

CURRICULUM VITAE

Newsha Khodatalab Ajami

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Education

- Ph.D. Civil and Environmental Engineering, University of California at Irvine, February 2006.
- M.S. Hydrology and Water Resources, University of Arizona, Dec 2002. (Major: Hydrology and Water Resources, Minors: System Engineering and Remote Sensing)
- B.S. Civil Engineering, Tehran Polytechnic, Tehran, Iran, Jan 1998.

Current Employment

- 07/06-present: **Postdoctoral researcher**, Berkeley Water Center, University of California, Berkeley. Evaluating the impacts of hydrological uncertainty on efficient and sustainable water resources management and planning. Assessing various sources of uncertainty in N-cycling models through parameter estimation and Bayesian Model Averaging.

Research Interest

Surface Hydrology; Water Resources System Management Under Uncertainty; Impact Assessment of Climate Change and Variability on Surface Water Hydrology and Integrated Water Resources Management; Uncertainty Assessment in Environmental Predictions; Development and Application of Simulation/Optimization Methods and Ensemble Inference in Operational Forecasting; Development and Application Multi-Model Combination Techniques in Hydrological System Prediction; Use of GIS and Remote Sensing in Hydrology; Parameter Estimation and Development of Calibration Techniques for Distributed Hydrologic Models; Linking Earth System Sciences and Policy Making.

Research Experience

- 09/02-02/06: **Research Assistant, Ph.D. Student**, Department of Civil and Environmental Engineering, University of California, Irvine. Conducted research to improve identification and assessment of various sources of uncertainty in hydrological modeling. Supervisor: Soroosh Sorooshian
- 09/00-12/02: **Research Assistant, M.S. Student**, Department of Hydrology and Water Resources, University of Arizona. Developed a distributed hydrological model and investigated

multiple calibration techniques for this class of models. Supervisors: Soroosh Sorooshian and Hoshin Gupta

Teaching Experience

- 1/03-5/03: **Teaching Assistant**, Department of Hydrology and Water Resources, University of Arizona. *The Water Cycle*. Taught lab sessions; prepared lab lectures; graded laboratory assignments, homework and final papers.
- 1/02-5/02: **Co-instructor/Teaching Assistant**, Department of Near Eastern studies, University of Arizona. *Persian as a Second Language, Advanced*, Taught half of the lectures; held review sessions and office hours; helped to prepare homework and exams.

Professional Experience

- 05/97-09/99: Intern/Engineering analyst. Jamab Consulting, Tehran, Iran. Developed and applied Decision Support Systems for operation of reservoirs in southern and northern Iran.

Refereed Publications

- Ajami, N.K.**, Q. Duan, S. Sorooshian, 2007. "An Integrated Hydrologic Bayesian Multi-Model Combination Framework: Confronting Input, Parameter and Model Structural Uncertainty in Hydrologic Prediction", *Water Resources Research*, 43, W01403, doi:10.1029/2005WR004745.
- Duan, Q., **N.K. Ajami**, X. Gao, So. Sorooshian, 2007. "Multi-Model Ensemble Hydrologic Prediction Using Bayesian Model Averaging", *Advances in Water Resources*, 30(5), 1371-1386. (Listed as one of the most requested papers from the *Advances of Water Resources* journal)
- Ajami, N.K.**, Q. Duan, X. Gao, S. Sorooshian, 2006. "Multi-Model Combination Techniques for Hydrological Forecasting: Application to Distributed Model Intercomparison Project Results", *Journal of Hydrometeorology*, 7(4), 755–768.
- Franz, K., **N.K. Ajami**, J., Schaake, R., Buizza, 2005. "The Hydrologic Ensemble Prediction Experiment (HEPEX)", *EOS*, 86(25).
- Ajami N.K.**, H. Gupta, T. Wagner, S. Sorooshian, 2004. "Calibration Of A Semi Distributed Hydrologic Model For Streamflow Estimation Along A River System", *Journal of hydrology*, 298,112-135. (Listed as one of the most requested papers from the *Journal of Hydrology*)
- Reed, S., Koren, V., Smith, M., Zhang, Z., Moreda, F., Seo, D.-J. and **DMIP Participants**. 2004. "Overall Distributed Model Intercomparison Project Results", *Journal of Hydrology*, 298(1-4), 27-60.
- Karamouz, M., B. Zahraie, **N. Khodatalab**, 2003. "Reservoir Operation Optimization: A Nonstructural Solution for Control of Seepage from Lar Reservoir in Iran", *Water International*, 28(1).

Submitted

- Ajami, N.K.**, G.M. Hornberger, D.L. Sunding, D.N. Yates, D.R. Purkey, 2007. "Impacts of Hydrological Uncertainty on management of Water Resources", Water Resources Research, *in review*.
- Ajami, N.K.**, G.M. Hornberger, D.L. Sunding, 2007. "Effect of Water Resources Management on Characteristic of Hydrological Uncertainties", Water Resources Research, *in review*.

