Sally Paganin, Ph.D.

| CONTACT INFORMATION | The Ohio State University
Department of Statistics
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🌐 https://salleuska.github.io/
⌨ salleuska
🎓 Google Scholar |

| RESEARCH INTERESTS | Bayesian nonparametrics, Computational Statistics, Hierarchical models, Item Response Theory, Models for Latent Variables, Data visualization. |

| CURRENT POSITION | **Assistant Professor of Statistics**   August 2023 – Present
Department of Statistics, The Ohio State University |

Past positions

Research Fellow   March 2021 – August 2023
Harvard T.H. Chan School of Public Health, Department of Biostatistic
working with Jeff Miller on statistical methods for early cancer detection.

Postdoctoral Researcher   September 2019 – March 2021
UC Berkeley
Department of Statistics, Department of Environmental Science, Policy & Management
statistical methodology, applications and algorithms development in NIMBLE,
collaborating with Perry de Valpine and Chris Paciorek.

Education

Università degli Studi di Padova, Padova, Italy
Department of Statistical Sciences

2019 Ph.D. in Statistical Sciences

    Thesis: Prior-driven cluster allocation in Bayesian mixture models
    Advisor: Bruno Scarpa; Co-advisor Amy H. Herring

2016 M.S. in Statistical Sciences

    Thesis: Analysis of an insurance company sales structure: a Bayesian nonparametric
    model for a network of networks
    Advisor: Bruno Scarpa; Co-advisor: Daniele Durante

2012 B.S. in Statistical Sciences and Information Technologies

    Thesis: Bayesian nonparametric models based on Dirichlet Process
    Advisor: Livio Finos; Co-advisor: Dario Solari

Awards

- Honorable mention for SIS 2023 Best Young Contribution Awards

- 2022 PDA Research Symposium honorarium recipient (HSPH)

- Bayesian Analysis Discussion Paper of March 2021 issue (Editorial Board's choice)

Travel awards

- Spring 2023 PDA Travel Award, Harvard T.H. Chan School of Public Health (1,500$)

- Young researcher travel award, 2022 ISBA world meeting (300$)

- Young researcher travel award, 2018 ISBA world meeting (250$)

- Travel award for COBAL V (2017), Guanajuato, Mexico (accommodation)

- Young researcher travel award, 2016 ISBA world meeting (400$)

PUBLICATIONS   (*) authors listed in alphabetical order
Publications in refereed journals

6. Qiu, M., **Paganin, S.**, Ohn, L., Lin, L. (2025) Bayesian Nonparametric Latent Class Analysis With Different Item Types. *Psychological Methods* (accepted), https://doi.org/10.31219/osf.io/djzn7

5. **Paganin, S.**, de Valpine P. (2024). Computational methods for fast Bayesian model assessment via calibrated posterior p-values. *Journal of Computational and Graphical Statistics*. doi.org/10.1080/10618600.2024.2374585

4. **Paganin, S.**, Paciorek, C., Wehrhahn, C., Rodriguez, A., Rabe-Hesketh, S., de Valpine, P. (2022) Computational methods for Bayesian semiparametric item response theory models using NIMBLE. *Journal of Educational and Behavioral Statistics*, 35(3), 307–335, doi:10.3102/10769986221136105

3. de Valpine, P., **Paganin, S.**, Turek, D. (2022). compareMCMCs: An R package for studying MCMC efficiency. *Journal of Open Source Software*, 7(69), 3844, doi:10.21105/joss.03844

2. **Paganin, S.**, Herring, A.H., Olshan A.F., Dunson, D.B. and The National Birth Defect Prevention Study. (2021) Centered Partition Process: Informative Priors for Clustering (with Discussion). *Bayesian Analysis*, 16(1), 301–370. doi:10.1214/20-BA1197

1. Durante, D., **Paganin, S.**, Scarpa, B. and Dunson, D.B. (2017) Bayesian modeling of networks in complex business intelligence problems. *Journal of the Royal Statistical Society: Series C* 66, 555–580

Collaborative papers

3. Valdesalici A., Saccon D., Boatto E., Manzan A., Manera R., Pani A., Pavani V., Zecchinato G., Sava V., Greco G., **Paganin**, S., Solmi, M. (2024) Clinical medical practice and stigma towards patients with substance use disorder in an Italian sample of healthcare workers *Ann Ist Super Sanita*, Jul-Sep;60(3):197-207. doi: 10.4415/ANN_24_03_05.

