

# Yoni Nazarathy

## Curriculum Vita

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### **Contact Details**

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### **Current Position**

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- TU/e, Post-doctoral researcher at EURANDOM, QPA group and the Dept. of Mechanical Engineering, System Engineering Group. March 2009 – June 2011.

### **Research Interests**

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- *Queuing Theory*: Output Processes,, Control of Queuing Networks, Fluid Models, Matrix Analytic Methods, Statistical Inference of Queuing Processes.
- *Communication Networks*: MANETs, Optical Packet Switched Networks.
- *Other*: Continuous Linear Programming, Discrete Event Simulation, Software Programming and Design.

### **Education**

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- 2006 - 2009 University of Haifa.  
PhD in Applied Probability, Department of Statistics.  
Dissertation: *On the Control of Queueing Networks and the Asymptotic Variance Rate of Outputs*.  
Advisor: Prof. Gideon Weiss.  
Thesis Referees: Prof. Nahum Shimkin and Prof. Moshe Haviv.
- 1999 - 2001 University of Haifa.  
M.A. in Applied Probability (summa cum laude), Department of Statistics.  
Thesis: *Evaluation of On-Line Scheduling Rules for High Volume Job Shop Problems, a Simulation Study*.  
Advisor: Prof. Gideon Weiss.
- 1996 - 2000 University of Haifa.  
B.A. in Statistics and Economics.  
Complementary Mathematics, Computer science and electrical engineering courses at the Technion, Israel Institute of Technology.

## **Engineering, Management and Research Experience**

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- 2009 CWI, Amsterdam (Stochastic Networks Group).  
*Research Visitor (PhD internship).*
- 2004 – 2006 Rafael (Communications System Division).  
*System Engineer. Airborne MANETS.*
- 2003 – 2004 Rafael (Communications System Division).  
*Software Development Group Leader. 5 person group.*
- 2001 – 2003 Rafael (Communications System Division).  
*Software Engineer. Real-Time OO programming. Network programming.*
- 1996 – 1999 Kulicke and Soffa (Semiconductors manufacturing equipment).  
*Technical Writer.*

## **Teaching Experience**

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- 2009 – 2010 *Instructor*, Department of Mechanical Engineering, TU/e:
- Guide for Bachelor Final Project, Spring 2010.
  - Assembly Line for Lawn-Mowers, Study Project, Spring 2010.
  - Guide for Bachelor Final Project, Winter 2010.
- 2005 – 2008 *Lecturer*, Department of Statistics, University of Haifa:
- Interactive Demonstrations of Stochastic and Statistical Models, Fall 2008.
  - Stochastic Processes and Their Applications (Logistics M.A.). Spring 2008.
  - Introduction to Stochastic Processes (B.A.). Spring 2006, Spring 2007, Fall 2007.
  - Statistical Models B (B.A.). Spring 2007.
- 1999 – 2001 *Teaching assistant*, University of Haifa at the Department of Statistics, Department of Computer Science and Graduate Business School:
- Statistics, Probability, Scheduling and Control, Differential Equations, Stochastic Processes and SAS programming.
- 1999 – 2001 *Teaching assistant and lecturer*, Minhal College, Haifa:
- JAVA programming, UNIX for users, C programming.

## **Honors and Awards**

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- 2008 Abraham Mehrez Prize for Excellent Work of a Graduate Student in Operations Research. Awarded for the paper: "*The asymptotic variance rate of the output process of finite capacity birth-death queues*".
- 2007 The Wolf Foundation to Promote Science and Art for the Benefit of Mankind Research Prize for outstanding PhD students.
- 2001 Award of the Dean of Higher Education of the University of Haifa for the outstanding M.A. Thesis in the name of Yochanan Hoffman.

## **Grants (Received and Under Review)**

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- Submitted: Dutch Science Foundation (NWO) Veni Grant. (2010).
- Submitted: Australian Research Council (ARC). Discovery Project, APD. (2010).
- University of Haifa Grant for outstanding PhD graduates for over-sea post-doc (2008).

## **Publications in Scientific Journals**

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Submitted:

- The Asymptotic Variance of Departures in Critically Loaded Queues.  
(with Ahmad Al-Hanbali, Michel Mandjes and Ward Whitt).  
Submitted to the Applied Probability Journals.  
Technical Report: EURANDOM Technical Report Series, 2010-001.
- *The Variance of Departure Processes: Puzzling Behavior and Open Problems.*  
Submitted to *Queueing Systems*, Special issue on Open Problems.  
Technical Report: EURANDOM Technical Report Series, 2009-045.
- *A Fluid Approach to Job Shop Scheduling: Theory, Software and Experimentation.*  
(with Gideon Weiss).  
Submitted to *Journal of Scheduling*.  
Technical Report: SE Technical Report Series, 2009-07.

