

Nina DELIU

Research areas: *Adaptive Experiments, Bayesian Designs, Reinforcement Learning & Multi-armed Bandits, Statistical Inference in Adaptive Designs*

CONTACT INFO

Website: [Github Webpage](#)/[MRC-BSU Webpage](#)
nina.deliu@uniroma1.it

EDUCATION

- MAY 2021 Sapienza Università di Roma, Rome, IT
PhD in Methodological Statistics
Thesis: *Reinforcement Learning in Modern Biostatistics: Benefits, Challenges and New Proposals*
Advisors: Pierpaolo BRUTTI, Bibhas CHAKRABORTY, Joseph J. WILLIAMS
- JAN 2017 Sapienza Università di Roma, Rome, IT
MSc in Statistics and Decisions - 110/110 *summa cum laude*
Thesis: *Deep Learning to the Test: an Application to Traffic Data Streams*
Advisor: Pierpaolo BRUTTI
- Nov 2016 Université Paris-Dauphine, Paris, FR
Master 2 in Bayesian Statistics and Decision Analysis - *Mention bien*
Research Project: *Evidence Estimation of State Space Models: Sequential Monte Carlo² and Chib's Method Comparison*
Advisor: Christian P. ROBERT
- JULY 2014 Sapienza Università di Roma, Rome, IT
BSc in Statistics, Economics and Society - 110/110 *summa cum laude*
Thesis: *Income distribution analysis. The case of post-communist transition economies*
Advisor: Alessandro RONCAGLIA

ACADEMIC AND PROFESSIONAL EXPERIENCE

- MAY 2021 - *current* **University of Cambridge**, Cambridge, UK
Research Associate - Bandits, Adaptive Designs, Stat Inference
Line Manager: Sofia S. VILLAR
- Nov 2020 - MAY 2021 **University of Cambridge**, Cambridge, UK
Research Assistant - Bandits, Adaptive Designs, Stat Inference
Line Manager: Sofia S. VILLAR
- FEB 2020 - APR 2020 **University of Toronto**, Toronto, Canada
Visiting Scholar - Bandits, Adaptive Experiments, Mobile-Health, Real-world Educational & Behavioural Experiments
Advisor: Joseph J. WILLIAMS
- APR 2019 - JUL 2019 **National University of Singapore (NUS)**, Singapore
Visiting Scholar - Reinforcement Learning, Adaptive Interventions
Advisor: Prof. Bibhas CHAKRABORTY
- SEP 2018 - SEP 2019 **Sapienza Università di Roma**, Rome, IT
Academic Support Tutor - PLS (Scientific Degrees Project)
- JUL 2018 - JAN 2019 **Sapienza Università di Roma**, Rome, IT
Tutor - Master (Level II) in Big Data
- JUN 2016 - JUN 2018 **Fondazione GIMEMA, Franco Mandelli ONLUS**, Rome, IT
Biostatistician - Health Outcomes Research Unit

TEACHING EXPERIENCE

	TEACHING/LECTURER
SPRING 2021	Pontifical Faculty of Educational Sciences "Auxilium" - Rome Course: Laboratory of Social Research Methods
SPRING 2021	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Course: Laboratory of L^AT_EX and Beamer in Research
SPRING 2020	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Course: Laboratory of L^AT_EX and Beamer in Research
	<u>TEACHING ASSISTANCE</u>
FALL 2021	Dep. of Public Health and Primary Care, Cambridge Univ, UK Course: MPhil in "Population Health Sciences" - Prof Seaman S.
FALL 2019	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Course: Statistical Methods in Data Science - Prof Brutti P.
OCT 2019	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Module: Intro to L^AT_EX and Beamer - Master (II Level) in Big Data
APR 2019	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Module: Intro to SAS - Master (II Level) in Big Data
FALL 2018	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Course: Statistical Methods in Data Science - Prof Brutti P.
FALL 2018	Dep. of Economics, Roma Tre University, Rome, IT Course: Statistics for Economics - Prof Barbieri M.
SPRING 2018	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Course: Statistical Inference - Prof De Santis F.
SEP 2018 - Dec 2020	Camplus College, Rome, IT <i>Private Tutoring in Statistics and Probability</i>

