



# Julia Polak

Curriculum Vitae

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## CURRENT POSITIONS

**Manager & Statistical consultant** **Jan 2015 - Present**  
*Monash Statistical Consulting Platform, Monash University*

**Research Assistant** **Sep 2014 - Present**  
*Department of Econometrics & Business Statistics, Monash University*

## PAST POSITIONS

**Post-doctoral Biostatistician** **Sep 2012 - Sep 2014**  
*Centre for Epidemiology and Biostatistics,  
Melbourne School of Population and Global Health, The University of Melbourne*

**Teaching Associate** **Mar 2011 - Jun 2012**  
*Department of Econometrics & Business Statistics, Monash University*

## EDUCATION

**Monash University**, Melbourne, Australia.

Ph.D. in Econometrics, Department of Econometrics & Business Statistics, May 2014

Dissertation Topic: “Kernel Density Estimation: Advances and Applications”

Supervisors: Prof. Maxwell L. King and Dr Xibin Zhang

**Technion - Israel Institute of Technology**, Haifa, Israel

Master in Economics, Faculty of Industrial Engineering & Management, Aug. 2007

Dissertation Topic: “Asymmetric Cointegration: Applications to Macro Variables in Israel and the OECD”

Supervisor: Assoc. Prof. Offer Lieberman

**Technion - Israel Institute of Technology**, Haifa, Israel

Bachelor in Economics and Management, Faculty of Industrial Engineering & Management, Aug. 2004

**Kefar Galim High School**, Haifa, Israel

Practical Engineer in Industrial Engineering and Management, 1999

## REFEREED RESEARCH PAPERS

Perach, N., J. Polak, and U. G. Rothblum (2007) *A Stable Matching Model with an Entrance Criterion Applied to the Assignment of Students to Dormitories at the Technion*. International Journal of Game Theory, Volume 36, Pages 519-535.

Sangeux M and J. Polak (Published online: December 9, 2014). *A simple method to choose the most representative stride and detect outliers*. Gait & Posture Journal. [<http://dx.doi.org/10.1016/j.gaitpost.2014.12.004>].

BOOK  
REVIEWS Cook, D., Wright, J. and Polak, J. (2016) Review of Graphical Data Analysis with R by A. Unwin, *Journal of the American Statistical Society*.

OTHER  
PUBLICATIONS Aitkin M and Polak J. (2013) Contributed Discussion on Article by Müller and Mitra. Discussion paper, *Bayesian Analysis*, 8:323-356. [<http://projecteuclid.org/euclid.ba/1369407554>].

PAPERS IN  
PREPARATION Polak, J., M. King, and X. Zhang (2014). *A Model Validation Procedure*.

Polak, J., M. King, and X. Zhang (2014). *Model clarification by testing the dynamics of functional data by scores density*.

Polak, J., M. King, and X. Zhang (2014). *Improving conditional density estimation to make it more useable for econometricians*.

TEACHING  
EXPERIENCE **Lecturer** **Mar 2015 - Present**  
*Monash University*

Co-coordinator in unit:

- Data modeling and computing (ETC1010, Undergraduate level. Department of Econometrics & Business Statistics).

As a co-coordinator I am managing this unit with one other coordinator. My responsibilities include covering half of the unit by giving 12 one-hour lectures on the topic of optimization methods, writing five tutorials, five weekly quizzes, one assignment and examination questions for my lectures' material.

The unit's content was developed by me when I started lecturing it in 2015.

The unit is given in two semesters a year. For the first semester, 68% of the students have rated 'overall Julia Polak's teaching' as Good/Outstanding. For the last semester, 69% of the students have indicated Agree/Strongly Agree that 'Julia is clear in her explanations'.

**Lecturer** **Mar 2014 - Jun 2014**  
*The University of Melbourne*

Co-coordinator in subject:

- Biostatistics (POP90013, Postgraduate level. Melbourne School of Population and Global Health).

As a co-coordinator I was involved in managing this subject with two other coordinators. My responsibilities include covering one third of the unit by giving four lectures, writing an assignment and examination questions for these lectures' material.

**Guest lecturer in subject:** **Apr 2014**

- Thinking and Reasoning with Data (MAST90044, Graduate/Postgraduate level. Department of Mathematics and Statistics)

Lecture topics: Model fitting procedures and Inference on the difference of means.