2. Saccon, D., Valdesalici, A., Boatto, E., Bortuluzzi, G., Moret, F., **Paganin**, S., Solmi, M. (2023) Retrospective study in a cohort of subjects with substance use disorders in Veneto, Italy: real-world outcomes of an addiction daytime program treatment *Evidence-based Psychiatric Care* 9, 7-14 doi:10.36180/2421-4469-2023-3

1. Ottaviano, G., Favero, L., Hajrulla, S., Volpato, A., **Paganin, S.**, Bissolotti, G., Scarpa, B., Favero, R. (2023) Allergic rhinitis and asthma: relationship with transverse maxillary contraction and transverse expansion stability in children. *Applied Sciences*, 13(5):3200 doi:10.3390/app13053200

National conference proceedings (with peer-review)

- **Paganin, S.**, Miller J. (2023). A Bayesian framework for early cancer screening, *Book of Short Papers SIS 2023*, pp. 249-254, Pearson, Torino.

- **Paganin, S.** (2021). Semiparametric IRT models for non-normal latent traits, *CLADAG 2021 Book of abstracts and short papers: 13th Scientific Meeting of the Classification and Data Analysis Group*, pp. 178 - 181, Firenze University Press.

- **Paganin, S.**, Paciorek C., de Valpine P. (2020). Bayesian IRT models in NIMBLE, *Book of Short Papers SIS 2020*, pp. 644 - 649, Pearson, Torino

- **Paganin, S.** (2019). Domain-knowledge based priors for clustering. *Book of Short Papers SIS 2019*, pp. 455 - 462 , Pearson, Torino.

- **Paganin, S.** (2017). Modeling of complex network data for targeted marketing. *Book of Short Papers SIS 2017*, pp. 753 - 758, Firenze University Press.

Book Chapters and Discussions

(*) Aliverti, E., Paganin, S., Rigon, T. and Russo, M. (2019) Contributed discussion to "Latent nested nonparametric priors" by Camerlenghi et al (2019), *Bayesian Analysis* 14, 4, 1303–1356.

(*) Aliverti E., Forastiere L., Padellini T., Paganin S. and Wit E. (2018). Hierarchical Graphical Model for Learning Functional Network Determinants. *"Studies in Neural Data Science"*, Springer Proceedings in Mathematics & Statistics

Edited Books

(*) Argiento, R., Camerlenghi, F., Paganin, S. [Eds.] (2022) New Frontiers in Bayesian Statistics. *BaYSM 2021, Online, September 1–3*. Springer Proceedings in Mathematics and Statistics, Springer.

PREPRINTS

Under Review

- **Paganin, S.**, Page, G. L., Quintana, F. (2024) Informed Partition Models for Dependent Random Partitions arXiv:2311.14502

- **Paganin, S.**, Russo, M., Scarpa, B. (2023). A generalized partial credit model for network-dependent latent traits with an application on modeling students' ability. (available upon request)

SOFTWARE

- COMPAREMCMCS, *R package, version 0.5.0.* An R package for running, managing, and comparing results from different MCMC packages.

- NIMBLE, *R package, version 0.12.2.* Contributed with reversible jump MCMC.

TEACHING & MENTORING EXPERIENCE

The Ohio State University

- STAT 3302: Statistical Modeling for Discovery II   **Spring 2024**
- STAT 6730: Introduction to Computational Statistics   **Autumn 2024**
- STAT 3302: Statistical Modeling for Discovery II   **Spring 2023**
- STAT 6730: Introduction to Computational Statistics   **Autumn 2023**

UC Berkeley

- Mentor for the Undergraduate research mentorships in statistics (Spring 2020).
  Mentee: Tianchi Liu. Project: *Building models and case studies using NIMBLE.*

Università degli Studi di Padova

- Thesis co-supervision: Claudia Stocchi (2021), master student in Statistical Sciences.

- *Statistical Methods for Insurance Marketing.* Invited lecture for the course of "Statistical Methods and Models for Business" taught by Prof. Mariangela Guidolin. (April 24, 2018 & online on November 24, 2020).

- Mentor at *Scegli con noi.* Orientation events for high school students.
  (2014, 2015, 2016 editions) Campus Agripolis di Legnaro, Padova, Italy.

- *Advanced Statistical Inference* (M.Sc.), Year 2013/2014, Academic Tutor, Department of Statistical Sciences.

- *Introduction to Real Analysis* (B.Sc.), Year 2013/2014, Academic Tutor, Department of Statistical Sciences.

Short-courses

- *Programming With Hierarchical Statistical Models Using NIMBLE* (May 23, 2022). Full-day, hybrid short course during the 35th New England Statistics Symposium hosted at UConn.

