Ian Steenstra

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EDUCATION

Rensselaer Polytechnic Institute May 2020
B.S. Computer & Systems Engineering
w/ Concentration in Artificial Intelligence & Data

RESEARCH EXPERIENCE

Undergraduate Researcher, Rensselaer Polytechnic Institute Jan 2019 – May 2020
Cognitive & Immersive Systems Lab
Advisor: Dr. Hui Su

- Developed a multimodal open-domain question-answering system for the Dialog State Tracking Challenge (DSTC), using BiGRUs, multimodal fusion, attention, teacher forcing, and a new data augmentation technique.
- Created a visual question-answering system that uses the Visual Genome dataset and scene graphs for providing cross-task attention learning with weak supervision.

The DSTC work resulted in a publication in AAAI 2020 conference proceedings.

Undergraduate Researcher, Rensselaer Polytechnic Institute May 2017 – Dec 2018
Center for Ultra-Wide-Area Resilient Electric Energy Transmission Networks
Advisor: Dr. Joe Chow

- Helped create a week-long electric grid summer camp for high school students.
- Reverse-engineered a photovoltaic device for wireless solar radiation data recording and designed a 6 module high school curriculum based on the construction of the device.
    - Professional recorded every presentation and hands-on activity for the RPI Engineering Ambassadors' online education platform.
    - Taught my curriculum to 20 high school students that resulted in a statistically significant increase in the students' interest in STEM and confidence in performing hands-on projects.

The work resulted in a publication in ASEE 2019 conference proceedings.

Undergraduate Research Manager, Rensselaer Polytechnic Institute May 2017 – Aug 2017

Center for Ultra-Wide-Area Resilient Electric Energy Transmission Networks
Advisor: Dr. Joe Chow

- Managed a group of undergraduate researchers in the development of a portable weather device used for wirelessly recording solar radiation, temperature, and humidity data.
- Designed the portable weather device to also be easily buildable by high school students.

The work was showcased in CURENT's 6th Annual Industry Conference & NSF/DOE Site Visit.

Undergraduate Researcher, Rensselaer Polytechnic Institute Sept 2016 – Mar 2017

Department of Electrical, Computer, and Systems Engineering
Advisor: Dr. Alhussein Abouzeid

- Designed and taught a high school IoT outreach program using Raspberry Pis and UC Berkeley wireless sensor motes.

WORK EXPERIENCE

Software Engineer, Wayfair Oct 2020 – Present

- Working as a collaborative team member on the Notifications Content and Delivery Team that owns the infrastructure which powers Wayfair's billions of email, push and SMS notifications.
- Designing and implementing distributed systems that utilize Wayfair's vast customer real-time and historical data to curate personalized notifications through the use of Kafka, Storm, Akka, Aerospike, and PowerMTA.

Freelance Software Engineer – Machine Learning, Upwork Jul 2020 – Oct 2020

- Developed an MVP app for a brand label recognizer, so that a brand's image may act as a QR code to link to their website.
- Trained and used an autoregressive integrated moving average model to predict stock futures using data from Google BigQuery.

Engineering Ambassador, Rensselaer Polytechnic Institute Mar 2017 – May 2020

- Directly impacted over 200 kids a year to pursue an engineering career by offering educational programs and presentations.

Software Engineer Intern, Wayfair Jun 2019 – Aug 2019

- Created an automated bandit testing tool using PHP, React.js, and Jenkins.
- The tool can generate over $300,000 in additional revenue in one day by strategically marketing emails to Wayfair's millions of customers through a Java application I developed.

Data Analytics Engineer Intern, Pratt & Whitney May 2018 – Aug 2018

- Helped build an automated quality notification system using Python and Django REST framework that is now used by all airfoil manufacturing.
- Created a graphical user interface for multi-dimensional data visualization and analysis.

