

Curriculum Vitae

DR. VILDA PURUTÇUOĞLU

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PERSONAL INFORMATION

Place of born : İstanbul - Turkey
Nationality : Turkish
Address : Middle East Technical University (METU),
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EDUCATION

- DOCTOR OF PHILOSOPHY in Statistics at the Lancaster University, United Kingdom, *October 2004 - August 2007*
Advisor: Prof. Ernst Wit
Ph.D Thesis: Bayesian methods for gene network analysis
Examiner: Prof. Paul Fearnhead and Prof. Lorenz Wernisch
- MASTER OF SCIENCE in Statistics at METU, Turkey, *September 2002 - January 2004*.
(By completing a 2 (+1) year programme in 1 and 1/2 years with high honor cumulative)
Advisor: Prof. Moti L. Tiku (McMaster University, Canada)
M.Sc Thesis: Unit root problems in time series analysis
- MINOR PROGRAMME in Economics at METU, Turkey, *February 2000 - June 2002*.
- BACHELOR OF SCIENCE in Statistics at METU (The instruction's language is English), Turkey, *September 1998 - June 2002*.

EMPLOYMENT ACTIVITIES

- *September 2007 - present*, **Instructor** of various undergraduate courses in the Department of Statistics at METU, Ankara, Turkey.
 - Taught courses: Probability I (STAT 153), Probability II (STAT 154), Introduction to Probability and Statistics I (STAT 201), and Introduction to Probability and Statistics II (STAT 202).

- *September 2002 - September 2004*, **Teaching assistant** in the Department of Statistics at METU, Ankara, Turkey.
 - Taught courses: Operational Research (STAT 496), Probability (STAT 253).
- *February 2002 - June 2002*, **Student assistant** in the Department of Economics at METU, Ankara, Turkey.
 - Taught course: Statistics for Economists II (ECON 206)

PROFESSIONAL ACTIVITIES

- *August 2007 - present*, **Advisor** of the first-year undergraduate students in the Department of Statistics at METU, Ankara, Turkey.
- *April 2006 - December 2007*, **Referee** of several papers submitted to *Journal of the Royal Statistical Society - Series C*, *Biostatistics*, and *Journal of Biomedicine and Biotechnology*.
- *September 2006*, **Member of the organizing committee of the workshop** entitled “Statistical Genomics Days in Memory of Nick Smith, 25-26 September 2006”, Lancaster University, UK.
- *September 2002 - September 2004*, **Advisor** of the first and the second-year undergraduate students in the Department of Statistics at METU, Ankara, Turkey.

OTHER ACTIVITIES

- *May 2000 - February 2001*, **Internships**: Central Bank (Department of Marketing), State Planning Organization (Department of Economic Modelling and Strategic Researches), Turkish Statistical Institute (Department of National Accounts and Economic Indicators), Ankara, Turkey.

RESEARCH INTERESTS

- System biology
- Inference and simulation of stochastic processes
- Statistical bioinformatics
- Computational biology
- Biostatistics
- Robust inference

SCHOLARSHIPS

- *May 2008* : **Grants from research institutions in Turkey**: TÜBİTAK (Scientific and Technological Research Council), Sabancı University.
- *February 2005 - February 2008* : **Grants from research institutions in UK**: RSS (Royal Statistical Society), ESRC (Economic and Social Research Council), EPSRC (Engineering and Physical Sciences Research Council), BBSRC (Biotechnology and Biological Sciences Research Council), CRISM (Centre for Research in Statistical Methodology, Warwick University) Grants; Faculty Scholarships of Lancaster University.
- *September 2005 - August 2007* : **EPSRC Project Grant** (covers all expenses during Ph.D. including home tuition fees and subsistence), UK.
- *September 2004 - August 2007* : **Overseas Ph.D. Fellowship** from the Department of Mathematics and Statistics, Lancaster University, UK (The fellowship covers the difference between home and overseas tuition fees during my Ph.D. in UK).
- *September 2004 - September 2005* : **Ph.D. Fellowship**, Turkish Higher Education Council, Turkey.
- *July 2002 - September 2004* : **Research Assistantship**, Department of Statistics, METU, Turkey.