Published/Accepted:

- *Positive Harris Recurrence and Diffusion Scale Analysis of a Push Pull Queueing Network.*  
(with Gideon Weiss). *Performance Evaluation*, to appear.
- *A Push-Pull System with Infinite Supply of Work.*  
(with Anat Kopzon and Gideon Weiss). *Queueing Systems*, 62, pp. 75-111, (2009).
- *The Asymptotic Variance Rate of the Output Process of Finite Capacity Birth-Death Queues.*  
(with Gideon Weiss). *Queueing Systems*, 59, pp. 135-156, (2008).
- *Near Optimal Control of Queueing Networks Over a Finite Time Horizon.*  
(with Gideon Weiss). *Annals of Operations Research*, 170, pp. 233-249 (2009).

## **Publications in Conference Proceedings**

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- *Optimal File Splitting for Wireless Networks with Concurrent Access*  
(with Gerard Hoekstra, Rob van der Mei and Bert Zwart).  
Proceedings of NET-COOP conference 2009.
- *Positive Harris Recurrence and Diffusion Scale Analysis of a Push Pull Queueing Network.*  
(with Gideon Weiss).  
Proceedings of Valuetools conference 2008.

## **Publications In Preparation**

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- *Scaling Limits of Birth-Death Processes and Their Applications*  
(with Matthieu Jonckheere and Rudesindo Núñez Queija).
- *Model Predictive Control Applied to a Discrete Time Queueing Network*  
(with Johan van Leeuwen and Erjen Lefebber).
- *Stability of the Cyclic Push Pull Networks*  
(with Erjen Lefebber and Gideon Weiss).
- *On The Linear Asymptote of the M/G/1 Output Variance Curve*  
(with Yoav Kerner).
- *Optical Packet Switching, A Power Aware Perspective*  
(with Harm Dorren and Oded Raz).

## **Developed Research Software**

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- *Processor Sharing Fork Join Queueing Network Simulator*. V0.1, May 2009.
- *The Processing Network Simulator (PRONETSIM)*. V0.5, May 2008.
- *The Job Shop Simulation Project (JSSP)*. V1.2, July 2001.

## **Selected Workshop Presentations/Posters**

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- *Balancing Reduces Asymptotic Variance of Outputs*.
  - The Queueing Colloquium at CWI, August 2009.
- *The asymptotic variance rate of the output process of finite capacity birth-death queues*.
  - The Euro Working Group on Stochastic Modeling, Koc University, Turkey, June 2008.
  - Stochastic Networks Conference, poster session, Paris, 2008.
  - ORSIS, Israel, May 2008.
- *Transient fluid solutions and queueing networks with infinite virtual queues*.
  - Applied Probability Conference, Eindhoven, July 2007.
  - ORSIS, Israel, May 2007.
- *Near optimal control of a multi-class queueing network over a finite time horizon with applications to communication networks*.
  - StoPeRa, CWI, Amsterdam, November 2006.

## **Lecture Notes**

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- *Introduction to Stochastic Processes* (Hebrew). Published by the Department of Statistics, University of Haifa, 2006, 180 pages.

## **Professional Service**

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- Reviewer for: Queueing Systems, Annals of Operations Research, Methodology and Computing in Applied Probability, Spanish Operations Research Society, Journal of Applied Mathematics and Stochastic Analysis, Performance Analysis and Stochastic Models.
- *The Queueing Science Exploratorium*: A collection of web based visual and interactive exhibits that demonstrate the laws and results of queueing theory. (In preparation – link available from the web-page).
- Co-organizer of the YEQT-III (Young European Queueing Theorists) Workshop, 2009.
- Organizer of the EURANDOM – QPA Problem Session.

## **Sports, Fun and Other**

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- Father of Emily (4) and Kayley (2).
- Competitive cycling: 2<sup>nd</sup> Place in Time Trial and Road Race, Israel Amateur Cycling Championships 2007.  
Furnace Creek 508 (miles), Ultra Marathon Bicycle Race, Official course record holder: 38h:17m:28s. Age category 10-20, 1991.
- Three year military service (1993-1996) + approx. half year reserve service (1996-2008).

## References

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- Prof. Onno Boxma  
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- Prof. Rob van der Mei  
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