

## PERSONAL INFORMATION

## Grigorova, Denitsa, Parashkevova



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Gender Female | Date of birth --/--/19-- | Nationality Bulgarian

## WORK EXPERIENCE

Dates	September 16th, 2014 -
Occupation or position held	Chief Assistant Professor (permanent university position after a PhD degree)
Main activities and responsibilities	Teaching and research
Name and address of employer	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics bul. James Bourchier 5, Sofia 1164, Bulgaria
Dates	September 1st, 2020 - May 31st, 2023
Occupation or position held	Experienced Researcher (R2)
Main activities and responsibilities	Research
Name and address of employer	Sofia University "St Kliment Ohridski" Big Data for Smart Society Institute (GATE) 125 Tsarigradsko Shosse, Bl. 2, 1113 Sofia, Bulgaria
Dates	March 1st, 2018 - February 28th, 2020
Occupation or position held	Postdoctoral Research Fellow
Main activities and responsibilities	Research under the supervision of <a href="#">prof. Marco Bonetti</a> Topic: Development of statistical model of natural history of breast cancer
Name and address of employer	Università Bocconi Via Sarfatti, 25, 20100 Milano, Italy
Dates	September 17th, 2012 - September 15th, 2014
Occupation or position held	Assistant Professor
Main activities and responsibilities	Teaching and research
Name and address of employer	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics bul. James Bourchier 5, Sofia 1164, Bulgaria
Dates	June 15th, 2012 - September 17th, 2012
Occupation or position held	Mathematician
Main activities and responsibilities	Organization of students' teaching process
Name and address of employer	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics bul. James Bourchier 5, Sofia 1164, Bulgaria
Dates	February 2008 - June 2012
Occupation or position held	Part-time Teaching Assistant
Main activities and responsibilities	Teaching

Name and address of employer	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics bul. James Bourchier 5, Sofia 1164, Bulgaria
Dates	May 2009 - November 2009
Occupation or position held	Mathematician
Main activities and responsibilities	Organization of students' teaching process
Name and address of employer	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics bul. James Bourchier 5, Sofia 1164, Bulgaria

## EDUCATION AND TRAINING

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Dates	June 2009 - June 2012
Title of qualification awarded	Ph.D. Degree
Principal subjects occupational skills covered	Statistics Dissertation topic: <a href="#">EM algorithms for probit models with random effects</a> (in Bulgarian) Supervisor: <a href="#">Ralitza Gueorguieva, PhD</a>
Name and type of organisation providing education and training	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics
Level in national or international classification	PhD Student
Dates	February 2011 - June 2011
Principal subjects occupational skills covered	Applied Probability, Computational Inference, Linear Models, Sampling Theory and Design of Experiments, Time series
Name and type of organisation providing education and training	University of Sheffield
Level in national or international classification	Erasmus Student
Dates	October 2007 - March 2009
Title of qualification awarded	Master of Science
Principal subjects occupational skills covered	Probability and Statistics
Name and type of organisation providing education and training	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics
Level in national or international classification	Master's Student
Dates	October 2003 - September 2007
Title of qualification awarded	Bachelor of Science
Principal subjects occupational skills covered	Applied Mathematics
Name and type of organisation providing education and training	Sofia University "St Kliment Ohridski" Faculty of Mathematics and Informatics
Level in national or international classification	Undergraduate Student
Dates	September 1998 - May 2003
Title of qualification awarded	High school diploma

Principal subjects occupational skills covered Mathematics and German

Name and type of organisation providing education and training Sofia High School of Mathematics

Level in national or international classification High School

**PERSONAL SKILLS AND COMPETENCES**

Mother tongue Bulgarian

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C1	C2	C2
Italian	B1	B1/B2	B1	B1/B2	B1
German	A2/B1	B1	A2/B1	B1	B1
French	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user  
[Common European Framework of Reference for Languages](https://www.cedefop.europa.eu/en/etools/cefr)

Computer skills and competences Good knowledge of R, LaTeX, Microsoft Excel, Microsoft Word and Microsoft PowerPoint

**HONORS AND AWARDS**

International Society for Clinical Biostatistics (ISCB) Conference Award for Scientists, Utrecht, the Netherlands, 2015

ISCB Conference Award for Scientists, Munich, Germany, 2013

Award in the name of academician Kiril Popov (1881-1966) for outstanding results in the field of Statistics and its applications in 2009, Bulgarian Statistical Society, 2010