PROJECT

- I have worked for 2 years in a EPSRC (Engineering and Physical Sciences Research Council, UK) funded project (Project No: EP/C010620/1) entitled “*Stochastic modelling and statistical inference of gene regulatory pathways: integrating multiple sources of data*” (September 2005 - August 2007).

In this project I worked with Prof. Ernst Wit (principal investigator), Prof. Mark Girolami, Prof. Walter Kolch, and Dr. Simon Rogers.

PUBLICATIONS IN JOURNALS

- **Purutçuoğlu, V.** and Wit, E. “FGX: a frequentist gene expression index for Affymetrix arrays”, 2007, *Biostatistics*, **8(2)**, 433-437.
- **Purutçuoğlu, V.** and Wit, E. “Bayesian inference of the kinetic parameters of a realistic MAPK/ERK pathway”, 2007, *BMC Systems Biology*, **1(Suppl 1)**, 16-17.
- **Purutçuoğlu, V.** and Wit, E. “Exact and Approximate Stochastic Simulations of the MAPK Pathway and Comparisons of Simulations’ Results”, 2006, *Journal of Integrative Bioinformatics*, **3**, 231-243.
- **Purutçuoğlu, V.** and Wit, E., Discussion on the paper by Copas and Eguchi, 2005, *Journal of the Royal Statistical Society, Series B*, **67**, Part 4, 507-508.

BOOK CHAPTERS

- Wit, E., **Purutçuoğlu, V.**, O'Donovan, L., and Zhu, X. “Gaining weights . . . and feeling good about it”, Chapter in: *Microarray Technology and Cancer Gene Profiling*. Editor: S. Mocellin. Publisher: Springer, New York, 2006.

CONFERENCE PROCEEDINGS

- **Purutçuoğlu, V.** and Wit, E. “Inclusion of convoluted measurements in Bayesian inference of the MAPK/ERK pathway via multivariate diffusion model”, *Proceeding of the International Symposium on Health, Informatics and Bioinformatics (HIBIT'08)*, Istanbul, Turkey, 2008.
- **Purutçuoğlu, V.** and Wit, E. “Variational approximation in inference of the kinetic parameters of the MAPK/ERK pathway”, *Proceeding of CRISM Workshop: Bayesian Inference for high-dimensional data*, Warwick, UK, 2008.
- **Purutçuoğlu, V.** and Wit, E. “An approximation algorithm based on leap condition for stochastic simulation of biomedical systems”, *Proceeding of the 4th International Conference “Inverse problems: Modelling and Simulation” (IPM&S)*, Fethiye, Turkey, 2008.
- **Purutçuoğlu, V.** and Wit, E. “Bayesian inference for the MAPK/ERK pathway by considering the dependency of the kinetic parameters”, *Proceeding of the 5th Bayesian Inference in Stochastic Processes (BISP5)*, Valencia, Spain, 2007.
- **Purutçuoğlu, V.** and Wit, E. “Identification and Bayesian inference of the MAPK pathway using western blot data”, *Proceeding of Young Statistician Meeting (YSM)*, Bristol, UK, 2007.
- **Purutçuoğlu, V.** and Wit, E. “A new method in approximate stochastic simulations and application in real biochemical systems”, *Proceeding of the 17th International Workshop on Mathematical and Statistical Aspects of Molecular Biology (MASAMB)*, Manchester, UK, 2007.
- **Purutçuoğlu, V.** and Wit, E. “Stochastic modelling of the MAPK signalling pathway”, *Proceeding of the 21st International Workshop on Statistical Modelling (IWSM)*, Galway, Ireland, 2006.

SUBMITTED PAPERS

- **Purutçuoğlu, V.** and Wit, E. “Bayesian inference of the response kinetics of the MAPK/ERK pathway using semiquantitative biochemical data”.
- **Purutçuoğlu, V.** and Wit, E. “Bayesian inference for the MAPK/ERK pathway by considering the dependency of the kinetic parameters”.
- **Purutçuoğlu, V.** and Wit, E. “Bayesian inference of the complex MAPK pathway under structural dependency”.

