

**NICHOLAS J. GAUL, Ph.D., Chief Operations Officer**  
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**RAMDO Solutions, LLC**  
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### **Professional Preparation**

B.S.	Mechanical Engineering	The University of Iowa	2002-2006
M.S.	Mechanical Engineering	The University of Iowa	2007-2008
Ph.D.	Mechanical Engineering	The University of Iowa	2008-2014

### **Societies**

- ASME
- AIAA
- Pi Tau Sigma (PTS)

### **Computer Software and Hardware Experience**

#### **Engineering Software**

- HyperMesh
- ANSYS
- Virtual.Lab
- PTC – Pro Engineer
- Abaqus

#### **Computer Programming Languages & Software**

- Matlab
- Linux Shell Scripts
- VBA
- VMware Workstation
- Tickle (TCL)/TK
- Visual Basic
- Microsoft Visual Studio
- Mathematica
- C/C++
- Java
- Fortran

#### **High Performance Computing (HPC) Systems**

- Creating and compiling custom parallel code to run on HPC systems.
- Creating job scripts for submitting and running jobs for both custom software and commercial software packages.
- Creating, loading, running research code and running commercial software on:
  - The University of Iowa's HPC system.
  - U.S. Army Tank Automotive Research, Development & Engineering Center's (TARDEC) HPC system.
  - Army Research Laboratory's (ARL) HPC system.

### **Work Experience**

**Chief Operations Officer**                      *RAMDO Solutions, LLC*                      Jan 2014 – present

- All roles of a typical COO.
- Lead developer and oversee all of the software development.

**Research Assistant**                      *The University of Iowa*                      Aug 2005 – Dec 2013  
*Center for Computer Aided Design*

- Research Interest: Reliability Based Design Optimization (RBDO)
- Integrated together seven Ph.D. research codes into one reliability-based design optimization (RBDO) code called I-RBDO. All the code was written in a combination of Matlab and Fortran.
- Created a graphical user interface (GUI), using TCL/TK for the I-RBDO code.
- Created 'black-box' codes to integrate I-RBDO to other CAE software tools.

**Visiting Research Assistant**                      *U.S. Army Tank Automotive Research, Development & Engineering Center (TARDEC)*                      May 2012 – Aug 2012

- Worked with TARDEC engineers and IT to load I-RBDO onto TARDEC's HPC system.
- Trained engineers how to use the I-RBDO software to solve their reliability problems.
- Trained engineers how to submit I-RBDO jobs to the HPC system.
- Created 'black-box' codes to link I-RBDO to CAE software and submit CAE jobs to the HPC.

**Engineer Intern**                      *Engineering Innovation*                      May 2006 – Aug 2006

- Designing parts or components for various projects.
- Tech support for Pro Engineer by phone, email, and remote connection.
- On site tech support for 3D printer.

**Engineer Intern**

*Allsteel*

May 2005 – Aug 2005

May 2004 – Aug 2004

- Engineering Change Request (ECRs).
- Print releases to manufacturing factory.
- Design changes related to cost savings and/or quality improvements.

**Publications**

Hardin, R.A., Choi, K.K., Gaul, N.J., Beckermann, C., “Reliability-Based Casting Process Design Optimisation,” *International Journal of Cast Metals Research*, under review, 2014.

Volpi, S., Diez, M., Gaul, N.J., Song, H., Lemma, U., Choi, K.K., Campana, E.F., Stern, F., “Development and Validation of a Dynamic Metamodel Based on Stochastic Radial Basis Functions and Uncertainty Quantification,” *Structural and Multidisciplinary Optimization*, DOI 10.1007/s00158-014-1128-5, 2014.

Choi, K.K., Gaul, N.J., Song, H., Cho, H., Lamb, D., and Gorsich, D., “Iowa Developed Reliability-Based Design Optimization (I-RBDO) - Technology Transfer,” Modeling & Simulation, Testing and Validation (MSTV) Mini-Symposium, *2014 NDIA Ground Vehicle Systems Engineering and Technology Symposium*, August 12-14, 2014, Novi, MI.

Li, H., Sugiyama, H., Gaul, N., and Choi, K.K., “Analysis of Wind Turbine Drivetrain Dynamics under Wind Load and Axial Misalignment Uncertainties,” *The 3<sup>rd</sup> Joint International Conf. on Multibody System Dynamics*, June 30-July 3, 2014, Busan, Korea.

Choi, K.K., Gaul, N., Song, H., Cho, H., Lee, I., Zhao, L., Noh, Y., Youn, B., Lamb, D., and Gorsich, D., “Development of Reliability Analysis and Multidisciplinary Design Optimization (RAMDO) & Applications,” *Technical Keynote Presentation, SAE Reliability and Robust Design in Automotive Engineering, 2014 World SAE Congress*, Detroit, MI, April 8, 2014.

Hu, W., Choi, K.K., Gaul, N.J., Cho, H., and Zhupanska, O., “Reliability Analysis of Wind Turbine Blades for Fatigue Life under Wind Load Uncertainty,” *12<sup>th</sup> AIAA Aviation Technology, Integration, and Operations (ATIO) Conference and 14<sup>th</sup> AIAA/ISSM Multidisciplinary Analysis and Optimization Conference*, September 17-19, 2012, Indianapolis, IN.

Choi, K.K., Gaul, N., Song, H., Cho, H., Lee, I., Zhao, L., and Noh, Y., “Integrated Reliability-Based Design Optimization Software System I-RBDO,” *7<sup>th</sup> China-Korea Joint Symposium on Optimization of Structural and Mechanical Systems (CJK-OSM)*, June 18-22, 2012, Huangshan, China.