

## Farshad Abedinsohi

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### Who Am I:

I am a senior risk analyst who is specialized in risk assessment and risk management of mega project, reliability engineering of large industrial installations as complex as nuclear power plants, evaluating the probabilistic economic/financial outcome of projects based on decisions made and risks involved, and finally making recommendation to either mitigate or lessen the risks.

I am an Engineer/ Mathematician who has substantial educational background (PhD level) and extensive work experience in engineering and project management as well as in vigorous probabilistic modeling and statistical analysis, both classical statistics and Bayesian data analysis.

I transform problems in real world into mathematical models, take into account the influencing deterministic and probabilistic (aleatory and/or epistemic) parameters, apply computational methods such as simulation, optimization, utility theory, forecasting, time series, Bayesian statistics and a variety of Reliability Engineering tools and techniques on the model, and finally convert the results into an optimal decision for the real problem at hand to help manage or mitigate the risks involved.

My PhD dissertation is the longest and one of the most thorough one in the United States (580 pages) since 1976 which reviews the philosophy, mathematical bases, societal risk criteria, and probabilistic risk analyses (PRA) of nuclear power plants since its early days in 1954 and reveals the challenges of recent use of such criteria in various disciplines of engineering. My dissertation addresses the societal risks resulting from natural hazards and man-made catastrophes and proposes a revision to these criteria in the US. I was trained in the field of Risk-Based Decision Analysis by one of the most famous living risk analysts in the US, Dr. Gregory Baecher, a member of science committee of the US Congress. I also worked for his company, Saffron Systems, as senior risk consultant, for 5 years. Moreover, on a regular basis, I was getting consultation and advice from Dr. George Apostolakis (the sitting US Nuclear Regulatory Commissioner, USNRC, at the time) and Dr. B. John Garrick who was the living father of probabilistic risk analysis (PRA) of nuclear power plants till 2020. He was the one who defined the term RISK in 1981 for the first time as it is used today in various disciplines.

During my academic studies, I had the honor to learn probabilistic modeling, Monte Carlo Simulation, and Stochastic processes (PhD level) from Dr. Michael Fu of University of Maryland, College Park, R.H Smith business school who is very well respected in his field. Moreover, I had the opportunity to learn Artificial Intelligence, Bayesian Statistics, and Bayesian Networks (PhD Level) from Dr. Kathryn Laskey of George Mason University who is extremely prominent in the field of Artificial Intelligence.

I currently teach Reliability Engineering and Risk-Based Decision analysis to undergraduate senior and graduate students in CalPoly Pomona university as an adjunct professor.

### Why Me:

Unlike many other risk analysts that acquired the how-to and techniques through projects they performed at some point in their professional career, I had made my decision to become a Risk-Based Decision Analyst first as the reason and the base of my graduate studies. What I achieved academically as well as professionally and the different directions I pursue to gain experiences were all means to thrive and build on this main core. In short: I KNOW HOW TO MAKE DECISIONS UNDER UNCERTAINTY.

