

JOB OFFER

Position in the project: MSc student (undergraduate)

Scientific discipline: Mathematics, Probability Theory and Stochastic Modeling

Job type (employment contract/stipend): stipend

Number of job offers: 3

Salary/stipend amount/month: 2500 PLN/ month

Maximum period of contract/stipend agreement: 7 months

Position starts on: 1.03.2019

Institution: Mathematical Institute/ Department of Mathematics and Computer Science / University of Wrocław

Project leader: dr. Barbara Jasiulis-Gótdyn

Project title: First order Kendall maximal autoregressive processes and their applications

Project description: The main objective of the project is construction of distributions and processes additive in the sense of generalized convolutions and apply them to modeling environmental indicators. Instead of the classical convolution corresponding to the summation of independent random elements, we consider the binary operation called generalized convolutions. We are considering extremal Markovian sequences of the Kendall type because the distributions associated with them are heavy tailed and we suppose to apply them to forecasting extremal events. The project provides for constructing and investigate properties of renewal processes in the generalized convolution algebras. We give the renewal equation, obtain equivalent risk model for Kendall random walks and compute the ruin probability. One of the goals of the project is to develop the crossing barriers problems for extremal Markovian sequences of the Kendall type, next investigate asymptotic properties of them and apply obtained results to modeling extremal events, in particular indicators of air pollution.

Key responsibilities include:

1. analysis of statistical data
2. interpretations of the results obtained in the context of the indicators of air pollutions and their influence on health
3. internships and trips to promote results to the scientific partners and national and international scientific conferences
4. collaboration with research partners and the local enterprise as an economic partner

5. contribution to the scientific part of the project

Profile of candidates/requirements:

1. the status of a student studying a second degree in mathematics
2. knowledge of the theory of probability, statistics and stochastic processes
3. English at least allow good communication, understanding and writing scientific publications
4. welcome knowledge of the basics of programming in R
5. very welcome knowledge of statistical analysis tools, Markov processes, time series and basic theory of extreme events
6. diligence, creativity, high motivation, the ability of analytical thinking, good organization of work

Required documents:

1. CV describing scientific achievements, information about the awards, scholarships, foreign trips and participation in scientific conferences and workshops
2. Cover Letter
3. the average grade and transcript of marks from the first degree studies confirmed by deanery
4. certificate of status as a student second degree studies

Please submit the following documents to: jasiulis@math.uni.wroc.pl

Application deadline: 23.02.2019, 23:59

For more details about the position please visit:

<http://www.math.uni.wroc.pl/~jasiulis/strona2.html>

Selected applicants only will be contacted with invitation for a final interview. Estimated date of interviews: 25-26.02.2019

Please include in your offer:

“I hereby give consent for my personal data included in my application to be processed for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2016, item 922 as amended.”