

JAIMYOUNG KWON

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Education

- December 2000 PhD, Dept of Statistics, University of California, Berkeley, California
- GPA: 4.0 /4.0
 - Dissertation: “Calculus of Statistical Efficiency in a General Setting; Kernel Plug-in Estimation for Markov Chains; Hidden Markov Modeling of Freeway Traffic”
 - Committee: Peter Bickel (chair), John Rice, David Brillinger.
- 1996 MA, Dept of Statistics, Seoul National University, Seoul, Korea
- 1994 BA (magna cum laude), Dept of Computer Science and Statistics, Seoul National University, Seoul, Korea
- Minored in Anthropology
 - GPA: 3.83/4.3 overall, 4.05 Computer Science and Statistics, 3.95 Anthropology

Research Interests

Large and complex data, Graphical model, Computational statistics, Time/spatial statistics with application to transportation science and others, Bioinformatics, Application of statistics to sciences and engineering.

Professional Experience

- 2001–present Visiting Postdoctoral Researcher, Joint appointment with Electronics Research Laboratory and Institute of Transportation Studies, UC Berkeley
- Work on application of statistics to transportation science, analyzing very large spatio-temporal data from freeway loop detectors. Principal investigators: Peter Bickel, John Rice, and Pravin Variaya
 - Develop various background statistical methodologies for freeway Performance Measurement System (PeMS) project website, including (1) visualization of extremely large datasets, (2) probabilistic detection of loop malfunctions in real time (3) imputing missing loop data and (4) travel time prediction
 - Worked on statistical analyses of genomic and microarray experiment data. Colleagues: Michael Eisen (MCB) and Ingeol Choi (MCB). Developed yeast transcription factor binding site detection algorithm from microarray data
- Summer 2000 Graduate Student Intern at Statistics and Data Mining Research at Bell Laboratories – Lucent Technologies, Murray Hill, NJ
- Performed data analyses on huge telephone call database with millions of customers using DBMS and analyzed the properties of “Quantile Signatures for Transaction Databases.” Supervisor: Jose Pinheiro, and Diane Lambert
- 1997-2000 Graduate Student Researcher, Dept of Statistics, UC Berkeley
- Worked on generalization of calculus of statistical efficiency to non i.i.d. setting and kernel plug-in Markov chains. Supervisor: Peter Bickel
 - Worked on application of statistics to transportation problems, including travel time prediction and hidden Markov modeling of freeway traffic
- 1997-1998 Statistical Consultant, Dept of Statistics, UC Berkeley. Supervisor: Terence Speed
- Assisted PhD students and faculty in UC Berkeley from various fields including

- social science (e.g. linguistics), natural science (e.g. ecology, neuroscience) and engineering, providing quantitative frameworks and statistical advice
- 1995-1996 Statistical Software Developer, Korean Statistical Engineering, Seoul, Korea
- Developed SAS applications for statistical analysis of marketing and insurance data. Supervisor: Hyotak Kwon, PhD

Teaching Experience

- 2001 Course Instructor, Dept of Statistics, UC Berkeley
- Introduction to Statistics for Social and Life Scientists (Upper division)
- 1997-1999 Graduate Teaching Assistant, Dept of Statistics, UC Berkeley
- Introduction to Statistics (Lower division) (1997)
 - Statistics for Engineers (Lower division) (1998)
 - Theoretical Statistics (Graduate) (1997, 1999)
- 1995 Course Instructor, Dept of Statistics, Seoul National University, Seoul Korea
- Statistical Computing (Upper division)

Computing Skills

- Computing platforms: UNIX, Linux, Windows 2000/NT.
- Programming languages: Extensive experience with C, Perl, SQL, C++, Visual Basic ; moderate experience with Java, Mathematica and HTML
- Statistical software: Extensive experience with R/S/Plus, SAS (data step, macro language, AF, BASE, GRAPH, STAT modules in particular), Matlab
- Text formatting, office computing and web publishing: Emacs, LaTeX, Word, Macromedia Dreamweaver/Fireworks/Freehand, Excel, PowerPoint, Access

Relevant Course Work

- Machine Learning and Multivariate Statistics (M. Jordan), Statistical Genetics (T. Speed), Probability Theory (D. Aldous, J. Pitman), Statistical Computing (P. Spector), Time Series (D. Brillinger), Applied Statistics (D. Brillinger, T. Speed), Statistical Consulting (T. Speed), Asymptotic Statistics (P. Bickel), Theoretical Statistics (P. Bickel).

