

# 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

- Utilized state-of-the-art research methods to automatically label large training datasets.
- Implemented auto-labeling code that cut down 4.2 million USD worth of costs towards human-based aircraft inspection.

### 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.
  - Deployed **SEER** to IBM's commercial data processing and analysis tool, **InfoSphere BigInsights**.
- **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.