

EDUCATION

- Aug 2016 - Present **Syracuse University (SU)**, Syracuse, NY
Ph.D., Information Science and Technology
Research areas: Human-Computer Interaction; Privacy; Ethics; Machine Learning.
Advisor: Prof. Yang Wang
- 2012 - 2015 **Catholic University**, Santa Catarina, Joinville, Brazil
B.S., Information Systems
Exchange student at Syracuse University (2013-2014)
GPA: 9.37/10

RESEARCH & WORK EXPERIENCE

- May 2018 – Aug 2018 **Research Intern (HCI)**, Figure Eight (f.k.a. CrowdFlower), San Francisco, CA
Team: Machine Learning. Supervisor: Dr. Monchu Chen
- *Designed and evaluated a framework to address bias and ethics in AI labeling tasks*
 - *Designed neural network model to forecast changes in worker availability over time*
 - *Developed sensor-fusion prototype to label training data for self-driving cars*
 - *Improved object tracking algorithm for machine-assisted video labeling*
- May 2017 – Aug 2017 **Research Intern**, Syracuse University, Syracuse, NY
Social Computing Systems Lab (SALT), Prof. Yang Wang
- *Designed and evaluated a web browsing system for users with visual impairments powered by machine learning and crowdsourcing*
 - *Conducted crowdsourcing experiments and user studies*
- Aug 2016 – Present **Graduate Research Assistant**, Syracuse University, Syracuse, NY
Social Computing Systems Lab (SALT), Prof. Yang Wang, Prof. Yun Huang
- *Designing and evaluating data-driven privacy-protecting tools*
 - *Designing and evaluating web and mobile systems for users with visual impairments*
- May 2014 – Aug 2016 **Undergraduate Research Assistant**, Syracuse University, Syracuse, NY
Social Computing Systems Lab (SALT)
- *Designed and evaluated authentication systems for users with visual impairments*
- Mar 2013 – Jun 2013 **User Experience Research Intern**, ITE Innovation Lab, Singapore
- *Designed and evaluated 3D virtual reality app for the floristry program*
 - *Conducted user studies with students*
- Feb 2011 – Mar 2013 **Software Engineer**, NeoGrid Software, Joinville, Brazil
- *Led the upgrade of front-end stack used by 10-15 apps*
 - *Developed cross-app Single-Sign-On authentication*
 - *Designed core system features such as print-friendly pages, user authorization, and recipe interpreter for PLM platform*

PUBLICATIONS

Peer-reviewed Conferences

4. [To Appear] **Barbosa, N. M.**, Chen, M. (2019). Rehumanized Crowdsourcing: A Labeling Framework Addressing Bias and Ethics in Machine Learning. The *2019 SIGCHI Conference on Human Factors in Computing Systems (CHI 2019)* [24% acceptance rate]
3. **Barbosa, N. M.**, Hayes, J., & Wang, Y. (2016). UniPass: Design and Evaluation of a Smart Device-Based Password Manager for Visually Impaired Users. The *2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp 2016)* [23% acceptance rate]
2. Huang, Y., Dobreski, B., Deo, B. B., Xin, J., **Barbosa, N. M.**, Wang, Y., & Bigham, J. P. (2015). CAN: Composable Accessibility Infrastructure via Data-Driven Crowdsourcing. The *12th Web for All Conference (W4A 2015)* [35% acceptance rate]

1. **Barbosa, N. M.** (2014). Strategies: An Inclusive Authentication Framework. *The 16th International ACM SIGACCESS Conference on Computers & accessibility (ASSETS 2014)* [Student Research Competition]

Workshops

Barbosa, N. M. (2018) From Collectives to Individuals: A Data-Driven Approach to Personal Privacy. The *2018 SIGCHI Conference on Human Factors in Computing Systems. (CHI 2018)*.

Barbosa, N. M. and Wang, Y. (2017). Designing Task-Oriented Text Commands for Screen Readers and Screen Magnifiers. The *2017 Conference on Human Factors in Computing Systems. (CHI 2017)*.

Barbosa, N. M. and Wang, Y. (2016). Lessons Learned from Designing and Evaluating Smart Device-based Authentication for Visually Impaired Users. In *Twelfth Symposium on Usable Privacy and Security (SOUPS 2016)*.

PATENT APPLICATIONS

2018 Framework for adjusting contributor profiles in collecting data labels
Natã M. Barbosa, Monchu Chen, Jennifer Prendki
U.S. provisional patent application (62/720836)

2016 Website authentication using an internet-connected device
Natã M. Barbosa, Yang Wang
U.S. provisional patent application (PCT/US2016/025783)

TECHNICAL SKILLS

Programming Languages Proficient in Java, Python, R, JavaScript, ES6, and Swift. Experience with C++, C#, C and PHP.

Technologies Web APIs; HTML5; SQL; MongoDB; Node.js; scikit-learn; Git; Docker; REST APIs; Keras; Apache Spark; Jupyter; Pandas; Scipy; ggplot2; dplyr.

Areas of Expertise Human-Computer Interaction; User Studies; Data Science; Web stack; Security; Privacy; Machine Learning; Authentication; Crowdsourcing; Experiment Design; Accessibility; Mobile App Development.