PRESENTATIONS

Invited Seminars

- Informed Random Partition Models with Temporal Dependence
  ITAM. Mexico City, Mexico. April, 5 2025.

- Computational methods for fast Bayesian model assessment via calibrated posterior p-values.
  Brigham Young University, Department of Statistics, Seminar series. February 29, 2024.

- A Bayesian framework for cancer screening and characterization
  The Ohio State University, Division of Biostatistics, Seminar series. September 29, 2023.

- Centered partition processes: informative priors for clustering
  The Ohio State University, Department of Statistics, job-talk. February 2, 2023.

- Prior-driven clustering for modeling birth defects data
  Brigham and Women's Hospital & Harvard Medical School, Division of Pharmacoepidemiology and Pharmacoeconomics, job-talk. January 19, 2023.

- Bayesian IRT models in NIMBLE
  University of Notre Dame, Dept. of Psychology (online) November 10, 2022.

- Fast Bayesian model assessment via calibrated posterior predictive p-values
  University of Nottingham, Statistics and Probability seminar) (online) April 7, 2022.

- Centered Partition Processes: Informative Priors for Clustering
  Millenium Nucleus Center for the Discovery of Structures in Complex Data
  Pontificia Universidad Católica de Chile (online) October 8, 2021.

- Centered Partition Processes: Informative Priors for Clustering
  UC Davis, Department of Statistics (Spring seminars series), May 6, 2021.
- Centered Partition Process: Informative Priors for Clustering.
  Bayesian Analysis - Discussion paper Webinar
  [https://www.youtube.com/watch?v=V0zCB8doqlo]
  March 29, 2021.

Invited talks

- Informed Random Partition Models with Temporal Dependence
  ISBA 2024. Venice, Italy. July, 1 2024.
- Improved detection of allelic imbalance using biologically informed priors
  CMStatistics 2023. Berlin, Germany. December, 18 2023.
- A Bayesian framework for early cancer screening.
  IDWSDS 2023. j-ISBA organized session, International Day of Women in Statistics and Data Science, October 10, 2023. (virtual)
- A Bayesian framework for early cancer screening.
  SIS 2023. Ancona, Italy, June, 23 2022.
- compareMCMCs: a R package for running, managing, and comparing results from different MCMC packages.
  NESS 2023, Boston, June 7, 2023.
- Semiparametric IRT models for non-normal latent traits
  Cladag 2021, Online conference, September 9, 2021.
- Informative model-based clustering via Centered Partition Processes.
  YoungStatS "One World webinar" - Developments in Bayesian Nonparametrics
  virtual, April 21 2021.
- Modeling health surveys via semiparametric IRT models.
  Bayesm:O. Session on "Advances in Bayesian methods for medical data",
  virtual, November 17, 2020.
- Prior-Driven Cluster Allocation in Bayesian Mixture Models.
  JSM 2020. j-ISBA organized session, virtual conference, August 03, 2020
- Domain knowledge based priors for clustering.
  SIS 2019. ySIS organized session. Milano, Italy. June 19, 2019
- Modeling of complex network data for targeted marketing.
  SIS 2017. Firenze, Italy. June 29, 2017

Contributed talks

- A hierarchical Hidden Markov Model for cancer detection.
  JSM 2022. Washington D.C., August, 10 2022
- A hierarchical Hidden Markov Model for cancer detection.
  ISBA 2022. Montreal, Canada. July 1, 2022
- Statistics for early cancer detection.
  PDA Research Symposium. HPSH, Harvard University, online. February 22, 2022
- Flexible model assessment via approximate calibrated posterior predictive p-values.
  ISBA 2021. Online conference. June 29, 2021
- Centering Exchangeable Partition Models.
  IBC 2018. Barcelona, Spain. July 10, 2018
- Bayesian modeling of networks in complex business intelligence problems.
  COBAL V. Cimat, Guanajuato, Mexico. June 8, 2017

Poster presentations

- Flexible model assessment via approximate calibrated posterior predictive p-values.
  50th Anniversary Celebration of the Dept. of Statistics.
  The Ohio State University. October 7, 2024
- Flexible model assessment via approximate calibrated posterior predictive p-values.
  ISBA 2021. Online conference. June 29, 2021
- Computational methods for Bayesian semiparametric Item Response Theory models.
  WiDS Cambridge, 2021. Online conference. March 11, 2021
- Informative Bayesian Clustering for Mixture Models.
  Advanced Statistics for Physics Discovery. Padova, Italy. September 24, 2018

- Centering Exchangeable Partition Models.
  ISBA 2018. Edinburgh, United Kingdom. June 27, 2018
- Bayesian modeling of networks in complex business intelligence problems.
  ISBA 2016. Forte Village Resort Convention Center Sardinia, Italy. June 15, 2016

VISITING PERIODS

Mar. 2019 – Jun. 2019. *Research visit* at Department of Environmental Science, Policy & Management, UC Berkeley.

