

# Mara Schwartz

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## EDUCATION

### MASTER OF SCIENCE IN COMPUTER SCIENCE | RENSSELAER POLYTECHNIC INSTITUTE

August 2021 - December 2022 | GPA: 3.92 / 4.0

FOCUS: MACHINE LEARNING AND NATURAL LANGUAGE PROCESSING

- Coursework: Machine Learning & Optimization, Distributed Systems & Algorithms, Parallel Computing, Computing & Quantum Computing

### BACHELOR OF SCIENCE IN COMPUTER SCIENCE & COGNITIVE SCIENCE | RENSSELAER POLYTECHNIC INSTITUTE

August 2017 - May 2021 | GPA: 3.86 / 4.0

MINOR IN MATHEMATICS | MAGNA CUM LAUDE

- Coursework: Social Computing, Intro to AI, Cognitive Modeling, Graph Theory, Numerical Computing, Math Models of Operations Research
- Honors: UPE Honor Society, Rensselaer Leadership Award, Dean's Honor List
- Teaching: ALAC Tutor (Computer Science 1, Data Structures), TA for Operating Systems

## EXPERIENCE

### SOFTWARE ENGINEER | NORTH ATLANTIC INDUSTRIES

July 2024 - Present | Bohemia, NY

- Project lead for PinMapper, advancing a decade-old project to completion, delivering critical documentation for COTS hardware customers, test engineers, and application engineers; cut pin-out creation time from over 4 hours to under 1 minute, streamlining verification processes
- Develop automated thermal testing tools for COTS motherboards and hardware, establishing critical thermal documentation processes; identify critical heat management deficiencies in pre-production, protecting company reputation and preventing customer contract issues
- Manage one Junior SWE and six interns, providing technical mentorship and project management, demonstrating leadership beyond current role
- Implement a two-week sprint and Jira workflow for a 10-member team, improving communication, planning, and delivery with full team adoption
- Design and present product demos earning company recognition for technical expertise and customer engagement

### LANGUAGE AND COGNITION ARTIFICIAL INTELLIGENCE LAB (LACAI LAB) | RENSSELAER POLYTECHNIC INSTITUTE

Graduate Research Assistant | August 2022 - February 2023 | Troy, NY

- Researcher on GATOR, an IBM-funded research project to prototype a new task-oriented human-machine dialogue system using transformers
- Led real-user evaluation and performed data analysis to compare with previous self-play evaluation using the "Persuasion for Good" corpus
- Co-authored and published our results in the AHFE International 2023 conference proceedings

Undergraduate Research Assistant | May 2020 - August 2021 | Troy, NY

- Developed a tool for annotating belief extractions in text for use in ongoing projects within the research lab
- Lead developer for the Socio-Cultural Content in Language (SCIL) toolset, an NLP toolset for identifying social roles within dialogues

### TEACHING ASSISTANT | RENSSELAER POLYTECHNIC INSTITUTE

September 2021 - May 2022 | Troy, NY

- Teaching Assistant for Programming Languages (Fall 2021) and Data Structures (Spring 2022)
- Mentored students, created and graded programming assignments, graded tests, and held office hours and labs

## PROJECTS

### MASTER'S PROJECT | PYTHON, PYTORCH, TRANSFORMERS, SCIKIT-LEARN, NUMPY

Principal Investigator | 2022

- Performed dialogue analysis on Twitter user clusters to determine how influence campaigns propagate influence through social networks
- Identified prominent influencers and influential opinions within the user clusters using the SCIL toolset on constructed dialogues

### SOCIO-CULTURAL CONTENT IN LANGUAGE (SCIL) | PYTHON, STANFORD CORENLP, NLTK, PYTORCH, TRANSFORMERS, SCIKIT-LEARN, KERAS

Project Lead, Developer | 2020-2021

- Developed an improved NLP toolset for identifying social roles in dialogues, reducing processing time from about 5 minutes to 5 seconds
- Fine-tuned a 12-layer BERT model for automatic dialogue act classification and tagging

### YET ANOTHER COURSE SCHEDULER (YACS) | ANGULARJS, RUBY ON RAILS, TYPESCRIPT, POSTGRESQL, DOCKER

Project Lead, Developer, Mentor | 2018 - 2019

- Led and mentored a 12-person team in the Rensselaer Center for Open Source (RCOS) to improve YACS, a tool used by over 5,000 students
- Contributed to open-source development by enhancing functionality with multi-semester planning and admin tools

## PUBLICATIONS

[1] A. Sanders, M. Schwartz, A. Chang, S. Briggs, J. Braasch, D. Wang, M. Si, and T. Strzalkowski, Towards a proper evaluation of automated conversational systems, in Artificial Intelligence and Social Computing, vol. 72, July 2023. doi: 10.54941/ahfe1003276.

## SKILLS

- Programming Languages: C/C++, Python, JavaScript/Typescript, SQL, C#, Java, Erlang
- Libraries/Frameworks: PyTorch, Transformers, TensorFlow, scikit-learn, Pandas, Django, AngularJS, OpenCL, OpenCV
- Cloud and DevOps: Docker, AWS (ECS, EC2, Fargate), Jenkins, GitLab CI/CD
- Tools: Git, Linux/Unix, Bash, Jupyter, L<sup>A</sup>T<sub>E</sub>X