

# Kartik JOSYULA

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🌐 [kartikjosyula.wordpress.com](http://kartikjosyula.wordpress.com) | 🎓 [Scholar Profile](#) | 🔗 [LinkedIn Profile](#)

## EDUCATION

AUG 2012 ONGOING	Ph.D. (Mechanical Engineering) <b>Rensselaer Polytechnic Institute</b> , Troy, NY USA Thesis: A Computational Investigation of the $\alpha$ - $\gamma$ Phase Transformation in 1,3,5-Trinitroperhydro-1,3,5-triazine   Advisor: Dr. Suvranu De	CGPA: 4.0/4.0
AUG 2004 MAY 2009	M.Tech. (Mechanical Engineering) ( <i>Dual Degree</i> ) <b>Indian Institute of Technology Madras</b> , Chennai INDIA Thesis: Finite Element based Optimization of Mechanical Structures   Advisor: Dr. N. Ganesan	CGPA: 8.66/10.0
AUG 2004 MAY 2009	B.Tech. (Mechanical Engineering) ( <i>Dual Degree</i> ) <b>Indian Institute of Technology Madras</b> , Chennai INDIA	CGPA: 8.66/10.0

## RESEARCH INTERESTS

My research focus is the *Computational Modeling* of the *Nonlinear Mechanics* of materials. I am interested in simulating the *Thermomechanical Response* of materials undergoing complex physical phenomena at the *Atomistic*, *Meso*, and *Continuum* scales by formulating appropriate *Constitutive Models* and applying efficient *Numerical Techniques*. My ongoing research is on developing material models and simulation methodology at atomistic and continuum scales to describe the thermomechanical behavior of materials undergoing phase transformation under static and high strain rate loads.

## JOURNAL PUBLICATIONS

- 3 [Kartik Josyula](#), Rahul, and Suvranu De. **A level set approach for shock-induced  $\alpha$ - $\gamma$  phase transition of RDX**. Computational Mechanics. (*Invited Paper*) DOI: 10.1007/s00466-017-1493-1.
- 2 [Kartik Josyula](#), Rahul, and Suvranu De (2016). **Quasi-static response and texture evolution of  $\alpha$ - and  $\gamma$ -RDX: a comparative study**. Philosophical Magazine 96(17), 1790-1808.
- 1 [Kartik Josyula](#), Rahul, and Suvranu De (2014). **Thermomechanical properties and equation of state for the  $\gamma$ -polymorph of hexahydro-1, 3, 5-trinitro-1, 3, 5-triazine**. RSC Advances 4(78), 41491-41499.

## CONFERENCE PUBLICATIONS

- 3 [Kartik Josyula](#), Rahul, and Suvranu De (2017). **A thermodynamically consistent level set approach for shock-induced  $\alpha$ - $\gamma$  phase transition of RDX**. In 14th U.S. National Congress on Computational Mechanics. Montreal, Canada. (*podium presentation*).
- 2 [Kartik Josyula](#), Rahul, and Suvranu De (2016). **In silico study of the  $\alpha$ - $\gamma$  phase transformation of hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) under hydrostatic loading**. In 2016 Materials Research Society Fall Meeting. Boston, MA. (*podium presentation*).
- 1 [Kartik Josyula](#), Rahul, and Suvranu De (2015). **Thermomechanical properties and equation of state of  $\gamma$ -RDX**. In 13th U.S. National Congress on Computational Mechanics. San Diego, CA. (*podium and poster presentation*).

## CORE SKILLS

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FOCUS AREAS	Nonlinear Computational Mechanics, Continuum Mechanics, Constitutive Modeling, Crystal Plasticity, Statistical Mechanics, Level Set Method, Phase Field Method
NUMERICAL METHODS	Finite Element Analysis, Finite Difference Schemes, Molecular Dynamics Simulation, Iterative Linear & Nonlinear Solvers
LANGUAGES & TOOLS	C++, ANSYS, Abaqus, NX, LAMMPS, AutoCAD, Pro/ENGINEER, MATLAB
SOFTWARE PROFICIENCY	ETL Process, Data Warehousing, Business Analytics, SQL, PL/SQL, Shell Scripting, Oracle Database, Informatica, Oracle BI

## RESEARCH & TEACHING EXPERIENCE

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JAN 2017 - JUL 2017 MAY 2016 - JUL 2016 MAY 2015 - JUL 2015 AUG 2012 - JUL 2014	Graduate Research Assistant CENTER FOR MODELING, SIMULATION, & IMAGING IN MEDICINE Rensselaer Polytechnic Institute, Troy, NY USA
AUG 2017 - DEC 2017 AUG 2016 - DEC 2016 AUG 2015 - DEC 2015 AUG 2014 - DEC 2014	Graduate Teaching Assistant Course: INTRODUCTION TO FINITE ELEMENTS Rensselaer Polytechnic Institute, Troy, NY USA
JAN 2018 - MAY 2018 JAN 2016 - MAY 2016 JAN 2015 - MAY 2015	Graduate Teaching Assistant Course: MODELING AND CONTROL OF DYNAMIC SYSTEMS Rensselaer Polytechnic Institute, Troy, NY USA

## PROFESSIONAL EXPERIENCE

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JUN 2009 JUN 2012	<b>Business Technology Analyst</b> DELOITTE CONSULTING INDIA PVT. LTD., Hyderabad, INDIA Data warehousing, ETL processing, and Business analytics design and development for clients in the Healthcare and Financial Services sectors
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## INTERNSHIPS

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MAY 2008 JUL 2008	Summer Intern PROCESS ENGINEERING INNOVATION LAB   Mentor: Dr. B. P. Gautham Tata Research Development and Design Centre, Pune, INDIA Application of Multidisciplinary Design Optimization in Mechanical Systems
MAY 2007 JUL 2007	Summer Intern CENTRE FOR PRODUCT DESIGN AND MANUFACTURING   Mentor: Dr. Anindya Deb Indian Institute of Science, Bangalore, INDIA Finite Element Analysis of Structural Problems using ANSYS, MATLAB

## OUTREACH

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- Treasurer of the GradISA organization at Rensselaer Polytechnic Institute, Troy NY, 2013-2015.
  - Organized transportation to the town and temporary accommodation for new Indian graduate students admitted to the university.

- Organized Indian festival celebrations and other recreation days for the Indian graduate student community.
- Volunteered to organize a recreation day for the staff and their families as part of *Impact Day* activities at Deloitte Consulting India Pvt. Ltd., Hyderabad INDIA in 2011.
- Volunteered to organize awareness programs on health, education etc. at a nearby village as part of *Impact Day* activities at Deloitte Consulting India Pvt. Ltd., Hyderabad INDIA in 2010.

## AWARDS

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1. USACM Travel Award in July 2015 to attend the 13th U.S. National Congress on Computational Mechanics.
2. Applause Award in 2012 for striving to innovate and to motivate the project team in Deloitte Consulting India Pvt. Ltd., Hyderabad INDIA.
3. Team Terrific Award in 2011 for good performance as a team in Deloitte Consulting India Pvt. Ltd., Hyderabad INDIA.
4. Half-Time Teaching Assistantship (HTTA) awarded during Dual Degree program for Aug 2008 - May 2009 at Indian Institute of Technology Madras, Chennai INDIA.
5. Member of the Material Management Team in *Mechanica* 2005, a Mechanical Engineering Department technical festival at Indian Institute of Technology Madras, Chennai INDIA.
6. Pratibha Award in 2004 from the Government of Andhra Pradesh, INDIA for securing admission into a premier institute to study engineering.