Curriculum Vitae
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Lilianne Nakazono

Full name	Lilianne Mariko Izuti Nakazono (L. Nakazono)
Email	lilianne.nakazono@usp.br
Website	https://marixko.github.io
Languages	Portuguese (native), English (fluent), Spanish (Intermediate), Japanese (Intermediate)

RESEARCH EXPERIENCE

Doctorate program in Astronomy — 2018

Thesis: "Classification and redshift estimation of new quasars in photometric surveys, using S-PLUS as study case"; Advisor: Prof. Claudia Mendes de Oliveira (IAG-USP)

Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo
São Paulo, Brazil

Our object classifier is one of the pillars of the S-PLUS data releases, being the primary source of separation between stars, quasars and galaxies. This project has leveraged my knowledge in machine learning and software engineering for astronomy, as well as in querying, cross-matching and/or analyzing data from all major astronomical surveys, having a huge impact in the new era of JWST, LSST, and Euclid.

Exchange program at University of Washington (12 months) — 2022

Advisor: Prof. Željko Ivezić (UW)

Exchange program at University of Florida (4 months) — 2017 / 2018

Advisors: Prof. Stephen Eikenberry (UF), Prof. Anthony Gonzalez (UF)

Awarded time as Principal Investigator — 2018

8 hours with Goodman spectrograph, SOAR telescope
20 hours with GMOS-S spectrograph, GEMINI-South telescope

EDUCATION

Bachelor in Astronomy — 2016

Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo
São Paulo, Brazil

Bachelor in Statistics — 2013

Instituto de Matemática e Estatística, Universidade de São Paulo
São Paulo, Brazil

CONFERENCES

Invited talks

Panel discussion: Practical Problem Solving — including Interpretability **2022**
IAU Symposium 368 "Machine Learning in Astronomy: Possibilities and Pitfalls"
XXXIst IAU General Assembly
Busan. Rep. of South Korea

Lecturer on the topic of Machine Learning in Astronomy (GitHub repository) **2020**
IX La Plata International School on Astronomy and Geophysics
La Plata, Argentina

Contributed talks

Assessing the impact of narrow-band information in photometric surveys **2022**
iid2022: Statistical Methods for Event Data Illuminating the Dynamic Universe
Alabama, United States of America

VAC: Classification of stars, quasars, and galaxies for S-PLUS DR2 and iDR3 **2021**
15th S-PLUS Meeting
Online

How narrow-band surveys can provide a better quasar selection? **2020**
Quasars During Reionisation (SAZERAC)
Online

New version of the star/quasar/galaxy classification **2020**
13th S-PLUS Meeting
Online

Search for QSOs: updates **2019**
11th S-PLUS Meeting,
IAG-USP, São Paulo, Brazil

Classification and photo-zs of quasars using machine learning in photometric observations from S-PLUS **2018**
XLIII annual meeting of Sociedade Astronômica Brasileira
Universidade de São Paulo, São Paulo, Brazil

Separation of stars and quasars in multispectral images **2015**
II J-PAS and S-PLUS Brazilian Meeting
IAG-USP, São Paulo, Brazil

Poster and attendances

- 9th-16th S-PLUS Meeting, 2018-present
- AstroHackWeek2022, Max Planck Institute for Astronomy, Heidelberg, Germany, 2022
- 16th S-PLUS Meeting, **"Identification of C-rich and O-rich AGB stars"**, Ubatuba, Brazil, 2021
- IAUS 359: Galaxy Evolution and Feedback Across Different Environments, **"Classification and redshift estimation of quasars in photometric surveys"**, Bento Gonçalves, Rio Grande do Sul, Brazil, 2020
- PAPIs LATAM: Real-World Machine Learning Stories, 2019
- FIRST LIGHT Advanced School, IAG-USP, São Paulo, Brazil, 2019
- SPAnet Workshop on Clusters of Galaxies and the Large-Scale Structure of the Universe, 2018
- AstroHackWeek2018, Lorentz Center, Leiden, The Netherlands, 2018
- XLII annual meeting of Sociedade Astronômica Brasileira, **"Search for new bright quasars with S-PLUS"**, 2018
- Machine Learning workshop in R, XII aMostra de Estatística, IME-USP, 2017

- XLI annual meeting of Sociedade Astronômica Brasileira, **"Separation of stars and quasars in multispectral images of J-PAS, J-PLUS, S-PLUS and ALHAMBRA"**, 2017
- I Python BootCamp, IAG-USP, São Paulo, Brazil, 2015

TEACHING EXPERIENCE

Undergraduate supervision and co-supervision

- **Raquel Ruiz, Astronomy undergraduate student** **2020 - present**
  Project: Estimation of quasar photo-zs in S-PLUS using Bayesian Neural Networks
  PIBITI (2020-2021) and FAPESP scholarship (2021-2022)
  Contributed talks: IAU Symposium 368 (2022) and XLV Annual Meeting of Sociedade Astronômica Brasileira (2022)
- **Gabriel Jacob Perin, Computer Science undergraduate student** (co-supervision) **2022 - present**
  Project: Classification of stars, quasar, and galaxies with self-supervised learning approach using S-PLUS images (FAPESP scholarship)
- **Gabriela Soares, Statistics undergraduate student** (co-supervision) **2022**
  Project: Estimation of quasar photo-zs in S-PLUS using FlexCoDE