PROJECTS

Peer Support Aug 2019 – Oct 2020

- Project Manager for a team of 10 computer science students creating an anonymous peer support web application using Python, React.js, Django REST Framework, PostgreSQL, Redis, Kubernetes, Docker, and Natural Language Processing.
- Automatically classifies harmful messages (e.g. suicidal ideations and threats) for anonymous evaluation by on-call counselors.

SAFEWheel Oct 2018 – Dec 2018

- Lead a team in creating a working prototype of a steering wheel cover that sounds an alarm when the driver's hands are off the wheel or their eyes are closed.
- Stores data on a web application for data visualization and analysis on driving performance.
- Utilized Google App Engine, Cloud Storage, AutoML Vision, and a Raspberry Pi.
- Appeared on Google's internal newsletter.

PUBLICATIONS

Mou, X., & Sigouin, B., & **Steenstra, I.**, & Su, H. (2020, July), *Multimodal Dialogue State Tracking By QA Approach with Data Augmentation* Paper presented at Thirty-Fourth AAAI Conference on Artificial Intelligence, New York, New York.

Douglas, D. J., & **Steenstra, I. S.**, & Chow, J. H., & Chen, C., & Wang, M., & Braunstein, J., & Herkenham, E. S., & Skutnik, A. L. (2019, February), *Evolution of Activities in a Smart Grid Summer Camp for High School STEM Students (Evaluation)* Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. 10.18260/1-2--32771

TEACHING EXPERIENCE

Teaching Assistant, Rensselaer Polytechnic Institute Spring 2017
Course: Internetworking of Things
Responsibilities: Develop lab projects and help answer questions during lab hours for an undergraduate/graduate-level course. 20 students

TECHNICAL SKILLS

Programming Languages: Java, Python, PHP, React.js, Microsoft SQL Server, PostgreSQL
Software & Packages: Scikit-learn, NumPy, SciPy, Pandas, NLTK, XGBoost, Gensim, Tensorflow, Keras, PyTorch, Matplotlib, Git, Kubernetes, Docker, Apache Kafka, Apache Storm, Akka, Jupyter Notebook, Google Colab, Google Big Query, Django, Google Cloud Platform

HONORS & AWARDS

Dean's Honor List 2016 – 2020
- Fall 2016, Fall 2018, Fall 2019, Spring 2020

Lynchpin Award 2020
- Given to the most devoted and influential RPI Engineering Ambassadors members.

Winner of the ESHIP.2 Solutions Challenge (a.k.a. Change The World Challenge) 2020
- Won $1000 for the business model presentation of my Peer Support project.

White Key Award 2018
- Given by the Phalanx Honor Society for having demonstrated outstanding leadership in activities and loyal devotion at Rensselaer.

HONOR SOCIETIES & LEADERSHIP

Phalanx Honor Society 2019 – 2020

Order of Omega: Greek Honor Society 2019 – 2020

HackRPI 2019, President, Director of Logistics, and Master of Ceremonies 2018 – 2019

RPI Engineering Ambassadors, Outreach Coordinator 2018 – 2019

Sigma Alpha Epsilon, Technology Chairman & Community Relations Chairman 2018

SERVICE & OUTREACH

Organizer, Troy Boys & Girls Club Field Day Oct 2018
Responsibilities: Manage the setup and volunteers for a field day sponsored by my fraternity (Sigma Alpha Epsilon).

Co-Organizer, Journey Through The Body Mar 2017
Responsibilities: Manage the setup and volunteers for the RPI Engineering Ambassadors' *Design of An Athlete* hands-on activity tables.

POSTER PRESENTATIONS

CURENT's 7th Annual Industry Conference & NSF/DOE Site Visit, Dec. 4-7, 2018, Knoxville, TN

1. **Steenstra, I.**, *CURENT summer camp & REACH*

CURENT's 6th Annual Industry Conference & NSF/DOE Site Visit, Nov. 14-17, 2017, Knoxville, TN

1. **Steenstra, I.**, *PV Device & Smart Grid Educational Program*
2. **Steenstra, I.**, *PV Device & Weather Data Collection*