AWARDS, SCHOLARSHIPS, GRANTS

2019	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Starting Research Project Grant (Avvio alla Ricerca) - Project title: <i>Contextual Multi-armed Bandits for Developing Personalized Mobile Health Interventions</i>
2019	CIFAR & Alberta Machine Learning Institute (AMII), Canada Travel Scholarship for participating at Deep Learning and Reinforcement Learning Summer School at University of Alberta, Edmonton, Canada
2018	Dep. of Statistics, Sapienza Università di Roma, Rome, IT Starting Research Project Grant (Avvio alla Ricerca) - Project title: <i>The role of self-reported health outcomes in cancer risk prediction using the UK Biobank data</i>
2018	Italian Statistical Society (SIS) - Annual Meeting, Palermo 2018 SIS Poster Prize 2018 for Best Poster - Poster title: <i>Deep Learning to the Test: an Application to Traffic Data Streams</i>
2017	International Society for Quality of Life Research (ISOQOL) New Investigator Award - Presentation title: <i>Modelling Strategies to Improve Estimates of Prognostic Factors Analyses with Patient Reported Outcomes</i>
2017	Ministry of Education, University and Research (MIUR) Three-year Fully-funded PhD Scholarship
2015	ERASMUS Scholarship - Double Degree Programme at Univ Paris-Dauphine
2014	Laziodisu Graduation Prize (Premio di Laurea)
2012-16	Laziodisu Scholarship (Diritto allo Studio)

RESEARCH PROJECTS AND ACTIVITIES

2021 - <i>current</i>	Editorial Board Member of the Young Statisticians Europe Project
2021 - <i>current</i>	Collaborator in the Mental Health America Project
2020 - <i>current</i>	Collaborator in the Multicultural and Intercultural Competencies Survey
2019-2020	Collaborator in the DIAMANTE Adaptive Notification Tracking Study
2016-2018	Co-investigator in the PROMOTION Registry
2016-2018	Project Manager of the EORTC QLQ-CML24 module development
REVIEWER	<i>Biometrics; Statistical Methods in Medical Research; NeurIPS Workshops; Health and Quality of Life Outcomes; AISTATS: Society for Artificial Intelligence and Statistics; AMIA: American Medical Informatics Association</i>
CURATOR	Twitter page @WomenInStat: Women in Statistics and Data Science ; The blog of Young Statisticians Europe (YSE); Organizer/Moderator for the One World YoungStatS Webinar series

INVITED TALKS

Nov 2021	18th Armitage Workshop and Lecture , University of Cambridge, UK Title: <i>Design-based Inference in Response-Adaptive Randomization</i>
Nov 2021	International Congress “Multicultural Communities for what Formation?” Pontificia Università Urbaniana, Roma, IT Title: <i>Multiculturalism and Interculturality: a qualitative analysis of focus groups</i>
JUL 2021	Benoulli-IMS YRM, 10th World Congress in Probability and Statistics Title: <i>Using Reinforcement Learning to Design Just-in-Time Adaptive Interventions</i>
MAR 2021	Stat.Edu21: New perspectives in Statistics Education Title: <i>Adaptive Experiments for Digital Education: Benefits and Statistical Challenges</i>
Dec 2020	Campus College , Rome, IT Title: <i>Reading the Numbers in Medicine: the Role of Statistics in Biomedical Studies</i>
JUL 2019	University of Alberta , Edmonton, Canada Title: <i>Deep Learning to the Test: an Application to Traffic Data Streams</i>
APR 2018	European Organisation for Research and Treatment of Cancer (EORTC) , Paris, FR Title: <i>An international field study for the reliability and validity of the EORTC-CML24</i>
MAR 2017	Spring 2017 EORTC Quality of Life Group Meeting , Bruxelles, BE Title: <i>Advances in the Phase IV Development of the EORTC-CML24</i>
OCT 2016	Autumn 2016 EORTC Quality of Life Group Meeting , Manchester, UK Title: <i>Advances in the Phase IV Development of the EORTC-CML24</i>