Teaching assistant and lectures

- TA for the "Astronomical databases and Astrostatistics in the Big Data era" undergraduate/graduate course, 2021
- TA for the "Numerical methods in Astronomy" undergraduate course, 2016
- TA for the "Introduction to Probability and Statistics II" undergraduate course, 2011
- Machine learning lecture/hands-on for graduate and undergraduate students at IAG-USP, 2017-2018
- Machine learning lecture/hands-on for graduate students at University of Florida, 2017 (GitHub repository)

AWARDS, SCHOLARSHIPS AND GRANTS

- IAU grant to attend IAUS 368 at the General Assembly in South Korea, 2022
- FAPESP grant for research abroad at University of Washington, US, 2022
- Grant from the organization to attend AstroHackWeek, 2022
- Certificate of excellence in the "Observational Astrophysics" graduate course, 2018
- FAPESP scholarship for the Doctorate program, 2019
- IAU Grant to attend IAUS 359, 2020
- Grant from the organization to attend AstroHackWeek, 2018
- CAPES scholarship for M.Sc. program, 2018
- Prize of Excellence at Asia Supercomputer Community, 2016
- Best undergraduate research of the Astronomy Department (IAG-USP), 2015
- FAPESP scholarship for Research Experience for Undergraduates, 2014-2016

OUTREACH, SERVICE & OTHERS

- **Head of Research & Development at Turing USP** **2022 - present**

Turing USP has 60+ members with different backgrounds from Universidade de São Paulo. Our goal is to disseminate, study, develop and apply Machine Learning (GitHub Organization). My role as head of R&D is to bring innovation into our projects and to implement better workflows while guaranteeing that our members are improving their hard and soft skills.

- Project manager and web designer of the S-PLUS collaboration, 2020 - present
- Slack creator and manager of the S-PLUS collaboration, 2019 - present
- Coordinator of the development group for the S-PLUS logo and visual identity, 2021-2022
- Volunteer staff at IAUS 359: Galaxy Evolution and Feedback Across Different Environments, 2020
- LOC of FIRST LIGHT Advanced School, 2019
- Instructor of "Introduction to Machine Learning" workshop for PyLadiesSP (4-hours duration); Innovation Congress at FEI (1-hour); Universidade Estadual de Londrina (1-hour), 2019-2020 (GitHub Repository)
- Visitor guide at Observatório Abraão de Moraes (OAM-USP), 2019

PROGRAMMING & SKILLS

- Major contributions to the splusdata package (Python)
- Python, R, SQL, ADQL, Fortran 95, C, Julia
- TOPCAT, STILTS, IRAF, Aladin, DS9

PRESS & INTERVIEWS

- [EN] Funding crisis at Brazilian science agency could leave 80,000 researchers and students without pay, Science.org
- [PT-BR] Astrônomos descobrem estrela que desafia modelos atuais de evolução do Universo, Jornal da USP

PUBLICATIONS

Major-contributed (refereed)

- **Nakazono, L.**, et al., "On the discovery of stars, quasars, and galaxies in the Southern Hemisphere with S-PLUS DR2", Monthly Notices of the Royal Astronomical Society, vol. 507, no. 4, pp. 5847–5868, 2021.
- Almeida-Fernandes, F., SamPedro, L., Herpich, F. R., Molino, A., Barbosa, C. E., Buzzo, M. L., Overzier, R. A., de Lima, E. V. R., **Nakazono, L.**, et al., "Data Release 2 of S-PLUS: Accurate template-fitting based photometry covering 1000 deg^2 in 12 optical filters", Monthly Notices of the Royal Astronomical Society, vol. 511, no. 3, pp. 4590–4618, 2022.
- Lima, E. V. R., Sodré Jr, L., Bom, C.R., Teixeira, G.S.M., **Nakazono, L.**, et al., "Photometric redshifts for the S-PLUS Survey: Is machine learning up to the task?", Astronomy and Computing, vol. 38, 2022.
- Mendes de Oliveira, C., Ribeiro, T., Schoenell, W., Kanaan, A., Overzier, R. A., Molino, A., Sampedro, L., ..., **Nakazono, L.**, et al., "The Southern Photometric Local Universe Survey (S-PLUS): improved SEDs, morphologies, and redshifts with 12 optical filters", Monthly Notices of the Royal Astronomical Society, Volume 489, Issue 1, October 2019, Pages 241–267.

Minor-contributed (refereed)

- Werner, S., ..., **Nakazono, L.**, et al., "S-PLUS DR1 galaxy clusters and groups catalogue using PzWav", submitted to Monthly Notices of the Royal Astronomical Society.
- Jeram, S., ..., **Nakazono, L.**, et al., "An Extremely Bright QSO at z = 2.89", The Astrophysical Journal, vol. 899, no. 1, 2020.

- Molino, A., ..., **Nakazono, L.**, et al., "Assessing the photometric redshift precision of the S-PLUS survey: the Stripe-82 as a test-case", Monthly Notices of the Royal Astronomical Society, Volume 499, Issue 3, December 2020, Pages 3884–3908.

Non-refereed

- Eikenberry, S., ..., **Nakazono, L.**, et al., "Astro2020: Decadal Survey on Astronomy and Astrophysics", APC white papers, no. 137; Bulletin of the American Astronomical Society, Vol. 51, Issue 7, id. 137, 2019.