**Teaching Associate** **Mar 2013 - Jun 2014**  
*The University of Melbourne*

Weekly Lab demonstrator in subject:

- Thinking and Reasoning with Data (Mar 2014 - Jun 2014, MAST90044, Graduate/Postgraduate level. Department of Mathematics and Statistics)

Tutor in subject:

- Biostatistics (Mar 2013 - Jun 2013, POP90013, Postgraduate level. Melbourne School of Population and Global Health)

**Teaching Associate**

**Mar 2011 - Jun 2012**

*Monash University*

Weekly computer lab tutor in subject:

- Business and Economic Statistics (ETC1000, Undergraduate level. Department of Econometrics & Business Statistics)

**Teaching Associate**

**Oct 2004 - Jun 2006**

*Technion - Israel Institute of Technology, Haifa, Israel*

Duties at various times have included tutoring, office hours and leading weekly computer lab exercises.

Tutoring subjects included:

- Econometrics (96586, 2004-2005, Undergraduate level),
- Financial Econometrics (096588, 2005-2006, Undergraduate, Postgraduate level),
- Microeconomics 1 (094503, 2005, Undergraduate level), and
- Location Economics (096567, 2005, Undergraduate, Postgraduate level).

WORKSHOPS  
DELIVERED

**Data analysis**

**Feb 2016**

*Finance Strategy Office, Monash University*

The workshop provided participants the basic tools for systematic data analysis. During this workshop the participants got acquainted with most fundamental tools to examine and understand the analysed dataset. In addition, the participants learned about such common statistical methods as regression and classification.

Duration - 3.5 hours. Audience - Monash University finance employees.

**Data Management and Exploratory Data Analysis**

**Apr 2016**

*School of Clinical Sciences at Monash Health, Monash University*

This introductory session covered an explanation on how statistics integrates in, and depends on, the research process. During this workshop we talked about what to consider when choosing a statistical method - research question, data type, sample size and more. It also covered data cleaning, looking for anomalies and dealing with outliers. In addition, basic descriptive statistics (e.g. mean, mode, range & variance) and basic graphical tools (e.g. bar chart, histogram, boxplot & scatterplot) were explained.

Duration - 2 hours. Audience - PhD students and staff.

**What statistical techniques should you be using?**

**Apr 2016**

*School of Clinical Sciences at Monash Health, Monash University*

This session briefly described many of the statistical tests used in research. The main emphasis was on when and why a statistical test is used in a particular situation. The workshop covered four main factors that determine the appropriate test: the type of the data (interval/ratio vs. nominal/ordinal); the aim of the statistical analysis (analysis of differences vs. analysis of relationships); the number of groups in the comparison; and the relationship between the groups members.

Duration - 2 hours. Audience - PhD students and staff.

**Visual representation of the data**

**May 2016**

*Finance Strategy Office, Monash University*

The workshop presented the basic concepts and principles of effective data visualization, including the human perception of different graphical aesthetics.

Duration - 3.5 hours. Audience - Monash University finance employees.

**Introduction to Data Analysis and Visualisation using R** **May 2016**  
*Institute for Safety, Compensation and Recovery Research (ISCRR), Monash University*

The workshop covered the following topics: Motivation, why and how to think about data, and getting started with R, Making basic plots, grammar of graphics, best practices, Wrangling your data into shape for analysis, Advanced graphics, layering, using maps.

The material was prepared and developed by Prof. Di Cook. I have assist with the hands-on activities. Duration - 8 hours. Audience - ISCRR employees.

**Statistical training for PhD students** **2015 -**  
*Monash University*

During an academic year I provide 5 workshops on the following topics: Introduction to Statistics: Data management and exploratory data analysis, Introduction to Statistics: What statistical methods should you be using?, Software packages for statistics, Multivariate analysis, Statistical-classification tools

Duration - 2 hours each. Audience - PhD students.

CONFERENCE  
PRESENTATIONS

Polak, J. and M. Sangeux (2014). A functional data approach to the analysis of gait patterns and kinematics indices. In *Australian Statistical Conference 2014. 7-10 July 2014, Sydney*

Polak, J., Forbes A., Gurrin L., Hodge A., Simpson J., Williamson E., Basset J., Fahey M., English D., and Giles G..(2013). What is the Recipe for a Long Life: Good Diet, Exercise, Both? Statistical Methods for Assessing the Causal Effect of Dynamic Interventions. In *Annual Conference of the International Society for Clinical Biostatistics 2013. 25-29 August, Munich*, p. 13.

