

## CURRICULUM VITAE



*Petre Babilua*

### **Education**

2007	Bocconi university, Post-doctoral study in Probability and Statistics, Milano, Italy
2006	Ph.D. in Mathematics -Probability Theory and Mathematical Statistics, N. Muskhelishvili Institute of Computational Mathematics, Dissertation Thesis: “Semimartingale local time and american put option”
2002-2005	I. Javakhishvili State University, Doctoral Study, Faculty of Mechanics and Mathematics, Probability Theory and Mathematical Statistics
2000-2002	I. Javakhishvili State University, Faculty of Mechanics and Mathematics, M. S. Mathematics, Probability and Statistics (Diploma with honours)
1996-2000	I. Javakhishvili State University, Faculty of Mechanics and Mathematics, B. S. Mathematics, Mathematical Finance (Diploma with honours) a teacher of Mathematics

**Academic Degree-** PhD of Mathematics

### **Professional Experience**

2017-september-october	Visiting professor at San Diego State University, Department Mathematics and Statistics, USA CA, San Diego
2016-2017	Head of Mathematics Department and Associated Professor at Business and Technology University, Tbilisi

2015-up to now	Leading Teacher in Mathematics of National Center For Teacher Professional Development
2015	International Tournament of Young Mathematicans, Jury, ITYM- 5-12 July, Sofia, Bulgaria
2016-up to now	Subject leader and Teacher of Mathematics in MYP at European School
2013-up to	Lecturer and Author of Syllabus of Calculus AB, Calculus BC authorized by College Board, at European School
2012-up to now	Examiner of Mathematics SL IB (Cardiff, Great Britain)
2014-up to now	Head of the Mathematics Department at the European School
2011-up to now	Teacher of Mathematics SL, Mathematics HL in IB Diploma Programme at the European School
2007-up to now	Teacher of Mathematics at the European School (Georgian Section)
2005-up to now	National Assessment and Examinations Center, Committee-man of Mathematics
2009-up to now	Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences, Department of Mathematics-Chair of Probability Theory and Mathematical Statistics-Assistant Professor
2006-2009	Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences, Department of Mathematics-Chair of Probability Theory and Mathematical Statistics-Invited Lecturer
2010-up to now	Trainer of Mathematics for teachers professional development of Ministry Education and Science of Georgia
2010	Author of the Program for teachers professional development of Ministry Education and Science of Georgia
2012-2015	Mentor of Mathematics of Ministry Education and Science of Georgia
2003-2007	Teacher of Mathematics at Private School ESM, Tbilisi
2002-2003	Teacher of Mathematics at Private School "Nino", Tbilisi

### ***Achievements***

2006	Summer School in Statistics and Probability on "Lévy Processes: Theory and Applications", Università Commerciale Luigi Bocconi (Milan, Italy)
2010	IB Teacher Mathematics SL, Workshops, held at Pembroke College, Oxford University, Organized by IBSCA (Oxford, Great Britain)
2012, 2013, 2014	Online Training For Examiners in Mathematics SL, Moderation of IA Exploration on IBIS