**TEACHING ACTIVITY**

Lecturer Introduction to Biostatistics, M.Sc., compulsory  
 Biostatistics II, M.Sc., compulsory  
 Statistics and Empirical Methods, B.Sc., compulsory  
 Mathematical Statistics, B.Sc., compulsory  
 Programming with R, M.Sc., elective

Discussion section leader Linear Models with R, B.Sc. and M.Sc.  
 Introduction to Statistics, B.Sc.  
 Introduction to Biostatistics, M.Sc.  
 Biostatistics II, M.Sc.  
 Statistics (in English), M.Sc.  
 Statistics and Empirical Methods, B.Sc.  
 Probability Theory, B.Sc.  
 Mathematical Statistics, B.Sc., compulsory

Developed Materials for Statistics Courses (in Bulgarian)	<p>Lecture notes for the course “Mathematical Statistics” for students in the B.Sc. programs at FMI</p> <p>Lecture notes for the course “Statistics and Empirical methods” for students in the B.Sc. programs at FMI</p> <p>Lecture notes for the course “Programming with R” for students in the M.Sc. programs at FMI</p> <p>Notes for the discussion sections of the courses “Introduction to Biostatistics” and “Biostatistics II” for students in the M.Sc. programs at the Faculty of Mathematics and Informatics (FMI)</p> <p>Notes for the discussion sections of the courses “Introduction to Statistics” for students in the B.Sc. programs at FMI</p>
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#### ADVISING AND SUPERVISING

M.Sc. student	Gergana Vasileva Nozharova (2018), Master program in Biomedical informatics at FMI, <i>Identification of risk factors for life expectancy for data from the Health and Retirement Study</i> , Supervisor
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#### ADMINISTRATIVE ROLES

Secretary	Department of Probability, Operations Research and Statistics of FMI; 2012 - 2016
Member	Election Committee of FMI; May 2023 -

#### SCIENTIFIC SOCIETIES

Secretary	<a href="#">Eastern Mediterranean Region (EMR)</a> of the <a href="#">International Biometric Society (IBS)</a> in the periods 2021-2023 and 2023-2025
Bulgaria Representative	EMR-IBS in the periods 2015-2017, 2017-2019, 2019-2021, 2021-2023, 2023-2025
Member	IBS, since 2014
	ISCB, 2013, 2015, 2024
	Bulgarian Statistical Society, 2009

#### SHORT COURSES

Organizer	<p><b>Survival analysis</b></p> <p>Lecturers: Laura Antolini and Davide Bernasconi, University of Milano-Bicocca, Italy Hosted by the Faculty of Mathematics and Informatics, Sofia University July 18-20 2016 Sponsored by IBS</p>
Lecturer	<p><b>Statistical Data Analysis and Graphical Representation of the Data</b></p> <p>Professional Development Course for Teachers Spring Conference of the Union of the Bulgarian Mathematicians 2016, 2017, 2020, 2022, 2023</p>

#### PUBLICATIONS

Peer-reviewed Publications in Scientific Journals	<p><a href="#">Velizar Shivarov, Denitsa Grigorova, Mira Nedeva, Todor Milkov, Albena Zlatareva, and Angel Yordanov. Chronic myeloid leukemia in bulgaria in the new millennium: Identification of directions for improvement in management and outcomes reporting. <i>Hemato</i>, 5(3):264–276, 2024</a></p> <p><a href="#">Ivan Koychev, Evgeniy Marinov, Simon Young, Sophia Lazarova, Denitsa Grigorova, and Dean Palejev. Identification of preclinical dementia according to atn classification for stratified trial recruitment: A machine learning approach. <i>PLOS ONE</i>, 18(10):1–15, 10 2023</a></p> <p><a href="#">Laura Bondi, Marco Bonetti, Denitsa Grigorova, and Antonio Russo. Approximate Bayesian computation for the natural history of breast cancer, with application to data from a Milan cohort study. <i>Statistics in Medicine</i>, 42(18):3093–3113, 2023</a></p>
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Velizar Shivarov, Denitsa Grigorova, and Angel Yordanov. Relative Risk of Death in Bulgarian Cancer Patients during the Initial Waves of the COVID-19 Pandemic. *Healthcare*, 11(18), 2023

Lazarova, Sophia and Grigorova, Denitsa and Petrova-Antonova, Dessislava and for the Alzheimer's Disease Neuroimaging Initiative. Detection of Alzheimer's Disease Using Logistic Regression and Clock Drawing Errors. *Brain Sciences*, 13(8), 2023