[http://www.iscb2013.info/t1\\_files/ISCB13/downloads/ISCB\\_Programm\\_Web\\_NEU.pdf](http://www.iscb2013.info/t1_files/ISCB13/downloads/ISCB_Programm_Web_NEU.pdf)

Polak, J., Forbes A., Gurrin L., Hodge A., Simpson J., Williamson E., Basset J., Fahey M., English D., and Giles G..(2013). What is the Recipe for a Long Life: Good Diet, Exercise, Both? Statistical Methods for Assessing the Causal Effect of Dynamic Interventions. In *Young Statisticians' Conference 2013. 7-8 February, Melbourne*.

Polak, J., M. King, and X. Zhang (2012). Model Clarification by Testing the Dynamics of Functional Data by Scores Density. In *Australian Statistical Conference 2012. 9-12 July 2012, Adelaide*, p. 165.  
[http://sapmea.asn.au/conventions/asc2012/downloads/ASC2012\\_Handbook\\_WEB.pdf](http://sapmea.asn.au/conventions/asc2012/downloads/ASC2012_Handbook_WEB.pdf)

Polak, J., M. King, and X. Zhang (2012). Improving Conditional Density Estimation to Make it More Useable for Econometricians. In *Econometrics Society Australasian Meeting 2012. 4-6 July, 2012, Melbourne*. (Abstract available from <http://www.juliapolak.com/Page454.html>)  
<http://editorialexpress.com/conference/ESAM2012/program/ESAM2012.html#28>

Polak, J., M. King , and X. Zhang (2011). Flexible Bandwidths Benchmark for the Kernel Conditional Density Estimator. In *Young Statisticians Conference 2011. 14-15 July, 2011, Brisbane*, p. 38.  
<http://www.juliapolak.com/YSC2011.pdf>

Polak, J., M. King , and X. Zhang (2011). Forecasting Model Validation. In *Econometric Society Australasian Meeting 2011 (ESAM11). 4-7 July, 2011, Adelaide*, p. 45.  
<http://www.alloccasionsgroup.com/upload/documents/ESAM2011/Handbook%20FINAL%20V4.pdf>

Polak, J., M. King , and X. Zhang (2011). Forecasting Model Validation. In The 31st Annual International Symposium on Forecasting (ISF 2011). 26-29 June, 2011, Prague, p. 168.  
[http://www.forecasters.org/isf/pdfs/ISF2011\\_\\_Program\\_subject\\_to\\_change.pdf](http://www.forecasters.org/isf/pdfs/ISF2011__Program_subject_to_change.pdf)

Polak, J., X. Zhang, and M. King (2011). Insensitivity of the kernel conditional density estimator to correlation among the conditional variables. In *7th International Symposium on Econometric Theory and Applications (SETA 2011). 14-16 April, 2011, Melbourne*, p. 48.  
[http://editorialexpress.com/cgi-bin/conference/download.cgi?db\\_name=SETA2011&paper\\_id=21](http://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=SETA2011&paper_id=21)

Polak, J., X. Zhang, and M. King (2010). Bandwidth selection for kernel conditional density estimation using the MCMC method. In *Australian Statistical Conference 2010 - Statistics in the West: understanding our world. 6-10 December 2010, Fremantle, Western Australia*, p. 199.  
<http://www.statsoc.org.au/ASC2010Abstracts>

Polak, J. (2010). Conditional Kernel Density: Estimation and Applications. In *The 15th Annual Faculty Doctoral Conference. 18-19 October, 2010, Kalorama, Victoria, Australia.*, pp. 109-120.