### Core Analytical and Engineering Competence:

- Mega-Projects' Risk Assessment, Quantitative Risk Analysis, Planning Risk Response, Monitoring, Controlling, and Mitigation
- Facilitating and Conducting Project Risk Workshops, Multi-Disciplinary Subject Matter Expert Judgment Elicitation, Identify Various Biases (Structural, Motivational, and Cognitive) and Implementing Debiasing Techniques
- Integrated Cost and Schedule Risk Analysis for Transportation Infrastructures (\$50MM+ to \$3.5B, \$27B Total)
- Integrated Cost and Schedule Risk Analysis for Oil and Gas Mega-Projects (From \$50MM+ to \$5.8B)
- Monte Carlo Simulation, Rare Event Simulation, and Modeling of Risk from Natural Hazards & Man-Made Catastrophes
- Decision Analysis; Decision Tree, Influence Diagrams, and Utility Theory
- Reliability Engineering, Probabilistic Risk Assessment (PRA) /Risk Management
- PRA, CRA, Event Tree, Fault Tree, PHA, Root Cause Analysis... and other Reliability Eng. Techniques
- Artificial Intelligence, Bayesian Statistics, Bayesian Networks, Dynamic Bayesian Networks
- Modeling the Societal Risk for Dams and Levee system Failures, Nuclear Powerplants, and Chemical Plants in the US
- Management of Societal Risk from Natural Hazards & Man-Made Catastrophes
- Risk-Based Decision-Analysis and Risk Assessment for Mega Projects such as Oil & Gas On-Shore/Off-Shore Megaprojects and Transportation Infrastructure
- Economic Modeling of Long-Term Contracts (Specifically Service Contracts)
- Operations Research, Linear and Non-Linear Optimization, Probabilistic Optimization
- Data Analytic, Data mining, Regression Analysis, Time Series Analysis, and Forecasting
- Oil & Gas Onshore and Off-Shore, and Nuclear Power Plants Reliability Assessment
- Geotechnical Engineering and Geologic Assessment. Projects include dams and levees, mines, landfills, brownfield redevelopments, infrastructure projects as well as conventional geotechnical engineering projects, and forensic services and peer review services.
- Project Management, Project Scheduling & Cost Control, Earned Value Management
- Monte Carlo Simulation: @RISK, PRIMAVERA RISK ANALYSIS (PRA), ORACLE CRYSTAL BALL, SAFRAN, SIMULINK, GOLDSIM, SIMIO
- Data Analytic: R, SAS, SQL, Python, Matlab, Mathematica, Microsoft Access,
- Statistics: UNBBAYES, NETICA by Norsys, GENIE, HUGIN, AGENA, BUGS (BAYESIAN INFERENCE USING GIBBS SAMPLING)
- Optimization Software: GAMS, LINGO, LINDO, CPLE

# Farshad Abedinisohi

## Education:



### Doctor of Philosophy

2007- 2014

Risk Based Decision Analysis  
Department of Civil and Environmental Engineering  
University of Maryland College Park/MD



### Master of Science

2001-2002

Project Engineering and Management  
Department of Civil and Environmental Engineering  
Stanford University/ CA



### Master of Science

1999-2001

Geotechnical Engineering  
Department of Civil and Environmental Engineering  
Sharif University of Technology



### Bachelor of Science

1994-1999

Civil & Environmental Engineering  
Sharif University of Technology

## Professional Experience:



### Adjunct Professor

Fall 2022- Spring 2023

#### CalPoly Pomona, Pomona, CA

- Project Risk Analysis
- Reliability Engineering
- Statistics
- Decision Theory



### Senior Risk Consultant

Jun. 2020 – Present

#### EnRisk, LLC, Irvine, CA

- Cost and Schedule Risk Analysis
- Directing, managing, and coordinating the development and implementation of robust and best practice for a comprehensive risk management plan for Oil & Gas, Utility and other mega projects' capital programs.
- Conducting project risk analysis and risk mitigation, baseline cost and schedule contingency analysis using risk simulation and modeling tools such as Primavera Risk Analysis, @ Risk, Crystal Ball, ModelRisk, and Safran
- Facilitating and conducting project risk workshops, Subject Matter Expert Judgment Elicitation, Identifying Biases (Structural, Motivational, and Cognitive) and Debiasing
- Providing training and technical expertise and assistance as needed on policies and procedures related to area of assignment.

# Farshad Abedinisohi



## **Risk Program Manager**

**Sound Transit, Seattle, WA**

**Feb. 2019-Apr. 2020**

- Cost and Schedule Risk Analysis
- Establish methodology on how the Agency will identify and quantify project risks.
- Implementing and tracking risk response activities, and monitoring and controlling risks throughout the life of the program.
- Conducting project risk analysis and risk mitigation, baseline cost and schedule contingency
- Analysis using risk simulation and modeling tool.
- Managing and coaching agency staff and coordinating work activities and work products of assigned staff, consultants, and contractors.
- Providing training and technical expertise and assistance as needed on policies and procedures
- Managing consultants and consultant contracts relating to risk assessments and value engineering



## **Sr. Analyst in Risk Assessment, Negotiation Team Member**

**Advisor to the Vice Minister of Iran's Ministry of Petroleum**

**Jul. 2017-Feb. 2019**

**Ministry of Petroleum, Tehran, Iran**

- Cost and Schedule Risk Analysis
- A Member of Upstream E&P Contract Negotiation Team for Contracts with International Oil Companies
- Mathematical Modeling to Evaluate the Project Cost, Schedule, Financial, and Economical Risk for each IPC (Iranian Petroleum Contracts) with International Oil Companies such as Total, Maersk Oil, CNPC, Lukoil, Wintershall, OMV
- Integrated Cost and Schedule Risk Analysis of Ongoing National Oil and Gas Mega Projects such as South Azadegan, FPSO (Floating Production Storage and Offloading), and Phase 14 Off-Shore Platform
- Creating, Updating, and Communicating Technology (Tech) Transfer Deliverables



