

LAURA MELISSA CRUZ CASTRO

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EDUCATION

Ph.D. in Engineering Education	Expected Aug 2022
Purdue University, West Lafayette, IN, USA	
Dissertation: Computational Thinking at Scale	
Advisor: Dr. Kerrie Douglas	
M.S. in Electrical and Computer Engineering	Dec 2021
Purdue University, West Lafayette, IN, USA	
Advisor: Dr. Mirelle Boutin	
M.S. in Business Intelligence	Jan 2018
Online Business School	
Universitat de Barcelona, Barcelona, Catalonia, Spain	
B.S. in Statistics	Sep 2015
Universidad Nacional de Colombia, Bogota, Colombia	
Thesis: Bayesian Approximation for a Split-Plot Design with a Binary Outcome	
Co-advisors: Dr. Edilberto Cepeda Cuervo and Dr. Bruce Craig	

AWARDS AND HONORS

Dean's Teaching Fellowship	2022
College of Engineering, Purdue University	
Amount: \$22,150	
Student Organization Grant Award - SOGA	2021
Student Activities and Organizations Office, Purdue University	
Amount: \$ 1,500	
Travel Grant Award	2021
Purdue Graduate Student Government, Purdue University	
Amount: \$ 500	
Explorers Scholarship	2018–2019
School of Engineering Education, Purdue University	
Amount: \$ 22,000	

PUBLICATIONS

Refereed Journal Articles

1. **Cruz Castro, L. M.**, Magana, A. J., Douglas, K. A., & Boutin, M. (2021). Analyzing Students' Computational Thinking Practices in a First-Year Engineering Course. *IEEE Access*, 9, 33041-33050. <https://doi.org/10.1109/ACCESS.2021.3061277>
2. **Cruz Castro, L. M.**, Ortiz, F., & Lemus, D. F. (2016). Construction of a Family Socioeconomic Index for the Students who Present the SABER 11 Test. *Comunicaciones en Estadística* 9(1), 73–84. <https://doi.org/10.15332/s2027-3355.2016.0001.04>
3. Diefes-Dux, H. A., & **Cruz Castro, L. M.** (in press). Reflection Strategies and Students' Access to Feedback in a First-Year Engineering Course using Standards-Based Grading. *Journal of Engineering Education*, V(N), X-Y.

Refereed Journal Articles in Submission

1. **Cruz Castro, L. M.**, Douglas, K. A., Diefes-Dux, H. A., Magana, A. J., & Boutin, M. (under review Oct. 2021). The Role of Self-Regulated Learning Sub-Processes in the Success of Students' Acquisition of Programming Skills in an Introductory Computational Thinking Course. *Journal of Computing in Higher Education*, V(N), X-Y.

Refereed Journal Articles in Preparation

1. **Cruz Castro, L. M.**, & Diefes-Dux, H. A. (2022). Student Engagement with a Standards-Based Grading System with and without Reflection. *Journal of Engineering Education*, V(N), X-Y.
2. **Cruz Castro, L. M.**, Li, T., Douglas, K. A., & Brinton, C. (2022). A Learning Analytics Tool to Address Students' Use of LMS Content. *IEEE Transaction on Learning Technologies*, V(N), X-Y.

Refereed Conference Proceedings

1. Chen, Y. W., Tenorio, B., **Cruz Castro, L. M.**, Douglas, K. A., Lan, A., & Brinton, C. (Accepted for publication Oct. 2021) Click-Based Student Performance Prediction: A Clustering Guided Meta Learning Approach. *Proceedings of the IEEE International Conference on Big Data (IEEE Big Data 2021)*.
2. **Cruz Castro, L. M.**, Ray, S., Merzdorf, H., Douglas, K. A., & Hammond, T. (2021). A Meta Learning Approach to Personalized Automatic Assessment of Rectilinear sketches. *Proceedings of the 51th ASEE/IEEE Frontiers in Education Conference, Lincoln, NE*.

3. Li, T., **Cruz Castro, L. M.**, & Douglas, K. A. (2021). Relationship between Learning Engagement Metrics and Learning Outcomes in an Online Engineering Course. *Proceedings of the 51th ASEE/IEEE Frontiers in Education Conference, Lincoln, NE*.
4. **Cruz Castro, L. M.**, & Shoaib, H. (2021). A Systematized Literature Review on Computational Thinking Assessment in STEM Higher Education. *Proceedings of the 128th ASEE Conference and Exposition, Long Beach, CA*.
5. Diefes-Dux, H. A., & **Cruz Castro, L. M.** (2019). Patterns of Monthly Student Access to Feedback by Section in a Large Course using Standards-Based Grading and Reflection. *Proceedings of the 8th Research in Engineering Education Symposium, Cape Town, South Africa*.
6. Diefes-Dux, H. A., & **Cruz Castro, L. M.** (2019). Validation of an Instrument to Measure Student Engagement with a Standards-Based Grading System. *Proceedings of the 126th ASEE Conference and Exposition, Tampa, FL*.
7. Diefes-Dux, H. A., & **Cruz Castro, L. M.** (2018). Student Reflection to Improve Access to Standards-Based Grading Feedback. *Proceedings of the 48th ASEE/IEEE Frontiers in Education Conference, San Jose, CA*.
<https://doi.org/10.1109/FIE.2018.8659325>