**Publications (last 10 years)**

2013	On the integral square measure of deviation of a nonparametric estimator of the Bernoulli regression. <i>Theory Probab. Appl.</i> <b>57</b> (2013), no. 2, 265—278
2017	On Deviations between Kernel Type Estimators of a Distribution Density in $p \geq 2$ Independent Samples <i>Comm. Statist. Theory Methods</i> - <b>47</b> (2017), 1073-1080
2016	Verification of the hypotheses on the equality of densities of distributions. <i>Ukrainian Math. J.</i> <b>68</b> (2016), no. 5, 586--600.
2016	On the testing hypothesis of equality distribution density. <i>Bull. Georgian Natl. Acad. Sci. (N.S.)</i> <b>10</b> (2016), no. 3, 27--32.
2015	On the square-integrable measure of the divergence of two nuclear estimations of the Bernoulli regression functions. <i>Ukrainian Math. J.</i> <b>67</b> (2015), no. 1, 1--18.
2015	Integral functionals of the Gasser-Muller regression function. <i>Ukrainian Math. J.</i> <b>67</b> (2015), no. 4, 493--505
2015	On the limit properties of maximal likelihood estimators in a Hilbert space. <i>Georgian Math. J.</i> <b>22</b> (2015), no. 2, 171--178
2015	On functionals of Gasser-Müller estimators. <i>Rep. Enlarged Sess. Semin. I. Vekua Appl. Math.</i> <b>29</b> (2015), 16--19
2014	Functionals of Gasser-Muller estimators. <i>Turkish J. Math.</i> <b>38</b> (2014), no. 6, 1090--1101.
2014	About Testing the Hypothesis of Equality of Two Bernoulli Regression Curves. <i>Journal of Mathematical Theory and Modeling.</i> vol. 4, no. 9, 2014. p. 142-150.
2013	About the Nonparametric Estimation of the Bernoulli Regression. <i>Comm. Statist. Theory Methods</i> <b>42</b> (2013), no. 22, 3989--4002.
2013	On the multiple linear regression in marketing research. <i>Bull. Georgian Natl. Acad. Sci. (N.S.)</i> <b>7</b> (2013), no. 3, 125--129.
2012	On one nonparametric estimate of a Bernoulli regression function. <i>Bull. Georgian Natl. Acad. Sci. (N.S.)</i> <b>6</b> (2012), no. 2, 5--10.
2011	On the estimation of a distribution function by an indirect sample. II. <i>Adv. Appl. Math. Sci.</i> <b>9</b> (2011), no. 2, 125--135.
2011	On the estimation of a distribution function by an indirect sample. I. <i>Adv. Appl. Math. Sci.</i> <b>8</b> (2011), no. 1, 27--37.
2009	On one property of the Wiener integral and its statistical application. <i>Random Oper. Stoch. Equ.</i> <b>17</b> (2009), no. 2, 173--187.
2010	On some goodness-of-fit tests based on estimates of kernel-type distribution densities. <i>Theory Probab. Appl.</i> <b>54</b> (2010), no. 2, 324—333
2010	The optimal stopping problem for the Kalman-Bucy scheme. <i>Theory Probab. Appl.</i> <b>55</b> (2011), no. 1, 110--119
2007	The American put option in a one-dimensional diffusion model with level-dependent volatility. <i>Stochastics</i> <b>79</b> (2007), no. 1-2, 5--25.
2006	Semimartingale local time and the American put option. <i>Georgian Math. J.</i> <b>13</b> (2006), no. 2, 199--214.
2010	On a measure of integral square deviation with generalized weight for the Rosenblatt-Parzen

	probability density estimator. <i>Ukrainian Math. J.</i> <b>62</b> (2010), no. 4, 588—611
2010	On the regression estimation in a Hilbert space. <i>Bull. Georgian Natl. Acad. Sci. (N.S.)</i> <b>4</b> (2010), no. 1, 8--11.
2004	Structure of an American type option value process in general one-dimensional diffusion model. <i>Bull. Georgian Acad. Sci.</i> <b>170</b> (2004), no. 3, 443--446.
2007	On the limit distribution of a quadratic deviation of a recurrent kernel estimate of distribution density. <i>Proc. A. Razmadze Math. Inst.</i> <b>144</b> (2007), 67--89.
2009	On optimal stopping for time-dependent gain function. <i>Theory Stoch. Process.</i> <b>15</b> (2009), No. 2, 54-61.
2012	On the integral square deviation of one nonparametric estimation of the Bernoulli regression. <i>Teor. Veroyatn. Primen.</i> , <b>57</b> :2 (2012), 322--336
2014	On Testing the Hypothesis of Equality of Two Bernoulli Regression Functions. <i>Bulletin of the Georgian National Academy of Sciences.</i> vol. 8, no. 1, 2014. p. 18-26.
2012	On the Cramer-Rao Inequality in an Infinite Dimensional Space. <i>Bull. Georgian Natl. Acad. Sci. (N.S.)</i> <b>6</b> (2012), no. 3, 5—13.