COMPUTER SKILLS

Advanced Knowledge:	R, R Studio, Python, \LaTeX , Microsoft Office
Intermediate Knowledge:	SAS, BUGS, WinBUGS, JAGS, Stan
Basic Knowledge:	C/C++, TensorFlow, H2O.ai, MATLAB, VBA, MySQL

LANGUAGES

Mother-tongue:	ITALIAN, ROMANIAN
Advanced:	ENGLISH, RUSSIAN
Intermediate:	FRENCH

PUBLICATIONS AND PROCEEDINGS

- In Review* Deliu, N., Williams, J. J. and Villar, S. S. *Efficient Inference Without Trading-off Regret in Bandits: An Allocation Probability Test for Thompson Sampling*. Preprint available: <https://arxiv.org/abs/2111.00137>
- In Review* Deliu, N., Williams, J. J. and Chakraborty, B., *Reinforcement Learning in Modern Biostatistics: Developing Adaptive Interventions*.
- In Review* Williams, J. J., Nogas, J., Deliu, N. et al., *Challenges in Statistical Analysis of Data Collected by a Bandit Algorithm: An Empirical Exploration in Applications to Adaptively Randomized Experiments*. Preprint available: <https://arxiv.org/abs/2103.12198>
- In Press* Deliu, N. and Chakraborty, B., *Dynamic Treatments Regimes for Optimizing Healthcare*. Book chapter in **The Elements of Joint Learning and Optimization in Operations Management**. Springer
- 2021 Nogas J. et al, *Algorithms for Adaptive Experiments that Trade-off Statistical Analysis with Reward: Combining Uniform Random Assignment and Reward Maximization*. Accepted at **Workshop on Causal Sequential Decisions 2021, NeurIPS 2021**
- 2021 Figueroa, C. A., Deliu, N., Chakraborty, B. et al., *Daily Motivational Text-Messages to Promote Physical Activity in University Students: Results from a Micro-Randomized Trial*. EPUB ahead of print in **Annals of Behavioral Medicine** <https://doi.org/10.1093/abm/kaab028>
- 2021 Figueroa, C. A., Aguilera, A., Chakraborty, B. et al., *Adaptive Learning Algorithms to Optimize Mobile Applications for Behavioral Health: Guidelines for Design Decisions*. **J Am Med Inform Assoc 12;28(6):1225-1234**, <https://doi.org/10.1093/jamia/ocab001>
- 2020 Figueroa, C. A., Aguilera, A., Chakraborty, B. et al., *Design decisions when using machine learning to optimize behavioral health interventions delivered via smartphones* Proceedings of the **13th Annual Conference on the Science of Dissemination and Implementation in Health**
- 2019 Cottone, F., Deliu, N., Collins, G. S., et al, *Modeling strategies to improve parameter estimates in prognostic factors analyses with patient-reported outcomes in oncology* **Qual Life Res**, <https://doi.org/10.1007/s11136-018-02097-2>
- 2019 Sparano, F., Aaronson, N. K., Cottone, et al., *Clinician-reported symptomatic adverse events in cancer trials: are they concordant with patient-reported outcomes?* **J Comp Eff Res**, <https://doi.org/10.2217/cer-2018-0092>
- 2018 Ousmen A., Touraine C., Deliu N., et al., *Distribution- and anchor-based methods to determine the minimally important difference on patient-reported outcome questionnaires in oncology: A structured review* **HQLO 16:228**, <https://doi.org/10.1186/s12955-018-1055-z>
- 2018 Sparano F., Aaronson N., Cottone F., et al., *PCN368 - Concordance between patients and clinicians' reporting of symptomatic adverse events in cancer clinical trials: a systematic review* **Value in Health 21:S76-S77**, <http://dx.doi.org/10.1016/j.jval.2018.09.450>
- 2018 Deliu N., Cottone F., Collins G.S., Anota, A., Efficace F. *Evaluating methodological quality of Prognostic models Including Patient-reported HeAlth outcomes iN oncology (EPIPHANY): a systematic review protocol* **BMJ Open 8(10):e025054**, <http://dx.doi.org/10.1136/bmjopen-2018-025054>
- 2018 Deliu, N., Brutti, P., *Deep Learning to the Test: an Application to Traffic Data Streams* **Book of Short Papers SIS2018**, ISBN-9788891910233
- 2017 Deliu, N., Efficace, F., Collins, G. S., et al, *Modelling Strategies to Improve Estimates of Prognostic Factors Analyses with Patient Reported Outcomes: a Simulation Study* **Qual Life Res 26(Suppl 1):34-35**, <https://doi.org/10.1007/s11136-017-1658-6>
- 2017 Touraine, C., Ousmen, A., Deliu, N., et al., *Statistical Methods to Determine the Minimal Clinically Important Difference in Health-Related Quality of Life Questionnaires in Cancer: A Systematic Literature Review* **Qual Life Res 26(Suppl 1):134**, <https://doi.org/10.1007/s11136-017-1658-6>

