# Jeffrey A. Chan-Santiago

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## Education

**UNIVERSITY OF PUERTO RICO, RIO PIEDRAS CAMPUS**  EXPECTED DEC '21

M.S. APPLIED MATHEMATICS

GPA: 3.77

**UNIVERSITY OF PUERTO RICO, RIO PIEDRAS CAMPUS**  MAY '19

B.S. COMPUTER SCIENCE

SECOND CONCENTRATION COMPUTATIONAL MATHEMATICS AND STATISTICS

Honors: CUM LAUDE     GPA: 3.37

## Experience

**GRADUATE RESEARCHER** | UNIVERSITY OF PUERTO RICO, RIO PIEDRAS  AUG '19 - PRESENT

Currently working with Prof. Rémi Mégret extending functionalities to BeePose, a pose-based bee detector, and developing unsupervised models for bee identification.

**UNDERGRADUATE RESEARCHER** | Brookhaven National Laboratory, Upton, NY  JUNE '19 – AUG '19

Built a machine learning-based system to detect and track nanoparticles from Environmental Transmission Electron Microscope. This system monitors nanoparticles' behaviors as growth and splitting. Host: Yuwei Lin.

**UNDERGRADUATE RESEARCHER** | UNIVERSITY OF PUERTO RICO, RIO PIEDRAS  SEPT '17 — MAY '19

Worked with Prof. Rémi Mégret developing unsupervised and self-supervised models to learn the appearance of bees to design a scalable bee's identification system.

**UNDERGRADUATE RESEARCHER** | UNIVERSITY OF CALIFORNIA, SANTA CRUZ  JUNE '18 — AUG '18

Worked with Dr. Benedict Paten in the genome variation graph team using machine learning to increase the accuracy of DNA matching. Developed models to predict the confidence of DNA matching location using C++ with Vowpal Wabbit and MXNet libraries. The best model outperformed previous work by 5.23% of the Brier score.

**UNDERGRADUATE RESEARCHER** | UNIVERSITY OF PUERTO RICO, RIO PIEDRAS  NOV '16 — JUL '17

Built a collaborative real-time web interface to investigate better ways to improve architectural planning critics workflow. Designed and deployed a framework for the creation and modification of architectural planning critics using p5.js and Firebase. https://trace-space.herokuapp.com/

**RESEARCH INTERN** | iGenApps  SEPT '16 — DEC '16

Built an augmented reality interface to investigate innovative workflows for mobile apps development. Develop a real-time API to create a new method for designing mobile apps with the Microsoft HoloLens.

**FULL-STACK DEVELOPER INTERN** | VESO  MAY '16 — SEPT '16

Automate the company's booking system resulting in speed improvement. Designed and implemented the logistics to manage users and services, saving hours of data entries, and optimizing the offered services. Built an API to manage accounts of hair salon appointments, and payments system using Node JS, with AngularJS and Firebase.

# Presentations

**36th Interuniversity Seminar on Research in the Mathematical Sciences (SIDIM)**

Poster Presentation: **Chan-Santiago, J. A,** Mégret, R., et al. *Re-identification Approaches for a Markerless Animal Monitoring System in Open Space Setup.*

**43rd Senior Technical Meeting 54th Junior Technical Meeting & PR-LSAMP Fall Virtual Research Symposium**

Oral Presentation: **Chan-Santiago, J. A**, Mégret, R., et al. *Context and Pose-aware Discriminative Features for marker less animal re-identification*

**2020 Louis Stokes Midwest Regional Center of Excellence (LSMRCE) Annual Conference**

Oral Presentation: **Chan-Santiago, J. A**, Mégret, R., et al. *Context and Pose-aware Discriminative Features for marker less animal re-identification.*

**35th Interuniversity Seminar on Research in the Mathematical Sciences (SIDIM)**

Poster Presentation: **Chan-Santiago, J. A,** Mégret, R., et al. *Computer vision approaches to enable multi-faceted data collection of honeybees' behaviors in the field.* University of Puerto Rico, Cayey Campus, PR.

**38th Puerto Rico Interdisciplinary Scientific Meeting 53rd ACS Junior Technical Meeting**

Oral Presentation: **Chan-Santiago, J. A**, Mégret, R., et al. *Convolutional Variational Auto-Encoders for Modeling the Appearance of Honeybees in Video.* University of Puerto Rico, Mayagüez Campus, PR.

**34th Interuniversity Seminar on Research in the Mathematical Sciences (SIDIM)**

Oral Presentation: **Chan-Santiago, J. A**, Mégret, R., et al. *Learning good features to discriminate untagged bees in video using non-supervised learning.* University of Puerto Rico, Humacao Campus. PR.

**2018 Great Minds in STEM Conference**

Poster Presentation: *Learning good features to discriminate untagged bees on video using non-supervised learning.* **Chan-Santiago, J. A**, Mégret, R., et al. Pasadena, CA.

**2018 Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)**

Poster Presentation: **Chan-Santiago, J. A**, Paten, B., et al. *Characterizing various approaches to calculate mapping quality in a Variant-Graph Genomics Tool.* San Antonio, TX.

**37th Puerto Rico Interdisciplinary Scientific Meeting 52nd ACS Junior Technical Meeting**

Oral Presentation: **Chan-Santiago, J. A** Mégret, R., et al. *Fingerprint Extraction for Bee Identification.* Universidad del Turabo, Gurabo, PR.

# Honors & Awards

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| • NSF PR-LSAMP Bridge to the Doctorate fellowship | 2020 |
| • Gauss Research, Inc. Award | 2019 |
| • Puerto Rico Louis Stokes Alliance for Minority Participation Research Scholarship | 2018 - 2019 |
| • Claude Shannon Scholarship fund for excellence in Computer Science and Mathematics by NSF | 2017 — 2019 |
| • President of ACM Chapter at University of Puerto Rico, Río Piedras Campus | 2017 — 2018 |

## Activities

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| **Eastern European Machine Learning Summer School** | 2021 |

I will participate of the Eastern European Machine Learning Summer School
from July 7-15.

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| **Machine Learning Interest Group** | 2017 — 2020 |

Founder of the Machine Learning Interest Group at the University of Puerto Rico, Río Piedra's Campus. This group meets twice a month to practice and discuss machine learning approaches and compete on the Kaggle platform doing challenges.

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| **Coach of ACM International Collegiate Programming Contest** | 2019 |

Coached the University of Puerto Rico, Rio Piedras' team in the Caribbean final in Santiago, Dominican Republic.

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| **Quantitative Methods Workshop | MIT** | 2019 |

In this intensive workshop organized by the MIT Biology Department, we learned how to use MATLAB as tools for fMRI, MEG, and Calcium Imaging to generate experimental data.

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| **Interuniversity Seminar on Research in the Mathematical Sciences (SIDIM)** | 2018 |

Volunteer staff at the SIDIM conference at the University of Puerto Rico, Río Piedras.

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| **Competitor of ACM International Collegiate Programming Contest** | 2016 — 2017 |

My team reached Caribbean finals two years in a row, passing through Puerto Rico regionals and local university competitions. Our programming languages were C++ and Python.

## Professional Memberships

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| • Member of the Association for Computing Machinery (ACM) | 2016 — 2019 |
| • Member of the IEEE Computer Society | 2017 — 2021 |
| • Member of the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) | 2018 — 2019 |

## Skills

**Languages:** Python, JavaScript, C++

**Favorite Frameworks:** Keras, TensorFlow, OpenCV, scipy, numpy

**Others:** Linux, Git, Anaconda, Jupyter Notebook