Jan. 2018 – Mar. 2018. *Visiting Research Scholar* at the Department of Statistics, Duke University (NC, USA) under the supervision of Prof. Amy H. Herring

Oct. 2016 – Jun. 2017. *Visiting Research Scholar* at the Department of Biostatistics University of North Carolina at Chapel Hill (NC, USA) under the supervision of Prof. Amy H. Herring

EDITORIAL ACTIVITY

Associate Editor

from 06/2021 The New England Journal of Statistics in Data Science (Software section)

Reviewer

(2025) The American Statistician, JASA.

(2024) Biometrical Journal, BMJ, NEJSDS, R Journal, Statistical Methods in Medical Research, The American Statistician.

(2023) Annals of Applied Statistics, JOSS (2), BMJ, NEJSDS, Journal of Statistical Computation and Simulation.

(2022) Statistical Papers, Journal of Machine Learning Research.

(2021) BMJ, R Journal (2), Journal of Computational and Graphical Statistics, Harvard Data Science Review, Applied Psychological Measurements, Duke Dathaton.

(2020) BMJ, Statistical Papers, NSF proposal review, JOSS.

SERVICE TO PROFESSION

Positions in scientific societies

- (2025–2026) Member of the ISBA Board of Directors [ISBA]
- (2025) Program-Chair Elect ASA SBSS Section [ASA]
- (2024) Chair of the 2025 ASA SBSS Student Paper competition [ASA]
- (2024) Poster award committe member at ISBA 2024 World Meeting [ISBA]
- (2023) member of ENAR Student Paper Award Committee. [IBS]
- (2020-2022) member of the j-ISBA board, Treasurer [ISBA]

Organization of scientific events

- Scientific committee of BAYSM 2025 (virtual conference).
- Scientific committee of BayesComp 2023 (Levi, Finland).
- Organizing committee of BAYSM 2021 (virtual conference).
- Organizing committee of ISBA 2021 World Meeting (virtual conference).
- assistance to organization, IT set-up and conduction of the NIMBLE short course, June 3–5 2020, UC Berkeley (online workshop).

Sessions at scientific events

[ISBA 2024] Session organizer (with Garritt Page)
  "Recent advances in Bayesian clustering for complex data"

[NESS 2023] Session organizer
  "Recent advances in R software development: innovative tools and practical applications"

[JSM 2022] Session organizer, (on behalf of j-ISBA)
  "Advances in scalable Bayesian methods for spatial data"

[ISBA 2022] Session organizer, (on behalf of j-ISBA)
  "Advances in Bayesian methods for complex data"

Outreach

- volunteer for *ASA DataFest 2024*, The Ohio State University, USA. (2024)
- regular contributor to the ISBA Bulletin (2021)
- volunteer for *Venetonight – La notte dei ricercatori*, Padova, Italy. (2015 – 2017)
  developed an online app interfacing with Twitter to track and display the event sentiment in real-time.

- volunteer for *StatisitcAll*, Treviso, Italy. (2015)
  statistical games and activities to show the magic of statistics to kids and adults.

Memberships

- International Society for Bayesian Analysis (ISBA); j-ISBA; New England Statistical Society (NESS); American Statistical Association (ASA).

WORK EXPERIENCE

- *Statistical consultant* for Azienda ULSS n.4. Analysis of relapsing rate after being in rehab facilities.
- Jul. 2014 – Aug. 2015. *Marketing Analyst* at Generali Italia SPA (Mogliano Veneto)
  Data quality and gathering. Customer satisfaction analysis: definition of the sampling plan, questionnaires analysis, text analysis of online survey opinions. Reporting.

PROGRAMMING & LANGUAGES

Programming

- Programming languages: R (advanced) knowledge of nimble, Rcpp, plyr/dplyr, ggplot2, shiny libraries. C/C++, SQL (good), java, Python, Julia (base).
- O.S.: Linux (Fedora/Ubuntu), macOS, Windows and relative software.
- Other: practice of LaTeX, Sweave, Markdown for reporting, Git and Github as revision control system, Gimp, Illustrator, Lightroom for image processing.

Languages

- Italian: native; English: fluent; Spanish: basic.