PUBLICATIONS AND PROCEEDINGS

- 2017 Sparano, F., Rees, J., Blazeby, J., Pezold, M., Pusic, A., Aaronson, N., Sprangers, M., Fayers, P., Deliu, N., et al., *Patient-Reported Outcomes (PROs) in Randomized Controlled Trials of Colorectal Cancers. Methodological Quality of Reporting Over Time* **Qual Life Res 26(Suppl 1):65-66**, <https://doi.org/10.1007/s11136-017-1658-6>
- 2017 Efficace, F., Aaronson, N., Sparano, F., Sprangers, M., Fayers, P., Pusic, A., Anota, A., Cottone, F., Rees, J., Deliu, N., Piciocchi, A., et al., *Concordance between patient reported and clinical outcomes in randomized controlled trials (RCTs) of cancer treatment* **Qual Life Res 26(Suppl 1):103-104**, <https://doi.org/10.1007/s11136-017-1658-6>
- 2017 Efficace, F., Aaronson, N., Sparano, F., Sprangers, M., Fayers, P., Pusic, A., Haas, A., Piciocchi, A., La Sala, E., Anota, A., Cottone, F., Deliu, N., Rees, J., et al., *Quality of Patient-Reported Outcome (PRO) Reporting in Randomized Controlled Trials (RCTs) over time. Evidence from 480 RCTs from 2004 to 2016* **Qual Life Res 26(Suppl 1):139**, <https://doi.org/10.1007/s11136-017-1658-6>
- 2017 Efficace, F., Aaronson, N., Sparano, F., Sprangers, M., Fayers, P., Pusic, A., Haas, A., Anota, A., Cottone, F., Deliu, N., Rees, J., et al., *Type and Magnitude of EORTC QLQ-C30 Outcomes in Cancer Clinical Trials* **Qual Life Res 26(Suppl 1):104**, <https://doi.org/10.1007/s11136-017-1658-6>
- 2017 Anota, A., Touraine, C., Ousmen, A., Deliu, N., et al., *Méthodes de détermination de la différence minimale cliniquement importante pour les questionnaires de qualité de vie relative à la santé en cancérologie*, **Revue d'Épidémiologie et de Santé Publique**, **65(Suppl 2):66**, <https://doi.org/10.1016/j.respe.2017.03.041>
- 2017 Newsletter: Efficace, F., Deliu, N., *Raising the standards of patient-reported outcomes measurement in patients with chronic myeloid leukaemia: The international phase IV field-testing of the EORTC QLQ-CML24*, **The European Organisation for Research and Treatment of Cancer, Issue 17**

December 1, 2021