TALKS

Conferences Talks

- “An approximation algorithm based on leap condition for stochastic simulation of biomedical systems”, *4th International Conference “Inverse problems: Modelling and Simulation”* (IPM&S), Fethiye, Turkey, 26-30 May 2008.
- “Variational approximation in inference of the kinetic parameters of the MAPK/ERK pathway”, *CRISM Workshop: Bayesian Inference for high-dimensional data*, Warwick, UK, 14-16 April 2008 (jointly funded by the *RSS* and *CRISM (Warwick University) bursaries*).
- “Inclusion of convoluted measurements in Bayesian inference of the MAPK/ERK pathway via multivariate diffusion model”, *International Symposium on Health, Informatics and Bioinformatics (HIBIT’08)*, Istanbul, Turkey, 18-20 May 2008 (jointly funded by the *TÜBİTAK* and *Sabancı University bursaries*).
- “Bayesian inference for the MAPK/ERK pathway by considering the dependency of the kinetic parameters”, *5th Workshop on Bayesian Inference in Stochastic Processes (BISP5)*, Valencia, Spain, 14-16 June 2007 (funded by the *EPSRC project grant*).
- “Identification and Bayesian inference of the MAPK pathway using western blot data”, *Young Statistician Meeting (YSM)*, Bristol, UK, 11-12 April 2007.
- “Exact and approximate stochastic simulations of the MAPK pathway and comparisons of simulations’ results”, *3rd International Workshop of Integrative Bioinformatics*, Harpenden, UK, 4-6 September 2006 (funded by the *BBSRC bursary*).
- “Stochastic modelling of the MAPK signalling pathway”, *21st International Workshop on Statistical Modelling (IWSM)*, Galway, Ireland, 3-7 July 2006 (funded by the *Faculty Scholarship of Lancaster University*).
- “Stochastic modelling of the MAPK signalling pathway”, *29th Research Students’ Conference in Probability and Statistics (RSC)*, Glasgow, UK, 20-23 March 2006.

Invited Talks

- “Statistical methods in system biology”, Department of Biology, METU, Ankara, Turkey, 1 May 2008.
- “Analysis of the MAPK pathway: from simulation to inference”, Bioinformatic Research Center, University of Glasgow, Glasgow, UK, 18 May 2007.

Seminar Talks

- “Statistical methods in the analysis of complex gene networks”, Department of Statistics, METU, Ankara, Turkey, 3 January 2008.
- “Two case studies in bioinformatics”, Department of Mathematics and Statistics, Lancaster University, Lancaster, UK, 26 October 2006.

- “FGX: a Frequentist gene expression index for oligonucleotides”, Department of Statistics, University of Glasgow, Glasgow, UK, 12 April 2005.
- “Unit root problems in time series”, Department of Statistics, METU, Ankara, Turkey, 23 December 2003.

MEMBERSHIPS

- Royal Statistical Society
- Classical Turkish Music Society of Hacettepe University, Ankara, Turkey

LANGUAGES

- Turkish (native), English (fluent), French (intermediate)

PERSONAL INTERESTS

- Reading, particularly, philosophical, historical, and fiction books
- Playing “kanun” (a musical instrument of the Classical Turkish Music) since 8-year old
- Driving and travelling
- Watching the cartoon
- Swimming

REFERENCES

- Prof. Moti L. Tiku : Department of Mathematics and Statistics, McMaster University, Ontario, L8S 4K1, Canada. Phone: +1 (0)905 525 9140, ext. 24351. Fax: +1 (0)905 522 0935. Email: tikumoti@mcmaster.ca
- Prof. Ernst Wit : Department of Mathematics and Statistics, Lancaster University, Lancaster, LA1 4YF, UK. Phone: +44 (0)1524 593 960. Fax: +44 (0)1524 592 681. Email: e.wit@lancaster.ac.uk