Refereed Conference Papers in Submission

1. **Cruz Castro, L. M.**, Li, T., Ciner, L., Douglas, K. A., & Brinton, C. (Abnstract submitted Nov. 2021) A Human-Centered Learning Analytics Approach for Predicting Learning Outcome in a First-Year Engineering Course. *Proceedings of the 2022 ASEE*

Acknowledgments

1. Olaya-Arenas, P., & Kaplan, I. (2019). Quantifying Pesticide Exposure Risk for Monarch Caterpillars on Milkweeds Bordering Agricultural Land. *Frontiers in Ecology and Evolution*, 7, 223. <https://doi.org/10.3389/fevo.2019.00223>
2. Rodriguez-Fuentes, R. A. (2019). Linguistic and Cultural Factors in Graduate School Admissions: An Examination of Latin American Students at Purdue University. Purdue University Graduate School. Thesis. <https://doi.org/10.25394/PGS.7434353.v>

Other Publications

1. **Cruz Castro, L. M.**, & Ehsan, H. (2020). Surviving the Pandemic as Grad Student Parents. *Inside Higher Ed.*. Retrieved from <https://www.insidehighered.com>

INVITED TALKS

1. **Cruz Castro, L. M.**, & Mendoza, J. (2021). Introduction to Programming and Data Analysis. *Women in Mathematics and Statistics Club, University of Florida*.

2. **Cruz Castro, L. M.**, & Ehsan, H. (2020). The Role of Academic Parents. *ASEE Center for Diversity, Equity, and Inclusion*.
3. **Cruz Castro, L. M.** (2020). The Role of Meta-Cognition in the Acquisition of Programming Skills. *ASEE Student Chapter, Purdue University*.
4. **Cruz Castro, L. M.** (2018). Reflection and standards based grading system. *School of Engineering Education Seminar, Purdue University*.

RESEARCH EXPERIENCE

Graduate Research Assistant SEED Laboratory, School of Engineering Education, Purdue University <i>West Lafayette, IN, USA</i>	Aug 2018 – Present
Student Consultant Statistical Consulting Service, Department of Statistics, Purdue University <i>West Lafayette, IN, USA</i>	May 2018 – Aug 2018
Research Scientist Statistics Institute for assessment of education (ICFES), Colombia Department of Education <i>Bogota, Colombia</i>	Jan 2016 – Jan 2017
Research Assistant - Junior Statistician Data Science, Buy Behavioral Methods Global Group, Nielsen company <i>Bogota, Colombia</i>	Apr 2015 – Jan 2016

TEACHING EXPERIENCE

Graduate Teaching Assistant ECE20875: Python for Data Science Elmore Family School of Electrical and Computer Engineering, Purdue University	Aug 2021 – Present
<ul style="list-style-type: none">• Coordinated grading assignments and office hours among undergraduate and graduate teaching assistants.• Facilitated equal opportunities for students that require accommodation during exams and homework.• Collaborated with other instructional team members to develop questions for exams and homework assignments and their corresponding evaluation rubrics.	Jan 2021 – May 2021

Teaching Apprentice
ENE68500: Educational Methods in Engineering
School of Engineering Education, Purdue University

- Administered the course's learning management system.
- Moderated in-class group discussions.
- Lead instructor in one lecture on student centered teaching.

Course Developer Jan 2019 – May 2019
School of Engineering Education, Purdue University

- Designed a graduate-level course using the principles of backward design titled: *Statistical Literacy for Engineering Education Researchers*.

MENTORING EXPERIENCE

Grad-Track Mentor Purdue University - College of Engineering	Aug 2021 – Present
Mentor of a First-Year Graduate Student Purdue University - Electrical and Computer Engineering	Aug 2021 – Present
Mentor of an Undergraduate Student Purdue University - Data Science	May 2021 – Present
Academic Mentor Cientifico Latino - Graduate School Mentorship Initiative	Aug 2020 - Present
Academic Mentor Colombian Student Association at Purdue - Big Sibling Program	Aug 2018 – Present

SERVICE TO PROFESSION

IEEE Access Reviewer	Feb 2021 – Present
Computer Applications in Engineering Education (CAE) Reviewer	Mar 2019 – Present

SERVICE TO THE UNIVERSITY

Colombian Student Association at Purdue (CSAP) President	Apr 2021 – Present
Engineering Education Graduate Student Association Social Justice and Inclusion Chair	Aug 2018 - May 2019
Women in Engineering Program Activity assistant - Introduce a Girl to Engineering day	Jan 2020

RELATED PROFESSIONAL SKILLS

- | | | |
|----------------------|----------|-----------|
| • GitHub | • Python | • R |
| • GitHub classroom | • C++ | • Tableau |
| • Data visualization | • MATLAB | • MySQL |

PROFESSIONAL AFFILIATIONS

American Society of Engineering Education – ASEE	Apr 2021 – Present
Student member	
IEEE Eta Kappa Nu – HKN	Dec 2020 – Present
Electrical and Computer Engineering Honor Society	
Institute of Electrical and Electronics Engineers – IEEE	Dec 2020 – Present
Member	
Society of Industrial and Applied Mathematics – SIAM	Oct 2020 – Present
Member	