Honors and Awards

- 2000 Awarded Erich Lehmann Citation for an outstanding Ph.D. dissertation in theoretical statistics

Publications

All preprints are available at <http://www.stat.berkeley.edu/~kwon>

- [1] Bickel, P.J. and Kwon, J. (2001). "Inference for Semiparametric Models: Some Current Frontiers (with Discussion)," *Statistica Sinica* Vol. 11, No. 4, pp. 863-960.
- [2] Bickel, P.J., Chen, C., Kwon, J., Rice, J., Varaiya, P. and van Zwet, E. (2001). "Traffic Flow on a Freeway Network," to appear in the *Proceeding of MSRI Workshop on Nonlinear Estimation and Classification*, Berkeley, California, March 19-29, 2001, Springer.
- [3] Kwon, J., Min, K., Bickel, P. J. and Renne, P. R. (in press). "Statistical methods for jointly estimating decay constant of K^{40} and age of a dating standard," *Mathematical Geology*.
- [4] Kwon, J., Coifman, B., and Bickel, P., (2000). "Day-to-Day Travel Time Trends and Travel Time Prediction from Loop Detector Data," *Transportation Research Record* no. 1717, Transportation Research Board, pp. 120-129.

Working Papers

Kwon, J., Bickel, P. and Rice, J. "The Web of Evidence: Detecting Malfunctions in an Array of Correlated Sensors." In preparation, expected January 2002.

Other Contributions

Kwon, J. and Murphy, K. (2000) "Modeling Freeway Traffic Using Coupled Hidden Markov Models," Technical report.

Petty, K., Bickel, P. Kwon, J. and Rice, J. (1998) "A New Methodology for Evaluating Incident Detection Algorithms," Technical report #559, Dept of Statistics, UC Berkeley.

Presentations and Invited Lectures

"Kernel plug-in estimation for Markov processes," Bernoulli/IMS Joint meeting, Guanajuato, Mexico. Presentation, August 2000.

"Kernel plug-in estimation for Markov chains; Hidden Markov modeling of freeway traffic," Weekly seminar, Seoul National University, Seoul, Korea. November 2000.

"Day-to-Day Travel Time Trends and Travel Time Prediction from Loop Detector Data," 2000 Annual TRB Meeting, Washington D.C. Presentation, January 2000. (joint work with Bickel, P., Rice, J.)

"Hidden Markov Modeling of Freeway Traffic Status ," Interface 2000, New Orleans, Louisiana. Invited Poster, August 2000.

"Hidden Markov Modeling of Freeway Traffic Using Iterative Conditional Modes," Workshop on Statistics Methods for the Evaluation of Complex Computer Models, Santa Fe, New Mexico, December 1999.

"Geometry of asymptotically efficient estimation: IID cases and beyond," Basic Notion Seminar, Dept of Statistics, UC Berkeley, California. October 1999.

Invited Workshops

Workshop on Analysis of Large datasets, Boulder, Colorado, August 2000.

Journal Referee

1999-2000 Ad hoc referee for Transportation Research C: Methods.

Professional Memberships

American Statistical Association, Institute of Mathematical Statistics

Language Skills

Fluent in English and Korean.

References

Prof. Peter Bickel
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Prof. John Rice
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Prof. Pravin Variya
Electrical Engineering and Computer Science
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Prof. Terence Speed
Division of Genetics and Bioinformatics
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