Under Preparation

- Ajami, N.K.**, F. Maggi, C. Gu, 2007. "Probabilistic parameter estimation for N-Cycling models", Expected to be submitted to the "Water Resources Research".

Conference proceedings

- Ajami, N.K.**, Q. Duan, H. Moradkhani, S. Sorooshian, "Recursive Bayesian Model Combination for Streamflow Forecasting", proceeding of American Meteorological Society, San Diego, CA, Jan/2005.
- Moradkhani, H., **N.K. Ajami**, K.L. Hsu, S. Sorooshian, "On Particle Filtering Monte Carlo Approach to Sequential Hydrometeorological Data Assimilation", proceeding of American Meteorological Society, San Diego, CA, Jan/2005.
- Karamouz, M, N. **Khodatalab**, S. Araghy Nejad, "Multipurpose Reservoir Operation Optimization: Application of Genetic Algorithm", Proceeding of AWRA Water Resources Management, Roanoke VA, May /2002.
- Karamouz, M., B. Zahraie, N. **Khodatalab**, "A Decision Support System for Operation of Dez and Karon Reservoirs", Proceedings of ASCE Water Resources Planning and Management, Minneapolis, MN, May/2000.

Invited Presentations

- Ajami, N.K.**, G. Hornberger, D. Sunding, "Integrated uncertainty estimation for distributed hydrological models" European Geosciences Union, Vienna, Austria, April/2007.
- Ajami, N.K.**, G. Hornberger, D. Sunding, D. Purkey, D. Yates, "Impacts of uncertainty in efficient management of California's water resources", California Water and Environmental Modeling Forum, Asilomar CA, February /2007.
- Gupta, H., N. **Khodatalab**, T. Wagner, S. Sorooshian, "Advances in Semi-Distributed Watershed Modeling", Presentation, American Geophysical Union, Nice, France, Apr/2003.

Presentations

- Ajami, N.K.**, "Assessment of uncertainty in semi-distributed hydrological models", American Geophysical Union, San Francisco, CA, Dec/2006.

Ajami, N.K., Q. Duan, S. Sorooshian, “An Integrated Bayesian Uncertainty Estimator: fusion of Input, Parameter and Model Structural Uncertainty Estimation in Hydrologic Prediction System”, presentation, American Geophysical Union, San Francisco, CA, Dec/2005.

Ajami, N.K., Q. Duan, S. Sorooshian, P. Dufy, “Confronting Total Uncertainty in Hydrologic Prediction: An Integrated Bayesian Multi-Model Hydrologic Ensemble Prediction System”. Presentation, International workshop on Hydrometeorological and Hydrologic Ensemble Prediction, Boulder, CO, July/2005.

Ajami, N.K., Q. Duan, X. Gao, S. Sorooshian, “Application of Multi-Model Superensemble technique to flood forecasting through distributed hydrologic models”, presentation, American Geophysical Union, San Francisco, CA, Dec/2004.

Khodatalab, N., H. Gupta, S. Sorooshian “Semi Distributed Modeling Approach And Calibration Strategies”, Presentation, The 13th annual Day of Water “El Dia del Agua”, Apr/2003.

Khodatalab, N., H. Gupta, S. Sorooshian, “Distributed Hydrologic Modeling for Flow Forecasting By Using NEXRAD data”, Poster Presentation, American Geophysical Union, May/2002.

Honors and Awards

11/2005	Invited scientist at AMS, Science Communication and the Mass Media Workshop
06/2005	AMS Science and Policy Colloquium Fellowship
09/00-09/03	ICSC-World Laboratory Hydrologic Science and Water Resources Fellowship
08/1993	Ranked 300th in the nation-wide entrance exam for Iranian universities, Iran (Among 350,000 examinees in engineering and applied math)

Professional Affiliations

Society of Women Engineers (SWE)
American Society of Civil Engineers (ASCE)
American Geophysical Union (AGU)
American Meteorological Society (AMS)
Engineers for a Sustainable World (ESW)

Service Activities

Organizing Technical Conference Sessions at AGU
Steering Committee, Hydrologic Ensemble Prediction Experiment (HEPEX)
Article Reviewer: *Journal of Hydrology, Water Resources Research, Journal of Hydrometeorology, Climate Change, Environmental Modeling and software, Water International, Journal of Hydrologic Engineering*
Proposal Reviewer: NOAA Climate and Global Change program

Special courses

Engineer a Class for UC Berkeley (CE 98/ E 198) - Created a design course for the UC Berkeley engineering program on the topic of sustainability. This course, titled “Design for Sustainable Communities”, was offered spring 2006 at UC Berkeley.

One-week Colorado River field trip - Learned how the environmental and water policies influence the water allocation among different states as well as internationally.

Two-week surface water field course - Learned about field methods of surface water data collection, interpretation; stream gaging; hydrography and limnology exercises; evaporation studies; micrometeorological instruments and methods; slope-area method of indirect discharge measurement; flood plain mapping; preparation of hydrologic reports.

Language Competencies

Fluent in English, reading, writing and speaking, Native fluency in Persian.