### *Community activities*

2010-up to now	Member of the Georgian Mathematical Union
2014-up to now	Member of the Georgian statistical association
2015-up to now	Member of the Board of Youth Scientists of Georgia

### *Conferences (last 10 years)*

2007	Ilya Vekua – 100, ISAAC – Conference (Tbilisi, Georgia, April 23-27, 2007) – speaker.
2008	Enlarged Session of the Seminar of I. Vekua Institute of Applied Mathematics of Iv. Javakhishvili Tbilisi State University (Tbilisi, Georgia, April 22-25, 2008) – speaker.
2008	The conference dedicated to the 90th birthday of I. I. Gikhman “Modern Problems of the Probability Theory and Related Problems” (Uman, Ukraine, May 24-26, 2008) – speaker.
2008	2008 Barcelona Conference on Asymptotic Statistics (Barcelona, Spanish, September 1-5, 2008) – speaker.
2008	The Second International Conference “Problems of Cybernetics and Informatics” Dedicated to 50 <sup>th</sup> Anniversary of the ICT in Azerbaijan (Baku, Azerbaijan, September 10-12, 2008) – speaker.
2008	International Conference on “Modern Problems in Applied Mathematics” Dedicated to the 90th Anniversary of Iv. Javakhishvili Tbilisi State University and 40 <sup>th</sup> Anniversary of the I. Vekua Institute of Applied Mathematics (Tbilisi, Georgia, September 26-28, October 7-9, 2008) – speaker.

2009	Enlarged Session of the Seminar of I. Vekua Institute of Applied Mathematics of Iv. Javakhishvili Tbilisi State University (Tbilisi, Georgia, April 22-25, 2009) – speaker.
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2009	VIII International FAM'2009 Conference on Financial and Actuarial Mathematics and Related Fields (Krasnoyarsk, Siberia, Russia, April 24-26, 2009) – speaker.
2009	International Conference on Interdisciplinary Mathematical and Statistical Techniques, University of West Bohemia (Plzeň, Czech Republic, May 23-26, 2009) – speaker.
2009	Ukrainian Mathematical Congress (Ukraine, August 28-30, 2009) – speaker.
2009	International Conference “Stochastic Analysis and Random Dynamical Systems” (Lviv, Ukraine, June 14-20, 2009) – speaker.
2009	33-rd Conference on Stochastic Processes and their Applications (Berlin, Germany, July 27-31, 2009) – speaker.
2010	The Third International Conference “Problems of Cybernetics and Informatics” (Baku, Azerbaijan, September 6-8, 2010) – speaker. International Conference Modern Stochastics: Theory and Applications II (Kyiv, Ukraine, September 7-11, 2010) – speaker.
2011	II Internatinal Conference dedicated to the 70 <sup>th</sup> Anniversary of the Georgian Nathional Academy of Sciences & 120 <sup>th</sup> birthday of its First President Academician Nikoloz (Niko) Muskhelishvili, (September 15-19, 2011, Batumi, Georgia)-speaker.
2012	Internatinal Conference-Stochastic optimization and optimal stopping, Moscow, 22-24 September, 2012-speaker.
2012	Enlarged Session of the Seminar of I. Vekua Institute of Applied Mathematics of Iv. Javakhishvili Tbilisi State University, Tbilisi, April 23-25, 2012- speaker.
2013	First Scientific Conference in Exact and Natural Sciences ENS-113 of I.Javakhishvili Tbilisi State University, Tbilisi, 29-30 January, 2013-speaker
2013	Enlarged Session of the Seminar of I. Vekua Institute of Applied Mathematics of Iv. Javakhishvili Tbilisi State University, Tbilisi, April 22-24, 2013- speaker.
2013	<u>Second International Conference on "Modern Problems in Applied Mathematics" Dedicated to the 95th Anniversary of I.Javakhishvili Tbilisi State University &amp; 45th Anniversary of I.Vekua Institute of Applied Mathematics</u> , Tbilisi, 4-7 September, 2013-speaker.
2014	Second Scientific Conference in Exact and Natural Sciences ENS-214 of I.Javakhishvili Tbilisi State University, Tbilisi, 29-30 January, 2014-speaker
2014	Enlarged Session of the Seminar of I. Vekua Institute of Applied Mathematics of Iv. Javakhishvili Tbilisi State University, Tbilisi, 22-24 April, 2014- speaker.
2014	The first Caucasian Mathematics Conference (CMC I), Tbilisi, Georgia, September 5 and 6, 2014—speaker
2014	V Annual Conference of the Georgian Mathematical Union, Batumi, September 8-12, 2014- speaker
2015	VI Annual Conference of the Georgian Mathematical Union, Batumi, September 9-12, 2015- speaker
2016	VII Annual Conference of the Georgian Mathematical Union, Batumi, September 10-12, 2016- speaker

