

# Mauricio Soto, PhD

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## SUMMARY

R&D Engineer with 10+ years of experience in machine learning, software research, analytics, and development. PC Member of 4 international conferences, 10+ publications, international speaker/panelist, fluent in 3 languages. Strong leadership, collaboration, and communication skills; work in groups, innovation and problem solving.

## EDUCATION

<b>Carnegie Mellon University, School of Computer Science</b>	Ph.D. in Software Engineering	2021
<b>Carnegie Mellon University, School of Computer Science</b>	M.Sc. in Software Engineering	2018
<b>University of Costa Rica, School of Computer Science</b>	B.Sc. in Computer Science	2013

## PROFESSIONAL EXPERIENCE

**Senior Machine Learning R&D Engineer** | *Hitachi ABB Power Grids, NAMTC* Aug 2020 – Present (9 months)

- Design and deploy machine learning models based on time series sensor data to support third party clients
- Project leader in charge of goal planning, prioritization, budget, and reporting to corporate executives

**Software Engineering Researcher** | *Carnegie Mellon University, SCS* Aug 2014 – May 2021 (7 years)

- Created ML association rules describing human code changes to inform automatic program repair approach
- Designed and implemented ML models for 2-factor user authentication using keystroke dynamics
- Analyzed and evaluated the role of test suite characteristics in the automated repair process

**Research Scientist** | *ABB Research Center, US Corporate Office* May 2019 – Aug 2020 (1.5 years)

- Led machine learning project creating models to predict productivity indicators from biometric data
- Designed, simulated and tested 3D components creating prototype of automatic wiring robot
- Designed, implemented, and tested interaction mechanisms to ease programming of collaborative robots

**Software Developer II** | *Experian, Credit Score Reporting Services* Aug 2013 – Aug 2014 (1 year)

- Increased end-user security by building identity theft prevention software in collaborative agile team

**Webmaster** | *Mathematics and Meta-Mathematics Research Center* Feb 2010 – Aug 2014 (4.5 years)

- Led research center's development team of five software engineers to create reliable end-user websites

**Web Developer** | *Rutgers University, Sonny Werblin Center* Feb 2013 – Sep 2013 (6 months)

- Developed and deployed online test-taking and facility evaluation university-wide scalable applications

**Software Developer** | *Intel Corporation* Feb 2012 – Jan 2013 (1 year)

- Redesigned a calendaring application in C#, development and deployment to production

## TECHNICAL SKILLS

Machine Learning: scikit-learn, scipy, pandas, Un/Supervised, R, Weka, NLP, Deep Learning, Clustering  
Programming Languages: Java, Python, C#, Bash, LaTeX, Scala, C, C++, SQL, PHP, UML, XML, HTML, CSS, RAPID  
Frameworks/Tools: Azure, AWS, Jupyter Notebooks, R Studio, Git, Travis CI, Junit, Visual Studio, RobotStudio  
Language skills: Fluent in English, Spanish, and Portuguese

## SELECTED PUBLICATIONS (Full list of publications: <https://mausotog.github.io/#research>)

- Soto et al. "Observing and Predicting Knowledge Worker Stress, Focus and Awakeness", IJHCS 2021
- Motwani et al. "Quality of Automated Program Repair on Real-World Defects", TSE 2020
- Soto et al. "Applying Data Science to Improve Solar Power Production and Reliability", INFORMS 2019

## PROFESSIONAL SERVICE AND AWARDS

- Recognized as "Individual with Exceptional Ability in the National Interest", United States Government, 2020
- Program Committee Member: ESEM'20, MSR'20, EMSE'19, MSR'19; Volunteer: ASE'19, SPLASH'15
- Mentoring: 2 Teaching Assistantships, 1 PhD Intern, 2 REU Students, 4 Groups of High School Students
- Representative to Google (CMU Rep), to SHPE (ABB Rep), and to the CMU Diversity Council (Grad Student Rep)