PROJECTS & ACTIVITIES

Software Projects (Core Contributor)

- 2018 Crowdsourcing framework addressing bias and ethics in labeling for machine learning
- 2018 Evaluation of Convolutional Neural Networks for web page screenshot classification
- 2017 CrowdIntent: a system for task-oriented browsing powered by machine learning
- 2017 Implicit smartphone authentication for visually impaired users
- 2017 Network analysis of app permissions on Google Play
- 2016 Classification of authentication-related hyperlinks on the web
- 2016 Elefante Letrado, a reading platform for young students on iOS
- 2016 Multimodal mobile device pairing for visually impaired users
- 2015 UniPass: a smart device-based password manager
- 2015 ParkAmigo: a mobile app for parking based on driveway sharing
- 2014 196sense: a mobile app for personalized travel tips

Activities

- 2015 Hackathon organizer: WorldSkills Digital Challenge 2015
- 2014 Student startup incubator, Syracuse Student Sandbox
- 2014 Spring Break in Silicon Valley Program, School of Information Studies, SU

HONORS & AWARDS

- 2017 Summer Research Award, iSchool, Syracuse University (\$6,500)
- 2014 Silver medal, Student Research Competition (ASSETS 2014)
- 2014 RvD IDEA Awards, \$3,500 seed funding for travel app
- 2013 Science Without Borders Full Tuition Study Abroad Scholarship

- 2012 SENAI WorldSkills Full Tuition Undergraduate Scholarship
- 2011 Gold medal, WorldSkills London (Web Design)
- 2010 Gold medal, Olimpíada do Conhecimento National (Web Design)
- 2009 Gold medal, Olimpíada do Conhecimento State (Web Design)

INVITED TALKS & PRESENTATIONS

- 2018 Speaker: iSchool Graduate Seminar: Data Privacy and Protection, Syracuse, NY
- 2018 Workshop on Individual Differences in Privacy at **CHI 2018**, Montreal, Canada
- 2018 Poster presentation: Federal Trade Commission – **PrivacyCon 2018**, Washington, DC
- 2017 Poster presentation: **Great Lakes Security Day**, Rochester, NY
- 2017 Workshop on Ubiquitous Text Interaction at **CHI 2017**, Denver, CO
- 2016 Speaker: IST 101, undergraduate research experience, Syracuse University
- 2016 Paper presentation: **UbiComp 2016**, Heidelberg, Germany
- 2014 Poster presentation: Student research competition at **ASSETS 2014**, Rochester, NY
- 2014 Speaker: **United Nations ECOSOC** panel on youth empowerment, New York
- 2012 Workshop instructor: National Web design competition, Bogota, Colombia

SERVICE & VOLUNTEERING

- 2018 Hackathon Judge: **IBM Call for Code** Syracuse
- 2018 Student Service: iSchool's Personnel Committee 2018-2019
- 2018 Reviewer, International Conference on Information Systems (**ICIS 2018**)
- 2018 Student Volunteer, ACM Conference on Human Factors in Computer Systems (**CHI 2018**)
- 2018 Reviewer, Symposium on Usable Privacy and Security (**SOUPS 2018**)
- 2017 Student Service: iSchool's Doctoral Committee 2017-2018
- 2017 Reviewer, ACM Conference on Human Factors in Computer Systems (**CHI 2018**)
- 2017 Reviewer, ACM Conference on Supporting Group Work (**Group 2018**)
- 2017 Reviewer, Hawaii International Conference on System Sciences (**HICSS 2018**)
- 2017 Reviewer, Symposium on Usable Privacy and Security (**SOUPS 2017**)
- 2017 Reviewer, ACM Conference on Computer-Supported Cooperative Work and Social Computing (**CSCW 2018**)
- 2017 Reviewer, International Conference on Human-Computer Interaction with Mobile Devices and Services (**MobileHCI 2017**)
- 2017 Reviewer, ACM Conference on Human Factors in Computer Systems (**CHI 2017**)
- 2017, 2016 External reviewer, **iConference**
- 2014 Program committee, Web for All Conference (**W4A 2014**)
- 2014 Youth forum moderator, Champions Forum, Lucerne, Switzerland
- 2013 Social media assistant, WorldSkills Leipzig 2013

TEACHING EXPERIENCE

- Fall 2018 Design of in-class exercises on statistical inference (IST 777 – Statistical Methods)
- Spring 2018 Lectures on User Evaluation (IST 649 – Human Interaction with Computers)
- Fall 2017 Designed lecture and Syllabus for Privacy Policy, Law, and Tech. course (IST 800)
- Spring 2017 Designed a lecture about privacy in ubiquitous computing (course design)
- Fall 2016 Lecture on Triggers, Functions, and Stored Procedures (IST 659)
- Fall 2015 Introduction to programming and robotics for high school students
- 2012 - 2015 Mentor of competitors in international web development competitions

RELEVANT COURSEWORK

- IST 718 Big Data Analytics
- IST 719 Information Visualization
- PSY 756 Statistics & Research Design II
- IST 800 Privacy Policy, Law, and Technology
- CIS 731 Artificial Neural Networks
- CSE 674 Advanced Data Structures and Algorithms
- CIS 700 Machine Learning Methods in Security
- IST 800 Social Network Theory and Analysis
- IST 664 Natural Language Processing
- IST 777 Statistical Methods