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Joshua Brian Kollat
Ph.D. Candidate

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EDUCATION	**2005-Present. Ph.D. in Civil Engineering,** The Pennsylvania State University (PSU), University Park, PA Expected Graduation Date, May 2008; GPA: NA

2003-2005. M.S. in Civil Engineering, The Pennsylvania State University (PSU), University Park, PA
August 2005; GPA: 3.99

1998-2003. B.E. in Civil/Environmental Engineering, Youngstown State University (YSU), Youngstown, OH; Graduated Summa Cum Laude, May 2003; Major GPA: 4.00; Overall GPA: 4.00

EXPERIENCE

Research Assistant. The Pennsylvania State University Department of Civil and Environmental Engineering, University Park, PA (12/03-Present)
- Research areas include: long-term groundwater monitoring, multiobjective optimization using evolutionary algorithms, spatiotemporal statistics, data visualization

Teaching Assistant. CE361: Engineering Hydrology. The Pennsylvania State University Department of Civil and Environmental Engineering, University Park, PA (9/03-12/03)
- Taught practicum portion of class which included lab exercises and practical hydrology applications
- Graded homework and held office hours for student assistance
- Administered exams and organized exam study sessions

Research Intern. Biogeochemical Research Initiative for Education (BRIE) Summer Research Program**.** Department of Civil and Environmental Engineering, Pennsylvania State University, PA (6/02-8/02 & 6/01-8/01)
- Designed and performed experiments to determine how electron shuttling and complexation enhance biological reduction of iron oxides by *Shewanella putrefacien*s strain CN32
- Prepared all needed reagents and biological reactors for use in experiments
- Maintained and prepared biological inoculums prior to the start of experiments
- Performed all experiments under anaerobic conditions

Research Assistant. Department of Biological Sciences. Youngstown State University. Youngstown, OH (1/01-10/01)
- Assisted graduate student with Master's Thesis work on Mahoning River sediment sampling and analysis
- Performed experiments related to dehydrogenase activity in sediments using iodonitrotetrazolium chloride

Research Associate. Center for Engineering Research and Technology Transfer (CERTT)**.** Youngstown State University, Youngstown, OH (6/00-3/01)
- Led solid waste assessments at local businesses and wrote assessment reports
- Revised the existing CERTT solid waste assessment database to improve usability
- Assisted in maintaining the Mahoning Valley Materials Exchange
- Developed innovative ways of reducing solid waste generation and disposal costs for businesses

Lab Assistant. Maag Library Computer Lab. Youngstown State University, Youngstown, OH (3/01-Present)
- In charge of laptop computer circulation and maintenance
- Assist students with computer, software, and printing problems
- Assist in maintaining computers, software, printers, and typewriters

ADDITIONAL EXPERIENCE	**Supplemental Coursework:** • Graduate: Spatial Statistics, Linear Algebra, Temporal Geographic Information Systems, System Optimization Using Evolutionary Algorithms • Undergraduate: Basic Logic Circuit Design, Basic Circuit Theory I & II, Three Circuit Design Labs; Programming and Problem Solving in C++, Data Structures; Professional and Technical Communications; Environmental Science, Microbial Ecology, Field Ecology (study abroad course in Costa Rica); Map Use and Interpretation **Computer Skills:** Microsoft Windows, Unix, Linux; Microsoft Word, Excel, Access, PowerPoint, FrontPage; Adobe Acrobat, Photoshop, Illustrator, PageMaker; Visual Basic, Visual C++; Fortran, AutoCAD, MatLAB, GSLIB, R, LaTeX.
PUBLICATIONS	Kollat, J.B., P.M. Reed. Comparing state-of-the-art evolutionary multi-objective algorithms for long-term groundwater monitoring design. *Advances in Water Resources*. 2005. In Press. Kollat, J.B., P.M. Reed. Scaling Analysis for Using Evolutionary Multi-Objective Algorithms in Long-Term Groundwater Monitoring Design. *Advances in Water Resources*. In Preparation. Wagener, T., Kollat, J.B., Numerical and Visual Evaluation of Hydrological and Environmental Models Using the Monte Carlo Analysis Toolbox. *Environmental Modeling and Software*. In Preparation.
CONFERENCE PROCEEDINGS	Kollat, J.B., P.M. Reed. The Value of Online Adaptive Search: A Performance Comparison of NSGAII, ε-NSGAII, and εMOEA. Third International Conference on Evolutionary Multi-Criterion Optimization. Guanajuato, Mexico. 2005. Kollat, J.B., Y. Tang, P.M. Reed. Salient Issues in Comparing Evolutionary Multiobjective Optimization Algorithms. *Proceedings of the ASCE World Water and Environmental Resources Congress*. Session: Evolutionary Computation, Methodological Advances and Theory I. Anchorage, Alaska. 2005. Kollat, J.B., P.M. Reed. Comparison of Multiobjective Evolutionary Algorithms for Long-Term Monitoring Design. *Proceedings of the ASCE World Water and Environmental Resources Congress*. Session: Frontiers of Groundwater Management, Long-term Groundwater Monitoring. Anchorage, Alaska. 2005.
HONORS AND AWARDS	Graduate Awards: Penn State College of Engineering Top-Up Fellowship 2003-2004 Undergraduate Awards: University Scholar Award(full scholarship), Barry M. Goldwater Scholarship Nominee, Search for Excellence Undergraduate Merit Award, NSF Technology Leaders Scholarship, Tau Beta Pi - Record Scholar; YSU Honors Convocation, Dean's List 1999-Present; Tau Beta Pi, Phi Kappa Phi, Delta Epsilon Iota, YSU Centurians
PROFESSIONAL SOCIETIES	American Society of Civil Engineers; National Ground Water Association