## **Adjunct Professor**

**Sharif University of Technology, Tehran, Iran**

**Jul. 2017- Feb. 2019**

- Risk- Based Decision Analysis (Graduate Level)



## **Senior Risk Analyst**

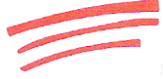
**Dec. 2014- Jun. 2017**

**Enbridge, Houston, TX**

- Cost and Schedule Risk Analysis
- Conducting project risk analysis and risk mitigation, baseline cost and schedule contingency analysis using risk simulation and modeling tools such as Primavera Risk Analysis, @ Risk, and Crystal Ball
- Conducting risk assessments primarily using Monte Carlo simulations runs and preparing reports for review with project and senior management
- Facilitating large Expert Opinion Elicitation (EOE) workshops with project team members
- Facilitating the development of preventative and mitigative measures to address project portfolio risks

# Farshad Abedinisohi

Saffron'Systems



**Risk Based Decision Analyst**

**Sep. 2009- Nov. 2014**

**Saffron Systems Consulting, Washington DC**

- Mathematical Modeling, Data Analysis, Statistical Inference, Bayesian networks, (Spatio-Temporal) Dynamic Bayesian Networks, Monte Carlo Simulation for Risk-Based Decision Analysis for consultation to US federal agencies and private clients, Rare Event Simulation,
- Projects include modifying societal risk criteria in nuclear industry and other engineering disciplines, expert judgment elicitation, risk analysis of civil infrastructures, Bayesian networks in dam and levee safety, estimating loss of life, rare event simulation of dam failures, and fragility curves
- International Committee of Large Dams (ICOLD), US Army Corps of Engineers (USACE), Ontario Power Generation, British Columbia Hydro, Panama Canal Authority, Vattenfall, Kleinfelder



**Project Manager**

**Oct. 2004- Aug. 2007**

**Iran Conceh Construction Company, Tehran, Iran**

- Project planning, scheduling, and control of two high-rise residential buildings
- 23 Story Concrete Structure, 26 Story Steel Structure



**Design Engineer**

**Jan. 2001- Aug. 2004**

**FBA Structural Engineers, Hayward/ CA**

- Engineering Design of Structural Elements; Structural damage assessment in San Francisco and San Mateo

## References:

Dr. Gregory Baecher (Risk-based Decision Analysis)

Professor, Department of Civil and Environmental Engineering, University of Maryland, College Park

Phone: (202) 285-3902; Email: [gbaecher@umd.edu](mailto:gbaecher@umd.edu)

Dr. Ali Mosleh (Reliability, Mechanical, and Aerospace Engineering)

Distinguished Professor, UCLA Samueli School of Engineering, University of California, Los Angeles (UCLA)

Phone: (443) 413-5775; Email: [mosleh@ucla.edu](mailto:mosleh@ucla.edu)

Dr. Michael Fu (Stochastic Processes, Simulation, and Queueing Theory)

Professor of Management Science, Department of Decision, Operations & Information Technologies

University of Maryland, College Park; Phone: (301) 405-2241; Email: [mfu@rhsmith.umd.edu](mailto:mfu@rhsmith.umd.edu)

Dr. Kathryn Blackmond Laskey (Bayesian Data Analysis and Graphical Probability Modeling)

Professor, Department of Systems Engineering and Operations Research; George Mason University

Phone: (703) 993-1644; Email: [klaskey@gmu.edu](mailto:klaskey@gmu.edu)

Dr. Amir Kashani (EnRisk)

Managing Partner, Program Risk Manager at EnRisk

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Dr. Kamran Hazini (Sound Transit)

Deputy Director of Risk

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Cowanetta Armstrong (Enbridge; Spectra Energy)

Risk Assessment Manager at Spectra Energy

Phone: (713) 857-0444; Email: [CBArmstrong@spectraenergy](mailto:CBArmstrong@spectraenergy)

Dr. Gholamreza Manouchehri (National Iranian Oil Company; NIOC)

Vice Minister of Iran's Ministry of Petroleum

Phone: +98 912 197 5358; Email: [r.manouchehri@nioc.ir](mailto:r.manouchehri@nioc.ir)