### *Grants and awards*

2006-2009	The Nonparametric Estimations of Distribution Density and Regression Function, Stochastic Analysis and Applications in Financial Mathematics, Georgian National Science Foundation (GNSF), Grant # GNSF/ST06/3-039, 2006-2009 (Main Executive).
2009	On Some Nonparametric Estimates of the Density and Regression Function and the American Put Option, Georgian National Science Foundation, Grant # GNSF/PRES08/3-119, 2009 (Research Director).
2014-2016	Some Problems of the Theory of Nonparametric Estimation of the Functional Characteristics of the Observation Distribution Law, Georgian National Science Foundation (GNSF), 2014-2016 (Project Manager, Main Executive).
2013-2014	Some Problems of Nonparametric Estimation, Grant # PG/18/5-104/13 Shota Rustaveli National Scientific Foundation, Investigator, 2013–2014
2013	Distribution of Free Time of Youth by Methods of Mathematics and Statistics, Grant # SC/20/5-104/12 Shota Rustaveli National Scientific Foundation, Co-investigator, 2013
2012-2013	Nonparametric Estimation of Bernoulli Regression Function by the Method of Nadaraya-Watson and Its Some Asymptotic Properties, Grant # PG/26/5-104/12 Shota Rustaveli National Scientific Foundation, Investigator, 2012–2013
2009	I. Vekua grant holder, Georgian National Academy of Sciences and Georgian National Science Foundation, 2009.
2009, 2013, 2014	President’s grant holder for young scientist

### *Certificates*

2016	Certified Trainer in General Education-Training Educators For Excellence Project- National Center For Teacher Professional Development, MCC Georgia
2016	Teacher Training Program- “Learner centered Teaching Strategies” Module 1- Environment, Training Educators For Excellence Project- National Center For Teacher Professional Development, MCC Georgia
2016	Teacher Training Program- “Learner centered Teaching Strategies” Module 2-Assessment, Training Educators For Excellence Project- National Center For Teacher Professional Development, MCC Georgia
2016	Teacher Training Program- “Learner centered Teaching Strategies” Module 3-Class management, Training Educators For Excellence Project- National Center For Teacher Professional Development, MCC Georgia

2016	Teacher Training Program- “Learner centered Teaching Strategies” Module 4- “Nature of Active Learning in Mathematics” ,Training Educators For Excecelence Project- National Center For Teacher Professional Development, MCC Georgia
2015	Teacher Training Program-Action Research in Education, National Center For Teacher Professional Development
2015	Teacher Training Program-Teaching Resources, National Center For Teacher Professional Development
2015	Teacher Training Program-Using Geogebra in Mathematics, National Center For Teacher Professional Development
2015	Teacher Training Program-Projects in etwinning portal, National Center For Teacher Professional Development

### ***Textbooks***

2012	Author of Textbook- Mathematics 12, Created According with Georgian National Curriculum
2012	Author of Textbook- Mathematics 11, Created According with Georgian National Curriculum
2012	Author of Textbook- Mathematics 10, Created According with Georgian National Curriculum
2012	Author of Textbook- Mathematics 9, Created According with Georgian National Curriculum
2012	Author of Textbook- Mathematics 8, Created According with Georgian National Curriculum
2012	Author of Textbook- Mathematics 7, Created According with Georgian National Curriculum

### ***Teaching courses***

Probability theory and mathematical statistics; Statistics for social sciences; Calculus; Probability, statistics and data Analysis; Methods of teaching probability and statistics in secondary schools.