Maeda F. Hanafi

Human-Centered AI Researcher | Full-Stack Software Engineer

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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: Human-Centered Artificial Intelligence, Program Synthesis, Data Extraction, 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*

Technical Skills

Languages Java, Python, PostgreSQL, JavaScript, jQuery, D3.js, ReactJS, AngularJS, CSS, C#

Tools & Systems TensorFlow, MATLAB, Unity 3D, AWS, React Native, Android SDK, Spring MVC

Working Experience

Artificial Intelligence Intern — *Summer 2020*

Center for Innovation and Security Solutions, Lockheed Martin — *Abu Dhabi, United Arab Emirates*

- Trained and tuned generative adversarial networks (GANs) that generates high-quality image-based training data.
- Utilized state-of-the-art research methods for automatically labeling unlabeled large datasets, and cut down several weeks (∼ max 9 weeks) of human labor of manually labeling training data.

Graduate Student Research Assistant — *May 2014 - May 2020*

Human and Data Interaction Lab, New York University - Abu Dhabi — *Abu Dhabi, United Arab Emirates*

- `Texture`: Extraction Pipeline for PDF Documents by Structure Identification
  - 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.

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.
- `SEER`: Auto-Generating Extraction Rules from User-Highlighted Texts
  - Designed and implemented `SEER` that automatically generates user-friendly extraction programs from user-highlighted text examples.
  - Conducted user study and proved `SEER` to reduce the time and manual effort of building and debugging extraction programs.
- `WhyFlow`: Automated Debugging Tool for Explaining Errors in Data Extraction Pipelines
  - Wrote a Java-based program synthesizer that generates user-friendly explanations of the data pipeline's errors.
  - Experimented and tested statistical methods for automatically debugging errors with Bayesian networks and inference.
  - Implemented the full stack architecture including integrating a PostgreSQL database to capture the pipeline's provenance data and implementing an interface and visualization with ReactJS, AngularJS, and D3.js.

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.

Select Publications

- **M. F. Hanafi**, A. Abouzied, M. Danilevsky, and Y. Li. 2020. WhyFlow: Explaining Errors in Data Flows Interactively. In Proceedings of the Workshop on Data Science with Human in the Loop (DaSH 2020).
- **M. F. Hanafi**, M. Mannino, and A. Abouzied. 2019. A Collaborative Framework for Structure Identification over Print Documents. In Proceedings of the Workshop on Human-In-the-Loop Data Analytics (HILDA 2019).
- **M. F. Hanafi**, A. Abouzied, L. Chiticariu, and Y. Li. 2017. SEER: Auto-Generating Information Extraction Rules from User-Specified Examples. In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI 2017).

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.
- **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.