several seminars and talks on data extraction tools.
- Published research papers in top conferences for computer science: Conference on Human Factors in Computing Systems (CHI) and International Conference on Management of Data (SIGMOD).

Ph.D. Research Intern
Summer 2017 and Summer 2015

IBM RESEARCH - ALMADEN
San Jose, California

- Collaborated with industry experts and researchers to solve several challenging problems in deployed data extraction pipelines.

Graduate Student Teaching Assistant
Sept. 2013 - May 2014

COMPUTER SCIENCE DEPARTMENT, SOUTHERN CONNECTICUT STATE UNIVERSITY
New Haven, Connecticut

- Graded and corrected student code from courses: Algorithm Design and Analysis, Java Programming, Multimedia Systems, Information Management and Productivity Software.
- Conducted tutoring sessions for Java programming.

Education

Doctor of Philosophy (Ph.D.) in Computer Science
Sept. 2015 - May 2020

NEW YORK UNIVERSITY (NYU) - TANDON SCHOOL OF ENGINEERING
Brooklyn, New York

- Focus: Program Synthesis, Data Extraction, Data Visualization, Human-in-the-loop Systems, Human-Computer Interactions
- **Global Ph.D. Student Fellowship**, New York University - Abu Dhabi (NYUAD), United Arab Emirates — *Fall 2015 to Spring 2020*

Bachelor of Science (B.S.) in Computer Science, Cum Laude Award
Jan. 2010 - Dec. 2012

SOUTHERN CONNECTICUT STATE UNIVERSITY (SCSU)
New Haven, Connecticut

Awards and Media

- **National Society of Leadership and Success, Presidential Award**, Southern Connecticut State University. Spring 2013.
- **Teenager Due to Graduate from SCSU this Year**, 2012. (Southern News)
- **Academic Excellency Award in Computer Science**, Honors Convocation, Southern Connecticut State University. Spring 2012.
- **Dean's List**, College of Arts and Sciences, Southern Connecticut State University. Spring 2010, Fall 2011, Spring 2012, Fall 2012.
- **13-Year-Old Connecticut Muslim Headed to University**, 2009. (Fox News.) (New Haven Register.)
- **Distinguished Scholar Awards ($12,000 scholarship)**, University of New Haven, West Haven, Connecticut. Fall 2009.