Curriculum Vitae – Rohit K. Tripathy

Personal Information

Rohit K. Tripathy
Apt. #534
272 Littleton Street
West Lafayette, IN 47906
USA
tel: +1-765-476-6988
email:rtripath@purdue.edu, rohitkt10@gmail.com

Summary

I am a graduate student in the School of Mechanical Engineering at Purdue University, West Lafayette, USA. I work at the Predictive Science Lab under the supervision of Prof. Ilias Bilionis. My research area is high dimensional Bayesian uncertainty quantification. I am currently a thesis option Masters student and expect to graduate in December 2015. I will begin my PhD with Prof. Bilionis starting January 2016.

Education

PhD in Mechanical Engineering from Purdue University (*January* 2016-*Present*).
Thesis advisor: Prof. Ilias Bilionis.
Courses: Uncertainty Quantification(*ME597*), Computational Methods in Optimization(*CS520*).

MS in Mechanical Engineering from Purdue University (*August* 2014-*December* 2015).
Thesis advisor: Prof. Ilias Bilionis.
Thesis title: Gaussian processes with built-in dimensionality reduction: Applications in high-dimensional uncertainty quantification.
Courses: Advanced Thermodynamics(*ME500*), Intermediate Fluid Mechanics(*ME509*), Numerical Methods in Mechanical Engineering(*ME581*), Finite Element and Boundary Element Methods(*ME681*), Computational Fluid Dynamics(*ME614*), Applied Decision Theory and Bayesian Statistics(*STAT529*), Advanced Math for Physicists and Engineers I(*MA527*), Atomistic view of Materials: Modeling and Simulation(*MSE697*)

B. Tech. in Mechanical Engineering from VIT University, Vellore, India (*July* 2010-*May* 2014).
Thesis advisor: Prof. Thundil Karuppa Raj.
Thesis title: A Numerical Investigation of the Performance of an Earth-Air Heat Exchanger System.

Research Interests Uncertainty Quantification, Probabilistic Numerical Methods, Bayesian Statistics, Machine Learning, Molecular Dynamics, Atomistic Simulations.

Research Experience

***September* 2014 - Present**→ Graduate Research Assistant, Purdue University,

West Lafayette

- Worked under the supervision of Prof. Ilias Bilionis at the Predictive Science Lab.
- Worked on developing a novel gradient-free approach to dimensionality reduction in high-dimensional physical responses that exhibit special structure called 'active subspace'.
- Developed `Python` codes to implement and test the proposed methodology.
- Exhaustively validated the methodology with numerical examples as well as a physical example involving uncertainty propagation in a high dimensional granular crystals system.

Publications (Conferences)

Gonzalez, M., Bilionis, I., Tripathy R., (2015). *Uncertainty quantification in multi-dimensional granular crystals for robust performance*. ASM Applied Mechanics and Materials Conference, Seattle, WA, USA.

Bilionis, I., Tripathy R., (2015). *High-dimensional uncertainty propagation: A Bayesian approach using Gaussian processes with build-in dimensionality reduction*. ASME Verification and Validation Symposium, Las Vegas, NV, USA.

Publications (Journals)

R. Tripathy, S. Mishra, R. T. Karuppa Raj, "*A Numerical Investigation on the Performance of an Earth Air Heat Exchanger System for the Indian District of Nagpur*", Applied Mechanics and Materials, Vols. 592-594, pp. 1398-1402, Jul. 2014

Publications (Pre-prints)

R. Tripathy, I. Bilionis, M. Gonzalez, "*Gaussian processes with built-in dimensionality reduction: Applications in high-dimensional uncertainty propagation*"(http://arxiv.org/abs/1602.04550)

Technical Skills

Programming Skills `Python`, `MATLAB`, `C`, `Java`

Version Control git, subversion

Commercial Engineering Software Solidworks, ANSYS

Text editing vim, LaTeX

Organizations / Professional Membership

- Society of Industrial and Applied Mathematics - Student Member(*August* 2015 - *Present*)
- Society of Industrial and Applied Mathematics(Purdue Chapter)
- Purdue Graduate Student Government - Academic and Professional Development Committee(*August 2014 - Present*)

Industrial Work experience

***December* 2012**→ Trainee at Scooters India Limited in Lucknow, India.
Worked on a project entitled "*Complete Manufacturing and Assembly of a reverse gear sprocket*". This project involved studying various stages involved in the manufacturing of a reverse gear sprocket and its eventual assembly into a typical Indian 3 wheeler auto-rickshaw.

***June* 2012**→ Vocational Trainee at Hindustan Aeronautics Limited-Transport Aircraft Division in Kanpur, India.
As a vocational trainee at HAL's Transport Aircraft division in Kanpur, I was given a hands on experience in the operations of various departments within the factory including the Dornier shop, the loom shop, the hydraulics shop, the machining lab, the sheet metal and production lab, the CAD/CAM lab and the hydraulics and rotatables lab.

Online Links

LinkedIn → http://tinyurl.com/p4myxe8

Bitbucket → https://bitbucket.org/rohitkt10/

GitHub → https://github.com/rohitkt10/

Predictive Science Lab → http://www.predictivesciencelab.org/