V. Shivarov and D. Grigorova. Dynamic trends in life expectancy and life years lost over five decades in patients from the SEER database with chronic myeloid leukaemia. *Br J Haematol*, 198(2):e23–e25, 07 2022

Hristo Y Ivanov, Denitsa Grigorova, Volker M Lauschke, Branimir Velinov, Kaloyan Stoychev, Gergana Kyosovska, and Peter Shopov. CYP2C19 and CYP2D6 genotypes and metabolizer status distribution in a bulgarian psychiatric cohort. *J Pers Med*, 12(7), July 2022

Mila Dragomirova, Albena Antonova, Slavena Stoykova, Gergana Mihova, and Denitsa Grigorova. Myopia in Bulgarian school children: prevalence, risk factors, and health care coverage. *BMC Ophthalmology*, 22(1):248, Jun 2022

Hristo Y. Ivanov, Branimir Velinov, Gergana Kyosovska, Denitsa Grigorova, and Peter Shopov. Exploring pharmacogenetic variation in a bulgarian psychiatric cohort. *Folia Medica*, 63(3):365–371, 2021

Miroslava Ivanova, Lilko Dospatliev, Denitsa Grigorova, and Penko Papazov. Evaluation of the Human Health Risk of Wild Edible Mushrooms Consumption from Batak Mountain, Bulgaria. *Iranian Journal of Public Health*, 49(8):1573–1575, Jul. 2020

D. Grigorova. EM algorithm for maximum likelihood estimation of correlated probit model for two longitudinal ordinal outcomes. *Ann. Sofia Univ., Fac. Math and Inf.*, 104:217–232, 2017

D. Grigorova and R. Gueorguieva. Correlated probit analysis of repeatedly measured ordinal and continuous outcomes with application to the Health and Retirement Study. *Statistics in Medicine*, 35(23):4202–4225, 2016. sim.6982

D. Grigorova, E. Encheva, and R. Gueorguieva. EM algorithm for MLE of a probit model for multiple ordinal outcomes. *Serdica Journal of Computing*, 7(3):227–244, 2013

D. Grigorova and R. Gueorguieva. Implementation of the EM algorithm for maximum likelihood estimation of a random effects model for one longitudinal ordinal outcome. *Pliska Stud. Math. Bulgar.*, 22:41–56, 2013

#### Peer-reviewed Publications in Conference Proceedings

Denitsa Grigorova, Demir Tonchev, and Dean Palejev. Comparison of Different Methods for Multiple Imputation by Chain Equation. In Ivan Lirkov and Svetozar Margenov, editors, *Large-Scale Scientific Computing*, pages 439–446, Cham, 2022. Springer International Publishing

D. Grigorova and R. Gueorguieva. EM Algorithms for MLE of Correlated Probit Models. In *[MIE 2013] Proceedings*, pages 17–24, 2013

D. Grigorova. Assessing the effect of genetic factors and other factors on the normal tissue reactions after radiotherapy in patients with cancer. In *Proceedings of the 16th EYSM*, pages 108–112, 2009. Short paper

#### R package

EMcorrProbit

Available on GitHub: <https://github.com/ninard/EMcorrProbit>

(partially supported by the financial funds allocated to the Sofia University “St. Kliment Ohridski”, grant numbers 019/2015 and 013/2016)

#### PRESENTATIONS AT SCIENTIFIC MEETINGS

Modelling longitudinal cognitive test data with ceiling effects and left skewness, 12th International Conference of the International Biometric Society's Eastern Mediterranean Region, Izmir, Turkey, May 8-11, 2023

Modelling longitudinal cognitive test data with ceiling effects and left skewness, Seminar on Advances in Statistics, Veliko Tarnovo, Bulgaria, March 9-12, 2023

Modelling longitudinal cognitive test data with ceiling effects and left skewness, 31st International Biometric Conference, Riga, Latvia, July 10-15, 2022

Modelling longitudinal cognitive test data with ceiling effects and left skewness, National Seminar on Stochastics, Sofia, Bulgaria, June 29, 2022

Comparison of Different Methods for Multiple Imputation by Chain Equation, 13th International Conference on "Large-Scale Scientific Computations", Sozopol, Bulgaria, June 7-11, 2021

Analysis of time to breast cancer detection in women invited to a breast cancer screening program, FMI, Sofia University, Sofia, Bulgaria, September 2, 2019

Analysis of time to breast cancer detection in women invited to a breast cancer screening program, 12th IBS-Italian Region conference, Naples, Italy, July 7-10, 2019