#### INVITED TALKS & SEMINARS

A functional data approach to the analysis of gait patterns and kinematics indices. *Seminar given at the La Trobe University, Mathematics & Statistical Science department, 15 Aug 2014.*

Kinematic index via Functional data analysis approach. *Seminar at the University of Melbourne, Melbourne School of Population and Global Health, 19 Jun 2014.*

Animated and dynamic plots with L<sup>A</sup>T<sub>E</sub>X. *Talk given at the Forecasting Group Meeting - Monash University, Department of Econometrics & Business Statistics, 2 May, 2014.*

Improving Conditional Density Estimation to make it more useable. *Talk given at the SSAI Victorian Branch Meeting - Young Statisticians Showcase, 31 July, 2012.*

Are we still using the best predicted model? Prediction Capability Procedure flavored by Function Principal Component Analysis. *Seminar given at the University of Sydney, Business School , 2 Nov 2011.*

Forecasting Model Validation. *Seminar given at the La Trobe University, Mathematics & Statistical Science department, 7 Oct 2011.*

#### SERVICE

##### **NUMBAT meeting organizer**

**Mar 2014 - Present**

*News and Updates of the Monash Business Analytics Team*

For more details about the group activity see <http://numbat.space>.

##### **Seminar organizer**

**Jan 2013 - Aug 2014**

*Centre for Epidemiology and Biostatistics*

Co organizer with two additional post docs.

#### PROFESSIONAL MEMBERSHIP

Statistical Society of Australia.

## AWARDS

Certificate of Merit for an outstanding presentation by ‘Young Statistician’ in the EJM Pitman Prize awards at the Australian Statistical Conference in Sydney (2014)

Travel award to present in the International Symposium on Forecasting (2011). Includes US\$360 for registration and US\$1150 for the travel expenses.

1<sup>st</sup> Place Award for the Best Presentations in the Young Statistician Conference (2011). Presentation name: “Flexible Bandwidths Benchmark for the Kernel Conditional Density Estimator”.

2<sup>nd</sup> Place Award for the Best Presentations in the Annual Faculty Doctoral Conference(2010). Presentation name: “Conditional Kernel Density: Estimation and Applications”

3<sup>rd</sup> Greenblat Award for Students’ Annual Project in Technion (2005). Project submitted: “Placement Method of Students for Areas, Apartments and Rooms in Technion Dormitories”, under the supervision of Professor Uriel G. Rothblum.

## SCHOLARSHIPS AND GRANTS

Australian Postgraduate Award (2009 - 2012).

Dean’s Postgraduate Research Excellence Award (2009 - 2012).

Donald Cochran Postgraduate Research Scholarship (2009 - 2012).

## STATISTICAL CONSULTING REPORTS

J. Polak and R. Hyndman (2015). *Analysis of student usage of Pearson products in Accounting, unit ACC1030*. Report for Resources Division, Monash University Library. Monash University Statistical and Econometrics Consulting Service.

J. Polak and R. Hyndman (2015). *Analysis of student usage of Pearson products in Astronomy, unit ASP1010*. Report for Resources Division, Monash University Library. Monash University Statistical and Econometrics Consulting Service.

J. Polak and R. Hyndman (2015). *Analysis of student usage of Pearson products in Finance, unit BFF5954*. Report for Resources Division, Monash University Library. Monash University Statistical and Econometrics Consulting Service.

J. Polak and R. Hyndman (2015). *Analysis of student usage of Pearson products in Biology I, unit BIO1011*. Report for Resources Division, Monash University Library. Monash University Statistical and Econometrics Consulting Service.

J. Polak and R. Hyndman (2015). *Analysis of student usage of Pearson products in Anatomy and Physiology, unit BMA1901*. Report for Resources Division, Monash University Library. Monash University Statistical and Econometrics Consulting Service.

J. Polak and R. Hyndman (2015). *Analysis of student usage of Pearson products in Psychology, unit PSY2031*. Report for Resources Division, Monash University Library. Monash University Statistical and Econometrics Consulting Service.

PROFESSIONAL  
EXPERIENCE

**Analyst in R&D Department - Risk Management Desk** **Oct. 2007 - Jan. 2009**

*G-STAT*, Tel Aviv, Israel

- Providing consultancy for implementing capital requirements and risk management regulation for banks in Israel.
- Providing consultancy during Quantitative Impact Studies (QIS) according to the Basel II regulations.

**Valuation Advisor in the Corporate Finance Department** **Jun. 2006 - Sep. 2007**

*Ernst & Young*, Haifa, Israel

- Companies valuation, Employee Stock Options (ESO) valuation, analysis and improvement of processes and recovery plans for companies, analysis of projects profitability, pricing and budget control, building financial models for Business plans.

**Researcher** **May, 2000 - August, 2000**

*Unilever*, Haifa, Israel

- Participant in Methods and Processes Improvement projects