Analysis of time to breast cancer detection in women invited to a breast cancer screening program, DoReMee Workshop, Dondena Centre for Research on Social Dynamics and Public Policy, Bocconi University, Milan, Italy, May 6, 2019

Correlated probit analysis of two longitudinal ordinal outcomes, 18th International Summer Conference on Probability and Statistics (ISCPs'18), Pomorie, Bulgaria, June 25-30, 2018

Correlated probit analysis of two longitudinal ordinal outcomes, HUMBOLDT KOLLEG: Humboldtians and Scientific Progress in the Central and Eastern European Countries, Sofia, Bulgaria, November 16-18, 2017

EM algorithms for maximum likelihood estimation of correlated probit models for longitudinal ordinal data, University of Milano-Bicocca, Seminar at the School of Medicine and Surgery, Monza, Italy, September 21, 2017

EMcorrProbit R package, 9th EMR-IBS and Italian Region Conference Conference, Thessaloniki, Greece, May 8-12, 2017

EMcorrProbit R package, The 22nd International Conference on Computational Statistics, Oviedo, Spain, August 23-26, 2016

EMcorrProbit R package, Eight Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences (AMiTaNS'16), Albena, Bulgaria, June 22-27, 2016

Correlated probit analysis of two longitudinal ordinal outcomes. The EMcorrProbit R package, *Conference award for scientists*, 36th Annual Conference of the International Society for Clinical Biostatistics, Utrecht, The Netherlands, August 23 - 27, 2015

R package for EM algorithms for estimation of correlated probit models, International conference on Mathematical Methods and Models in Biosciences (BIOMATH) 2015, Blagoevgrad, Bulgaria, June 14-19, 2015

Correlated probit analysis of two repeatedly measured ordinal outcomes with application to the Health and Retirement study, 8th conference of the Eastern Mediterranean Region of the International Biometric Society (EMR-IBS), Nevsehir, Cappadocia region of Turkey, May 11-15, 2015

Correlated probit analysis of repeatedly measured continuous and ordinal outcomes with application to the Health and Retirement Study, International Biometric Conference, Florence, Italy, July 6-11 2014

Correlated probit analysis of repeatedly measured continuous and ordinal outcomes with application to the Health and Retirement Study, XVI-th International Summer Conference on Probability and Statistics, Seminar on Statistical Data Analysis, Workshop on Branching Processes and Applications, Pomorie, Bulgaria, June 21-28, 2014

Correlated probit model for estimation of the relationship between genotypes and multiple side effects in cancer radiotherapy, National Seminar on Stochastics, Sofia, Bulgaria, October 30, 2013

Correlated probit model for estimation of the relationship between genotypes and multiple side effects in cancer radiotherapy, *Conference award for scientists*, 34th Annual Conference of the International Society for Clinical Biostatistics, Munich, Germany, August 25-29, 2013

EM Algorithms for MLE of Correlated Probit Models, Doctoral Conference in Mathematics, Informatics and Education, Sofia, Bulgaria, September 19-20, 2013

Correlated Probit Model for Multiple Side Effects in Cancer Radiotherapy, International conference on Mathematical Methods and Models in Biosciences (BIOMATH), Sofia, Bulgaria, June 17-21, 2013

Implementation of EM algorithm for maximum likelihood estimation of joint model of one ordinal and one continuous outcome, ISCPs and SDA 2012, Pomorie, Bulgaria, June 23-30, 2012

Comparison of different methods of modelling longitudinal data, ISCPs and SDA 2010, Sozopol, Bulgaria, June 19-26, 2010

Assessing the effect of genetic factors and other factors on the normal tissue reactions after radiotherapy in patients with cancer, 16th European Young Statisticians Meeting, Bucharest, Romania, August 24-28, 2009

## PARTICIPATION IN SCIENTIFIC PROJECTS

<b>Role in the project</b>	<b>Title; Year; Financing organisation</b>
Principal Investigator	Advancing the software package <code>EMcorrProbit</code> in R, developed to estimate the parameters of statistical models for medical data via EM algorithms; 2016; Sofia University
Member	Advanced Variational Analysis and Applications; 2023-2026; Sofia University
	Models for dependences in Alzheimer's disease medical data; 2023; Sofia University
	Stochastic models, algorithms and applications; 2013, 2014, 2017, 2018, 2019, 2020; Sofia University
	Development of an R package for parameter estimation of statistical models for medical data via EM algorithm; 2015; Sofia University